MENTAL HEALTH CHALLENGES IN ELITE SPORT: BALANCING RISK WITH REWARD

EDITED BY: Tadhg Eoghan MacIntyre, Judy Van Raalte, Britton W. Brewer, Marc Jones, Deirdre O'Shea and Paul Joseph McCarthy

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MENTAL HEALTH CHALLENGES IN ELITE SPORT: BALANCING RISK WITH REWARD

Topic Editors:
Tadhg Eoghan MacIntyre, University of Limerick, Ireland
Judy Van Raalte, Springfield College, United States
Britton W. Brewer, Springfield College, United States
Marc Jones, Staffordshire University, United Kingdom
Deirdre O'Shea, University of Limerick, Ireland
Paul Joseph McCarthy, Glasgow Caledonian University, United Kingdom

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Elite sport typically provides obvious rewards in terms of recognition, finance and acclaim for athletic performance. Increasingly, we are becoming aware of the risks that elite athletes, their entourage, including families, sport-science support team and coaches are exposed to. Twelve original articles, seven commentaries and a corrigendum, are structured in a five chapter format. Chapter 1, comprising the Editorial is titled "An Overview of Mental Health in

Elite Sport: Changing the Play Book" to reflect the advocacy role of this article. Chapter 2 ("Finding the Sweet Spot") amplifies the voice of key stakeholders across three qualitative studies with three additional commentaries. Quantitative evidence is presented in Chapter 3 which has the sub-title the "State of Play." Chapter 4, entitled the "Field of Play" includes three original publications which present contrasting conceptual approaches to guide researchers in hypothesis generation, formulation and implementation science. Finally, in Chapter 5, "Seeing the Ball Early" prospective perspectives are provided in three publications reinforced by two commentaries. The future thinking ideas includes the use of virtual reality training, a broadening of the concept of mental health literacy, tackling stigma and focusing on the potential positive effect of the natural environment on well-being and recovery.

To date the research topic has generated widespread in the field. For example, several articles have generated an Altmetric score above 40 with one publication meriting an Altmetric score of 102. We envisage that the impact of this e-book will not simply be measured in citations, views, downloads nor social media impact, but in the discourse that emerges from this collection of contributions from a combined total of 53 authors from across three continents. It is our hope that this e-book, providing a snapshot of global challenges for elite athletes mental health and well-being, becomes a touchstone for researchers and practitioners in the field.

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Table of Contents

CHAPTER 4: PARADIGMS, THEORIES AND CONCEPTS: THE FIELD OF PLAY

CHAPTER 5: PERSPECTIVES ON PREVENTION: SEEING THE BALL EARLY

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EDITORIAL
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Editorial: Mental Health Challenges in Elite Sport: Balancing Risk with Reward

Tadhg E. MacIntyre[1], Marc Jones[2], Britton W. Brewer[3], Judy Van Raalte[3], Deirdre O'Shea[4] and Paul J. McCarthy[5]*

[1] Health Research Institute, University of Limerick, Limerick, Ireland, [2] Centre for Sport, Health and Exercise Research, Staffordshire University, Stoke-on-Trent, United Kingdom, [3] Department of Psychology, Springfield College, Springfield, IL, United States, [4] Department of Personnel and Employment Relations, University of Limerick, Limerick, Ireland, [5] School of Health and Life Sciences, Glasgow Caledonian University, Glasgow, United Kingdom

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The Editorial on the Research Topic

Mental Health Challenges in Elite Sport: Balancing Risk with Reward

Mental health is a global societal challenge. Sport, more specifically, elite sport, offers a potential window into the mental health challenges of young people. We initiated this research topic by proposing that explanations for mental health disturbance in sport predominantly based on training load (e.g., mental health model, Raglin, 2001), overlooked the potential organizational stressors in the high performance sport environment and did not adequately account for sport-related issues, including the consequences of injury, for non-normative transitions out of sport (Brewer and Redmond, 2017). In parallel with articles published in this research topic, recent research has advanced our knowledge of the prevalence of psychological disorders in elite sport, highlighting mental health issues among elite sport performers (e.g., Rice et al., 2016; Gouttebarge et al., 2017; Hagiwara et al., 2017). In light of this contemporary research, the present research topic on "Mental health challenges in elite sport: Balancing risk with reward" in Frontiers in Psychology makes a contribution with 17 articles comprising original research, reviews, perspective features, and an abundance of commentaries on this important topic. Depression was a foremost concern highlighted in the articles included in this research topic, which was investigated with novel methodological approaches.

Three papers considered depression amongst athletes and sports performers. Newman, Howells, and Fletcher considered the depressive experiences of elite sports performers using autobiographical approaches, a narrative approach adopted previously in resilience research (Morgan et al., 2015). Beyond the novel method, the article opened up new avenues of insight regarding the temporal and reciprocal relationship between depression and sports performance. The findings demonstrated that the reciprocal relationship between depression and sports performance changes over time; initially while sport may offer an escape from depressive symptoms, over time the demanding nature of sports can shift the relationship from facilitative to debilitative. This highlights the importance of considering both positive and negative aspects of sports engagement, particularly if success in sports is relied upon for increasing one's self-worth. An insightful paper by Males reinforced the caution expressed by Newman et al. that any analysis of retrospective accounts particularly, with a ghost writer, may lead to an embellished narrative. Furthermore, Males notes that practitioners are often faced with a dilemma in dealing with performers; should they focus primarily on performance enhancement or should well-being

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Guy Cheron,
Free University of Brussels, Belgium

****Correspondence:***
Tadhg E. MacIntyre
tadhg.macintyre@ul.ie

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be the priority? This issue for consultants has ramifications for the training of practitioners, raising the question as to whether models of training should encompass counseling skills.

A similar qualitative approach by Doherty et al. provides insights into the experience of depression during the careers of elite male athletes. Their findings reveal the link between an overly strong athletic identity, the public evaluation of performance, and an almost obsessive drive and will to win. The findings also demonstrate the less than helpful masculine environment of elite sport in contributing to depression. The experience of depression among males was not dissimilar to the manifestation of depression in men more generally, including feeling of failure, shame, global negative self-evaluation, and a perception that depression was not acceptable. More specific to their environment, it was also associated with overtraining and efforts to display mental toughness. Finally, this paper shed light on some of the maladaptive and adaptive processes of recovery. Overtraining to the extent that it could be considered self-harm appeared as a maladaptive coping strategy, while accepting and expressing one's real self, and broadening one's self of identity beyond the sports domain emerged as adaptive coping responses. In the commentary by Ringland, the "primacy of performance over the person" in elite sport systems was highlighted and the sporting vernacular which includes terms like "mental toughness" is a barrier to disclosure and may inhibit help seeking behavior (Bauman, 2016). Engaging multi-disciplinary support teams in supporting athletes well-being and preventing mental health in an integrated fashion was an interesting suggestion that would resonate across this topic. Arvinen-Barrow in their commentary reiterated the idea that professionals working in elite sport need to know their athletes and appreciate the triggers of psychological distress. Furthermore, this authors calls for more research from a biopsychosocial perspective with the entourage (i.e., everyone who has an influence on an athletes' performance—on and off the field of play).

Nixdorf et al. sought to understand the higher propensity to depression in individual sports compared to team sports. The findings of their cross-sectional study with almost 200 participants revealed that a negative attribution of failure mediated the relationship between individual sports and depression, but interestingly team cohesion showed no relationship. Elbe and Nylandsted-Jensen echo the conclusions of this article on the role of negative perfectionism in predisposing young athletes to depression. They highlight that the field of sport psychology beginning to address mental health through initiatives including position statements on mental health in sport (MHS) (Schinke et al., 2017). Longitudinal studies are recommended as a pathway to elucidating the causal factors of depression in sport and appraisal should be among the variables subject to measurement (Cumming et al., 2016).

Sport-injury was another topic among the contributions to the research topic. Our understanding of both the prevalence of sport injuries and their consequences have only recently come to the fore in elite sport settings. Most research to date has focused on the impact of injury on an individual player, but the impact of injury as a form of player attrition on remaining players in a team has received less attention. Hurley reflects on the 2015 Rugby World cup, suggesting that support staff may play a key role in helping teams cope with injury to key players, avoiding emotional contagion and the commensurate risk to performance stability.

Hill et al. examine the role of mental health and clinical issues within talent development, particularly focusing on young athletes and the need for early intervention. They conducted qualitative interviews with eight clinicians. Among the findings from a thematic analysis was that protective factors were social in nature, and risk factors include a lack of understanding and awareness of clinical issues. Their findings identified a distinct need for improved identification and interventions strategies, particularly amongst coaches.

These papers identified a number of limitations and shortcomings in the way in which mental health issues have been researched and addressed in practice. To comprehensively examine this, Uphill et al. provide a critical review of the manner in which mental health has traditionally been examined in sports players. They note the predominance of research which has focused on the language of mental illness, and how this has contributed to stigmatization and a reluctance on the part of athletes to seek help when needed. They draw on Keyes's (2002) two continuum model, which conceptualizes mental health and mental illness as two distinct continua (rather than two ends of a single continuum) to demonstrate that refocusing on mental health as a conceptual space that encapsulates both distressing and flourishing experiences can go some way toward alleviating the stigma traditionally associated with mental health. This review presents an important benchmark to the field regarding the way in which the approach to mental health issues should change going forward. Uphill et al. also comment on the ways in which we can intervene to either reduce the prevent mental distress, or to develop and protect flourishing. A similar viewpoint is expressed by Roberts et al. in their reflection on the relationships between performance enhancement and common mental disorders in the UK athletic population. They advocate that the field of applied sport psychology need to evolve to ensure that it continues to meet the demands of its clients beyond issues of performance enhancement.

An alternative account is proposed by Lebrun and Collins who question the appropriateness of applying screening tools with athletic samples when the cut-offs are extrapolated from non-sporting populations. They propose that until causal findings are established, sport should be considered as an achievement context where functionality or non-functionality should be the criteria for intervention. Recent findings in the UK from the Duty of Care report (Department for Digital Culture Media Sport, 2017) suggest that maladaptive behaviors are commonplace even in functional sport systems, and that athletes mental health is under threat. To intervene or not is a question that will promote further discourse in the future.

The latter articles in this research topic focus on the effectiveness of different types of interventions to address mental health. For instance, Turner's article provides a review of Rational Emotive Behavior Therapy in addressing the former, and specifically for reducing irrational beliefs and increasing rational beliefs, and associated emotions.

While much research focuses on the individual sports performer, contextual factors are also important to consider, and these may present a point for intervention. In particular, the knowledge and openness of support staff may be a key mitigating factor regarding the alleviation of mental health stigma in sports. Sebbens et al. consider the role of knowledge and confidence of elite sport staff to enhance early intervention. They delivered a 4 h MHS workshop to coaches and support staff. Their results showed that participants increased their knowledge of the signs and symptoms of common mental illnesses and had higher self-efficacy to help someone who may be experiencing mental health problems. Gulliver commends the effectiveness of mental health training programmes but poses questions for the role of coaches at the nexus of the performance domain in sport. Is mental health stigma an issue for them and is mental health part of their playbook or do they divest themselves of this responsibility. Sharing the responsibility for mental health awareness and positive actions across multi-disciplinary teams is integral to creating a supportive and flourishing environment.

The broader environmental context is the subject of the article by Donnelly et al. and an accompanying commentary by Rogerson. A novel approach is outlined in which the environmental risks and possible benefits of natural spaces are outlined using evidence from recent Olympic games venues. The authors consider environmental influences of green spaces on mental health and well-being which moves the focus away from mitigating environmental hazards (e.g., air pollution) to enhancing protective factors. Rogerson's commentary on this article additionally points to the potential ergogenic value of natural environments relative to competition in a built environment. This raises the question of whether the Nike *breaking 2* project would have been achieved had the venue been the Michael Johnson track situated in a pine forest in Oregon rather than the built environment of the Monza F1 racing track in Italy. Evidence to support the role of nature in providing a boost to well-being is emerging (Lawton et al., 2017).

Understanding mental health is a key precursor to the development of interventions and strategies to enhance mental health within the sports domain. Taken as a whole, two key messages resonated from the articles included in this research topic. Firstly, mental health stigma is a barrier to disclosure, self-helping behavior and support for those with psychological distress. It has been acknowledged that stigma can lead to under-reporting and service aversion (Gulliver et al., 2012). Secondly, recognition of mental health status is not simply an issue for sport psychologists and their clients, but a shared mandate within sport systems is necessary for both mental health prevention and the promotion of well-being.

The implications of the aforementioned themes are 2-fold. Firstly, we advocate exploratory research to understand the barriers to reporting among athletes, coaches, and other members of the athletes' entourage. Future studies should augment prototypical approaches to mental health surveys with measures of mental health stigma, help seeking behaviors, attitudes toward service provision and barriers and enablers to reporting an issue.

A further recommendation for future research is how to conceptualize mental health awareness. To date, it has largely been viewed in terms of mental health literacy (e.g., mental health first aid) and mental welfare (Department for Digital Culture Media Sport, 2017). Both these terms set the bar low in terms of what cognitive and meta-cognitive knowledge can be shared to enhance mental health and well-being. We should be promoting a broader concept of psychological literacy to stakeholders in sport, one that promotes well-being for all, providing a toolkit for autonomous regulation of athletes psychological resources. Interestingly, few studies have even explored the concept of *thriving* within sport systems (Brown et al., in press) and this offers a fruitful pathway for future research. Exploring conceptualisations of well-being among athletes, coaches, and other members of the entourage would be useful in assessing the possibility of promoting the dual-axes model of mental health (Keyes, 2002) within the elite sporting landscape.

This research topic has contributed to the extant literature, not just answering longstanding questions but by posing new questions to advance the research conceptually, methodologically and finally in terms of practice impact for enhancement of the lives of elite athletes and their entourage in the future.

AUTHOR CONTRIBUTIONS

DO created an early draft of Editorial which was then expanded upon by TM and final edits and approval was given by the remainder of the authors.

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The Dark Side of Top Level Sport: An Autobiographic Study of Depressive Experiences in Elite Sport Performers

Hannah J. H. Newman[1], Karen L. Howells[2] and David Fletcher[1]*

[1] School of Sport, Exercise and Health Sciences, Loughborough University, Loughborough, UK, [2] Faculty of Education and Language Studies, The Open University, Milton Keynes, UK

The general and sport psychology research converge to point to a complex relationship between depressive experiences and human performance. The purpose of this study was to explore the depressive experiences of top level athletes and the relationship of such experiences with sport performance. Twelve autobiographies of elite athletes representing eight sports were analyzed. The autobiographical analysis was informed by narrative tradition, using three types of narrative analysis: categorical content, categorical form, and holistic content. The analysis revealed a temporal aspect to the depressive experiences that the athletes reported. Initially, sport represented a form of escape from the depressive symptoms which had been exacerbated by both external stressors (e.g., experiencing bereavement) and internal stressors (e.g., low self-esteem). However, in time, the athletes typically reached a stage when the demands of their sport shifted from being facilitative to being debilitative in nature with an intensification of their depressive symptoms. This was accompanied by deliberations about continuing their engagement in sport and an acceptance that they could no longer escape from their symptoms, with or without sport. The findings extend the extant literature by suggesting a reciprocal relationship between depressive experiences and sport performance, and they support the general psychology literature relating to the negative impact of depression on performance. The applied implications of these findings are discussed emphasizing the importance of early identification of depressive symptoms and the adoption of a proactive approach in the prevention and management of symptoms.

Keywords: athletes, depression, health, mental, performance, well-being

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Marc Jones,
Staffordshire University, UK

Reviewed by:
Christopher Mesagno,
Federation University Australia, Australia
Richard Shanahan,
DBSM Centre of Excellence, Ireland

****Correspondence:***
Karen L. Howells
karen.howells@open.ac.uk

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INTRODUCTION

World Health Organization [WHO] (2015) reported that an estimated 350 million people were affected by depression. Depression is the term most commonly used to refer to a significant (or clinical) depressive disorder, defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as the occurrence of one or more major depressive episodes. These episodes are characterized by the presence of five or more depressive symptoms for a period of at least 2 weeks (American Psychiatric Association [APA], 2013). Symptoms identified by the DSM-5

include individuals experiencing a depressed mood, diminished interest or pleasure in activities (anhedonia), feelings of worthlessness or excessive or inappropriate guilt, fatigue or lack of energy, difficulty concentrating, and recurrent thoughts of death or suicide (American Psychiatric Association [APA], 2013). An important consideration within the general rubric of depression is the distinction between a clinical disorder and subclinical states (Parker et al., 2015). Although some symptoms such as depressed mood and lowered self-esteem are core symptoms common to both clinical and subclinical depression, other symptoms such as anhedonia have shown greater specificity to clinical depression (Parker and Paterson, 2015).

The rising economic cost related to depression in the working population is so significant that it now constitutes a significant public health problem (Harvey et al., 2009, 2011). In conjunction with the findings that major depression is more consistently related to poor work performance than any of the commonly occurring chronic physical conditions identified in a working population (Wang et al., 2014), researchers in occupational psychology are increasingly interested in the extent to which there may be a relationship between depression and performance. Using an online measure, Harvey et al. (2011) found that depression may have an impact on occupational performance, in that it is related to reduced concentration, fatigue, disturbed sleep, and poor motivation. Findings from other research have identified that depression is significantly related to decrements in dimensions of work performance such as task focus and productivity (Wang et al., 2014). When compared to depression-free healthy control participants, individuals with depression had significantly greater deficits in managing mental-interpersonal, time, and output tasks, and importantly, this impact persisted even after symptoms had improved (Adler et al., 2006). Both the duration of depressive episodes and the severity of depression are salient in addressing the impact that the mental health issue has on performance in a working environment. The duration of depressive episodes has been linked to the level of functioning and work ability, with longer durations being associated with lower levels of functioning and a higher level of dropout from work (Riihimäki et al., 2015). Although decreased productivity is evident in all individuals experiencing depression, there is a positive correlation between severity and work productivity (Jain et al., 2013).

In the sporting domain, physical injuries and illnesses have typically attracted more attention from athletes, coaches, physicians, and support staff than depression and other mental disorders (cf. Frank et al., 2013). This imbalanced focus is thought to be largely due to the existing social stigma surrounding psychiatric illness (Glick and Horsfall, 2009). However, athletes are arguably exposed to similar stressors and adversities as the general population with sport performers experiencing bereavement, relationship breakdowns, and illnesses (cf. Howells and Fletcher, 2015) which may be related to depressed mood and depressive symptoms. In a review of the depression in sport literature, Wolanin et al. (2015) remarked that "clearly depression in athletes exists. Suicide in athletes, a tragic outcome that can be associated with depression, exists" (p. 59). Accordingly, given the prevalence of depression in the wider community, it is of interest to performance directors, national governing bodies, and coaches to ascertain whether the depression incidence in the athletic population is comparable to the general population or whether there are any significant differences. However, due to inconsistent methodology, erratic reporting, and a poor understanding of tools to evaluate athletes, the underreporting of mental health in athletes remains "a significant concern" (Rao and Hong, 2016).

The majority of the extant research that has explored depression in sport has focused on its prevalence in youth, collegiate, and university populations, particularly from within the United States collegiate sport system (e.g., Proctor and Boan-Lenzo, 2010). This work has tended to compare student athletes and student non-athletes to ascertain differences in prevalence between these two populations. Yet, as a body of literature, the findings are inconsistent with some studies reporting a lower prevalence of depression in student athletes than non-athletes (e.g., Armstrong and Oomen-Early, 2009; Proctor and Boan-Lenzo, 2010) and others reporting a comparable prevalence rate (e.g., Storch et al., 2005; Yang et al., 2007). Interestingly, both Storch et al. (2005) and Yang et al. (2007) found differences in gender, with female athletes reporting more depression symptoms than male athletes and male and female non-athletes. Other student athlete research has examined the difference in depression prevalence between current student athletes and retired student athletes (Weigand et al., 2013) and found that depression was significantly higher in current student athletes than those who had graduated.

In a focus on the elite environment, Mummery (2005) directed attention to depression in Olympic athletes in an essay that referenced Olympic champion, Kelly Holmes,' experiences of depression. He posited that:

Athletes may be more predisposed than the general population to depression, because of the physical and psychological demands placed on them by the sporting environment. Stress... is associated with depression and is inherent in the life of an athlete (p. S36).

In a review of the extant literature, Frank et al. (2013) highlighted a tension present in elite sport about how depression is perceived. The authors noted that high level athletes are highly vulnerable to developing depressive symptoms due to their status and the extreme pressure that they experience, yet conversely, they are considered especially resilient and therefore are less vulnerable to mental health issues. Several empirical studies have focused specifically on elite sport, Hammond et al. (2013) examined the relationship between the prevalence of diagnosed failure-based depression and self-reported symptoms of depression within a sample of 50 elite swimmers. The study identified a 68% lifetime prevalence of depression episodes among the participants, with significantly more females endorsing history of depression. In an examination of German elite athletes, Nixdorf et al. (2013) found that 15% reported depressive symptoms and also revealed higher levels of depressive symptoms among the individual athletes than the team athletes. More recently, in a cohort of Australian elite athletes, Gulliver et al. (2015) found that approximately a quarter (males = 23.6%, female = 30.5%) of the elite athletes in their study scored above the caseness cutoff score for depression suggesting the presence of

a possible depressive disorder. Collectively, this research indicates that depression is prevalent in elite sport as well as student sport.

Although the findings from non-elite sport are equivocal with some research identifying that prevalence is comparable to the wider population (Storch et al., 2005; Yang et al., 2007) and other research finding that depression is less prevalent (Armstrong and Oomen-Early, 2009; Proctor and Boan-Lenzo, 2010), the findings from elite sport research are unequivocal. These differences may be mediated by two main factors: namely, the existence of a dominant narrative in elite sport which involves a stigma associated with depression, and the presence of both risk and protective factors for athletes. The findings from a number of studies (e.g., Glick and Horsfall, 2009; Proctor and Boan-Lenzo, 2010) have suggested that depressive symptoms may be underreported in athletic populations due to the stigma of mental health issues prevalent in the athletic environment. This stigma, alongside negative past experiences of help-seeking and a lack of mental health literacy, constitutes a significant barrier to mental health help-seeking in young elite athletes (Gulliver et al., 2012). Furthermore, there may be a perception that elite athletes are immune to mental illness (Hughes and Leavey, 2012), a perception which has forestalled a need to research both the incidence and etiology of mental illness in elite sport.

There are a number of risk factors for depression in athletes which include being elite (e.g., Hughes and Leavey, 2012; Hammond et al., 2013), injury (e.g., Appaneal et al., 2009; Putukian, 2015), overtraining (e.g., Purvis et al., 2010), identity foreclosure (e.g., Hughes and Leavey, 2012), the pressure to deliver peak performance (e.g., Weigand et al., 2013), sport specific demands (Nixdorf et al., 2015), multiple concussions (e.g., Guskiewicz et al., 2007; Didehbani et al., 2013) and retirement from elite sport (e.g., Lavallee and Robinson, 2007; Hughes and Leavey, 2012; Wolanin et al., 2015). Conversely, a few studies have reported that engagement in sport could also be a protective factor against depression for both males and females (Gore et al., 2001). Research investigating adolescents participating in sport found that as sport participation increases, the probability of suffering from depression reduces by 25% (Babiss and Gangwisch, 2009). This may be explained by the notion that engagement in sport may provide a release of stress (Proctor and Boan-Lenzo, 2010), or it may serve to boost self-esteem and feelings of social connectedness (i.e., social network and team support; Armstrong and Oomen-Early, 2009).

With the majority of sport research, including that which has investigated elite cohorts, focusing on prevalence rates and potential risk and protective factors, there has been limited research investigating the association between depression and sport performance. This is in spite of Mummery concluding in his 2005 essay in *The Lancet* that "the facts remain that any level of depression will affect performance and that the issue of depression in this population should, therefore, be taken seriously by the research community" (p. S37). In a review of the literature, Wolanin et al. (2015) identified that athletes may be susceptible to depressive symptoms when their athletic performance declines or they experience catastrophic choking. This link with performance was identified in a study that investigated mood states following a win, a loss, or a draw in hockey and soccer players and identified that depressive symptoms are related to the failure to achieve performance goals (Jones and Sheffield, 2008). This finding was also reported when an elite cohort was investigated; Hammond et al. (2013) identified a significant relationship between the athletes' depression symptoms and performance. This study illustrated that elite athletes may be more susceptible to depression when faced with poor performance outcomes. However, the focus on elite sport is still relatively limited and Nixdorf et al. (2013) has posited that more research into the origin and context of depression in elite athletes is needed before helpful interventions can be developed.

Given that elite athletes comprise a population in which possible risk factors for depression, such as performance failure, can be deemed as being salient, the purpose of this study was twofold: firstly, to investigate elite sport performers' depressive experiences and, secondly, to explore the relationship between these experiences and their sport performance. It is hoped that this study will contribute detailed information and context that has been identified as lacking, with a particular focus on the implications of depressive symptoms for performance, and the implications of performance for depressive symptoms.

MATERIALS AND METHODS

Autobiographical Research

Our individual and social histories are articulated in the act of storytelling, and human beings are storytellers by nature. Through autobiographies individuals provide a written narration of salient aspects of their own lives within the context of the society in which they live, so providing insight into both the individual and the social experience. The use of autobiographies, biographies, and published memoirs as analytical resources to access the stories that people tell has emerged due to a need to expand methodological options in the field beyond (post) positivistic or (neo) realist forms of inquiry (Smith and Sparkes, 2009). As an alternative to other qualitative data collection methods, the participant-led nature of autobiographical accounts means that the narrative proffered is salient to the author in the context of their individual and cultural experiences. The stories that people tell are subject to powerful cultural messages that are representative of a specific time and space. The authors and their autobiographies are not immune to these messages and are not only influenced by, but also serve to reinforce and promulgate, these cultural narratives. Accordingly, published autobiographies constitute social and cultural products that are reflective of the historical era in which they are written (Crossley, 2000).

Taylor (2008) remarked that autobiographies written by sport performers, managers, and officials are numerous, outnumber journalistic and academic studies, and are amongst the most popular of celebrity memoirs. Despite sport scholars using autobiographies in their research for some time now (cf. Howells and Fletcher, 2015), it wasn't until the publication of Howells and Fletcher's (2015) and Morgan et al. (2015) studies on psychosocial aspects of elite sport that autobiographies became evident in the extant sport psychology literature. In their paper, Howells and Fletcher (2015, p. 46) provided a rationale for

the appropriateness for using autobiographies to address their research question and concluded that the analysis of such sources "provide valuable and privileged insights into psychosocial processes and changes." Building on the case made in Fletcher and colleagues' original studies, Sparkes and Stewart (2016, p. 123) remarked that "the analysis provided by Howells and Fletcher makes a positive contribution to our knowledge in SHE [sport, exercise, and health]" and reinforced their argument for taking sporting autobiographies seriously as an analytical resource in sport psychology research. Due to the sensitive nature of depression, the reluctance of elite populations to disclose sensitive information to a stranger (Parsons et al., 1993), and the involvement of the second and third authors who have experience in analyzing sporting autobiographies (cf. Howells and Fletcher, 2015; Morgan et al., 2015), autobiographies were selected as the most appropriate data for analysis. Paradoxically, despite the stigma of poor mental health that exists in elite sport and results in the underreporting of depression, accounts from elite athletes detailing their experiences of depression *are* commercially marketable. So against a backdrop of stigma, the potentially cathartic and therapeutic capacity of writing about depression by athletes competing at the highest level is not only accepted, but publishable and in demand.

Sampling Procedure

To collate the sample, initially the first author carried out a hand search of elite athletes' published autobiographies to identify those that had the potential for inclusion. Then, a single-question survey was sent to 30 sport psychology professionals across the United Kingdom requesting that they identify elite athletes' autobiographies published between 2003 and 2013 which they perceived had documented experiences of depression. Responses to the survey ($n = 17$) were collated and added to the autobiographies identified by the researchers, providing a total of 19 books. Purposive sampling, used in qualitative research to provide information-rich, relevant sources that usefully represent the topic for exploration (Morse, 1991), was then used to determine which autobiographies would be included in the final sample. This allowed a sample to be selected that encouraged a deep understanding of the depression experiences of elite athletes (cf. Maykut and Morehouse, 1994).

A criterion-based form of purposive sampling was used. This is a sub-type of purposive sampling in which the researcher predetermines a set of criteria for selection (Patton, 1990). The initial criterion for inclusion in the sample was that autobiographies should have been published since the turn of the century, a post 9/11 era and one in which "stories of suffering and survival sell to readers" (Schaffer and Smith, 2004, p. 12). The second criterion was that the autobiographies were those of elite athletes. Athletes were classified as 'elite' using the continuum of validity proposed by Swann et al. (2015). In this case, athletes were considered elite if their highest standard of performance was international level, national level, top tier, or second tier professional leagues. The third criterion was that the autobiographies documented detailed experiences of depression. Experiences of depression were identified using the criteria and symptoms identified by the DSM-5 (American Psychiatric Association [APA], 2013) and the recent literature on depression (Parker and Paterson, 2015; Parker et al., 2015), including persistent depressed mood, lowered self-esteem, and anhedonia. For the purpose of this study, clinical diagnoses of depression were included as well as any experiences that the athletes identified as either depression, or a depressive episode.

Exclusion criteria were also applied to the original sample. Autobiographies that comprised athletes' reports of detailed periods of emotional distress, but did not identify them as depression, were excluded (e.g., McGuigan, 2011). Those narratives that primarily focused on addiction as a consequence of depression, with little detail provided on the symptoms and experience of depression, were also excluded from the study (e.g., McGrath and Hogan, 2006), as were those which did not provide in-depth detail of the experiences (e.g., Wiggins and Gallagher, 2008). Finally, autobiographies were also excluded if the athlete disclosed clinical diagnosis of another psychological disorder which could impact upon their experiences (e.g., Collymore and Holt, 2004).

Following application of the inclusion and exclusion criteria, twelve autobiographies were selected, a number that is comparable with previous multiple sport-related autobiography studies (viz., Stewart et al., 2011; Howells and Fletcher, 2015; Morgan et al., 2015). The sample (see **Table 1**) comprised the autobiographies of nine male, and three female athletes who represented three nationalities, and competed in eight sports (boxing, cricket, cycling, football/soccer, rugby union, snooker, swimming, and tennis).

Data Analysis

Given the relative infancy of using autobiographies in sport psychology research, there is an absence of methodological guidance on how to analyze the data. Informed by the narrative tradition, we adopted a combination of both thematic and structural analyses (cf. Sparkes and Stewart, 2016) that was similar to the process employed by Howells and Fletcher (2015) in their study of Olympic Champion swimmers. However, unlike the process utilized by Howells and Fletcher which involved two types of narrative analysis: holistic form and holistic content, the present study involved three types of narrative analysis: categorical content, categorical form, and holistic content (Lieblich et al., 1998) with more of a focus on the categorical aspects of the autobiographies. Exploring the autobiographies from a categorical perspective facilitated the dissection of the original stories to identify content relating to depression (cf. Lieblich et al., 1998).

In the first instance, holistic-content analysis was used to analyze the text within the context of the whole life story. Through multiple readings of the autobiographies, patterns were identified to enable exploration of both the internal thought processes and external precipitating factors which may have contributed to the onset of depression or depressive episodes. This analysis enabled an exploration of the potential long-term implications and management of depression. Then, categorical-content analysis focused on the content of the autobiographies in the particular sections of sub-text that detailed experiences of depression, selected via the criteria discussed previously. In

TABLE 1 | Athlete and autobiography details.

Athlete	Sport	Nationality	Title	Publication year	Co-author
Graeme Obree	Cycling	British	The flying Scotsman	2003	Not applicable
Marcus Trescothick	Cricket	British	Coming back to me	2008	Peter Hayter
Andre Agassi	Tennis	American	Open	2009	J. R. Moehringer
Serena Williams	Tennis	American	My life: Queen of the court	2009	Daniel Paisner
Graeme Dott	Snooker	British	Frame of mind	2011	Derek Clements
Jonny Wilkinson	Rugby Union	British	My autobiography	2011	Owen Slot
Leon McKenzie	Soccer	British	My fight with life	2012	Alan Swann
Victoria Pendleton	Cycling	British	Between the lines	2012	Donald McRae
Ian Thorpe	Swimming	Australian	This is me	2012	Robert Wainwright
Amanda Beard	Swimming	American	In the water they can't see you cry	2013	Rebecca Paley
Clarke Carlisle	Soccer	British	You don't know me but... A footballer's life	2013	Ian Marshall
Ricky Hatton	Boxing	British	War and peace: My story	2013	Tris Dixon

accordance with Lieblich et al. (1998), relevant sections of the text were selected and withdrawn from the context of the life story before being subjected to a descriptive content analysis. Sections of text were primarily selected if they contained direct reference to depression or a depressive episode. Other sections of text were also selected if terms other than the word 'depression' were used but detailed periods of emotional distress which were either previously or subsequently identified as depression (see **Table 2**). The text selected through categorical content analysis provided the basis for the core themes identified, but to avoid possible fracturing of the data, the quotes presented in the results section were accompanied by the context of the experiences established at the holistic content analysis phase (cf. Iborra, 2007).

Finally, categorical-form analysis focused on the discrete stylistic or linguistic characteristics of the previously selected sections of sub-text detailing experiences of depression (Lieblich et al., 1998). This analysis was supported by the use of Smith and Watson's (2010) strategies for reading autobiographies. The autobiographical "I" was a particularly relevant strategy for this study especially in exploring the linguistic strategies used by the authors to detail the depressive experiences of the athletes. All of the autobiographies were written in the first person but as Sparkes and Stewart (2016) postulated, the "I" is neither singular nor first, rather expressions of the self are culturally constructed and represent the articulation of different narratives through which individuals make sense of themselves over time and space. The autobiographical "I" was often self-critical in this study, with a number of the athletes considering themselves outsiders in both their social and professional groups. To elucidate, the self-critical voice in Obree's narrative was confirmed with statements such as: "I hated myself for what I was" (Obree, 2003, p. 53). Smith and Watson (2010) proposed the exploration of multiple and/or conflicting voices, which can be evident in the autobiographical narrative. In the present study, there was often conflict between the inner voice of the athlete and the 'socially acceptable' voice regarding their depression, portraying a sense of 'what I feel' versus 'what I should feel. Agassi stated: "I tell myself that you can't be unhappy when you have money in the bank... But I can't help it... I refuse to admit that I feel this way" (Agassi and Moehringer, 2009, p. 232). Furthermore strategies such as the use of metaphor [e.g., "I was lost in a fog of uncertainty" (McKenzie and Swann, 2012, p. 18)], alliteration [e.g., "I was so disenchanted and depressed" (Obree, 2003, p. 107)], and repetition [e.g., "I hate tennis, hate it with a dark and secret passion" (Agassi and Moehringer, 2009, p. 3)] reinforced the traumatic experiences of depression. After each autobiography had been analyzed using these three independent strategies, the sample was considered as a whole by identifying similarities and differences between the patterns and identifying themes emerging from the analysis of the autobiographies.

TABLE 2 | Key terms used for the selection of sub-text during analysis.

Key terms	
Bad place/bad time/bad way	Lonely/loneliness
Black/blackest/blackness	Losing my mind
Bleak/bleakest period	Low/lowest moment/lowest point
Breaking point	My condition
Cry/crying/cried	My illness
Dark/darkest/darkness	Negative/negativity
Depression/depressed/depressing/depressive	Over the edge
Desolate	Overwhelming sadness
Despondent	Pointlessness
Die/death/dying	Rock bottom
Distress/distressed	Sadness/saddest/sad periods
Down/downer	Suffocating mist
Emotional turmoil	Suicide/suicidal
Empty	Torture/torturous
Gloomy funk	Unable to function
Inner crisis/inner strife	Unmotivated
Isolation/isolated	Warped mindset
Listlessness	Worthlessness

RESULTS

The analysis of the autobiographies identified a complex interaction between depression and sport performance, with

the varying role of sport affecting both positive and negative consequences for the athletes' depressive experiences. Episodes of depression had implications for sporting performance, and performance had implications for depressive symptoms. Many of the athletes initially viewed sport as a safe-haven from their depressive symptoms. Enhanced perceptions of this protective feature of their sport was evident following sporting success, but these perceptions were only apparent in the short-term, with symptoms soon returning, and intensifying on occasions of failure. For many of the athletes, when their symptoms were at their most intense, sport no longer provided the escape that it once had. A deleterious impact on performance became apparent, the quote from cricketer Trescothick elucidated the link between emotions, cognitions, and performance as he "tried to find the switch to turn off (his) personal feelings" but couldn't, and as a result became "very distant and detached" whilst trying to concentrate on his batting (Trescothick and Hayter, 2008, p. 178). The athletes' inner conflict was manifested in ruminations about the feasibility of their continuation in elite sport. There was an ambivalence evident in the decisions made, whilst the intensified symptoms of depression made it difficult to train and compete, feelings of worthlessness, and craving for further success, seemed to underpin their desire to continue.

Life Stressors

The athletes often described depressive episodes and emotional difficulties in response to a range of stressors occurring prior to, or during their careers. Their descriptions and use of linguistic strategies such as alliteration and metaphors served to reinforce the traumatic nature of these stressors. Several of the athletes reported traumatic external stressors, such as bereavement. Williams referred to the "agony and anguish of losing Tunde [her sister]" (Williams and Paisner, 2009, p. 165), her use of alliteration in this instance reinforces to the reader the extent of her loss. Dott endured the cancer battle and subsequent death of his long-term mentor, manager, and father-in-law, Alex (Dott and Clements, 2011, p. 155). Beard experienced family troubles following the breakdown of her parents' marriage, an occurrence that she described as leaving her life "destroyed" following a "perfect" early childhood (Beard and Paley, 2013, p. 22). McKenzie suffered from multiple injuries that meant that soccer was "taken away" (McKenzie and Swann, 2012, p. 21) from him for long periods. Others appeared to have to contend with internal stressors such as their battles with self-loathing and social anxiety. Obree stated that he saw himself as "inherently unlikeable" and adopting alliteration to emphasize the impact that his early experiences had upon his development as an adult, declared that his lonely childhood had left him with "an isolationist and insular personality as well as a real and subconscious fear of social situations" (Obree, 2003, p. 4). Similarly, Pendleton described herself through the use of metaphor as a "seething tangle of doubt and insecurity" (Pendleton and McRae, 2012, p. 3), and termed herself an "outcast" in social situations (Pendleton and McRae, 2012, p. 73). For many of the athletes, these battles with the self were persistent throughout the narrative, conveying a harshly self-critical tone.

Escapism through Sport

The majority of the athletes viewed their sport as a form of escape from the stressors they experienced, and from the symptoms of depression itself. For some, their pre-career struggles encouraged their early involvement within sport, such as Beard, who stated: "water had become my getaway. The silent sanctuary was my biggest distraction from the troubles with the family" (Beard and Paley, 2013, p. 22). For others, sport continued to be a positive escape following the occurrence of stressors during their career. Dott described each upcoming tournament as "another opportunity to escape from it all" (Dott and Clements, 2011, p. 166), and Thorpe stated that swimming had been his "salvation" (Thorpe and Wainwright, 2012, p. 280). Trescothick found sport to be a relief from the symptoms of depression: "playing top-level cricket gave me such a buzz that I could force them [depressive symptoms] to one side" (Trescothick and Hayter, 2008, p. 23). An exception to this was Agassi, who perceived that he was forced into tennis by his father, and exclaimed that: "I hate tennis, hate it with a dark and secret passion, and always have" (Agassi and Moehringer, 2009, p. 3). His repetition of the word "hate" provided emphasis about the extent to which he viewed the sport.

Reliance upon Success for Increased Self-Worth

Success in sport provided a positive, but short-lived, impact on the athletes' feelings of self-worth. Trescothick reported that he: "briefly felt better after making 85 not out" (Trescothick and Hayter, 2008, p. 151). Wilkinson directly declared that success in rugby gave him "a bit of self-worth" (Wilkinson and Slot, 2011, p. 246). Most poignantly, Obree deemed success in an attempt to break the cycling world hour record to be crucial in justifying his very existence even if this voice was outwardly silenced in both his public and private spheres: "If I told them that the hour-record was not about glory. . . but justifying my next breath, then I would have confused them, to say the least" (Obree, 2003, p. 131).

The athletes articulated that success was important for gaining the approval of others, which in turn was imperative for the athletes' sense of self-worth. Pendleton described how she could not abandon her bike because she "needed dad's approval too much" (Pendleton and McRae, 2012, p. 24), a need for approval which continued into her professional cycling career, where she "ached" for the approval of her coach: "hoping that one day I would be good enough to be called Fred's favorite" (Pendleton and McRae, 2012, pp. 72–73). Hatton emphasized the importance of success for him by branding his comeback fight as being "about redemption and making people proud of (him) again" (Hatton and Dixon, 2013, p. 3) and stated that when suffering from depression "the last thing you want to see is people disappointed in you" (Hatton and Dixon, 2013, p. 271). Sporting success is thus heavily relied on as a way of combatting both the low self-esteem and self-loathing associated with depression.

Emotional Cost of Failure

In contrast to the positive, albeit short-lived, psychological effect of sporting success, failure had significant and often long-term

negative psychological impact upon the athletes. Agassi described one loss as having a "kind of lingering effect" (Agassi and Moehringer, 2009, p. 228) and suggested that the negativity of failure was hard to move on from. Pendleton also described this persistent negative impact post-failure: "It was difficult for them [her teammates] to fathom how desperately upset I became whenever I failed" (Pendleton and McRae, 2012, p. 262). The extent of this negativity was emphasized by Obree, who stated that for him, failure was a case of "emotional death and self-destruction" (Obree, 2003, p. 116). Hatton went as far as to suggest that his sporting failure triggered the beginning of his depressive episode: "When I got beat, that's when my depression started" (Hatton and Dixon, 2013, p. 190). The intense negativity associated with failure highlights the fragility of the increased self-worth and positive feeling created by success.

The athletes demanded exceptional performance from themselves, and perceived any performance not meeting their exacting and high standards as a failure. Pendleton declared that at the 2008 Beijing Olympics: "anything less than gold, for (her), would define failure" (Pendleton and McRae, 2012, p. 159). For Hatton, a defeat was a failure, regardless of the opponent: "when people said I'd been beaten by the two best fighters in the world it meant nothing to me. . . I didn't care who they were" (Hatton and Dixon, 2013, p. 224). This extreme view of success and failure was seemingly underpinned by the athletes' perfectionist nature. Wilkinson epitomized this character: "my whole life has revolved around. . . seeking perfection" (Wilkinson and Slot, 2011, p. 248). This perfectionist drive was evident in all aspects of the athletes' lives, beyond sport, such as Carlisle's approach to his education: "I can't just 'get a degree.' I am allegedly intelligent, so nothing less than a first will do" (Carlisle and Marshall, 2013, p. 178). Interesting, this quote also suggests the lack of self-belief that underlies the perfectionist tendencies with the use of "allegedly" indicating a failure to internalize this view.

Accompanying this perfectionist drive and the need to succeed, particularly in the eyes of others, was a manifest fear of failure. Dott described fearing looking like "a complete and utter fool" (Dott and Clements, 2011, p. 194), whilst Hatton reported "the fear of being a laughing stock" (Hatton and Dixon, 2013, p. 6). When failure did occur, the athletes reported extreme shame and embarrassment. Carlisle, talking of a play-off final defeat, stated: "the hurt, shame, sorrow, embarrassment, and despair in that moment is quite possibly the worst feeling in football" (Carlisle and Marshall, 2013, p. 268). McKenzie perceived his injury problems as failure, and "was embarrassed because (he) was desperate to show this club how good (he) could be" (McKenzie and Swann, 2012, p. 22). Many of the athletes reported their shame in letting others down through their failure. Beard felt that she had "crushed others' heartfelt expectations" when her performances declined upon reaching puberty (Beard and Paley, 2013, p. 71), and Carlisle professed that he had "let (his) whole world down" (Carlisle and Marshall, 2013, p. 271).

Sporting failure and the perception that they are perceived as being a failure by others are both evidenced as having substantial implications for athletes who are experiencing, or have experienced depressive symptoms. The need to succeed, fear of failure, and perfectionist drive culminates in extreme negative affect when failure occurs. Interestingly and perhaps in contradiction, some of the athletes acknowledged perfectionism and fear of failure as being crucial to their sporting success. Beard claimed that the perfectionist drive: "made me a star athlete in the water" (Beard and Paley, 2013, p. 89). Wilkinson echoed this: "I still strive to be perfect because it's what gives me my edge over others on the field" (Wilkinson and Slot, 2011, p. 375). Beard recognized though that although being important to her success in the water, this drive had negative impacts to her wellbeing: "out of the water (it) tore me apart" (Beard and Paley, 2013, p. 89).

Impact of Depression on Performance

For many of the athletes, their sport had once been a positive form of escape from the emotional difficulties they were experiencing. However, as their depressive experiences intensified, it became apparent that sport was no longer the sanctuary that it had been, and that their performance was negatively affected by their symptoms. For some of the athletes, the pain of their emotions made it difficult to perform optimally. Obree recounted, using powerful imagery that training "seemed like nothing short of bloodless self-mutilation" (Obree, 2003, p. 262). For Trescothick, the symptoms were so intense that he was forced to leave the field of play mid-match during a tour warm-up game in Australia: "I knew it was over. I asked the umpire if I could go off for a leak and I never came back" (Trescothick and Hayter, 2008, p. 316). Other athletes conveyed a defeatist attitude, as though they had given up. Describing one match, Agassi admitted: "I just don't want it. I know I can beat him and yet it's not worth the trouble" (Agassi and Moehringer, 2009, p. 160). Some of the athletes observed their anti-depressant medication also having an impact to performance. Trescothick felt that the antidepressants "might be taking the edge off (his) reactions" (Trescothick and Hayter, 2008, p. 286), and Obree made a decision to stop his medication: "I was on 1.2 g of lithium per day, which can have serious side effects – so that and the anti-depressants had to go" (Obree, 2003, p. 280).

To Quit or Not to Quit?

Several of the athletes conveyed major inner conflict surrounding their involvement with their sport. After long, intense periods of battling with their depressive symptoms, the escapism they achieved through sport was lost. Interestingly, several of the athletes described their struggle to resolve their conflict by engaging in a linguistic strategy that is reminiscent of animism, that is giving inanimate objects life-like qualities; the sports became active 'participants' in the athletes' life choices. Following her sisters death and a return to tennis post-injury Williams professed: "for the first time, *tennis couldn't solve anything* [emphasis added] for me" (Williams and Paisner, 2009, p. 174), and similarly, for Trescothick, when his symptoms intensified further "the *cricket didn't seem to help* [emphasis added] like it had in the past" (Trescothick and Hayter, 2008, p. 150). For some, there was resentment toward their sport, suggesting that it was an active contributor to their emotional difficulties. Pendleton's frustration was apparent: "sometimes I felt it so literally I could have taken a hammer to my bike and smashed it to pieces. I sometimes wanted to quit cycling" (Pendleton

and McRae, 2012, p. 80). Obree particularly highlighted this, again using alliteration: "I was so disenchanted and depressed with everything, particularly cycling" (Obree, 2003, p. 107) and considered himself "dead as an athlete" (Obree, 2003, p. 255). However, he "carried on like this for some time, unwilling to let go what still seemed like (his) only hope of self-worth" (Obree, 2003, p. 281).

This need for sport to attain self-worth became more evident for some of the athletes in their retirement, or during periods of not competing. Some of the athletes felt feelings of worthlessness, which contributed to an inner conflict and creating a 'can't live with it, can't live without it' mentality. Agassi summarized this well when reflecting on his final competitive match at the 2006 U.S. Open: "Please let this be over. I don't want it to be over" (Agassi and Moehringer, 2009, p. 9). Hatton agonized over the decision to retire following emphatic defeats, and lack of involvement in the sport led to him questioning his identity: "I was rattling about the house, aimless. Everything that I stood for over the last twenty years was gone. I was Ricky Hatton, a boxer" (Hatton and Dixon, 2013, p. 230). The majority of the athletes displayed conflict as to whether continuing in, or retiring from their sport, would help alleviate their depressive experiences. Some realized that success no longer brought them the self-worth that they craved, while others were desperate to recapture that feeling, but were unaware of whether they were still capable of success. This conflict was not evident for McKenzie though, whose time away from soccer was forced upon him through injury, and was perceived purely as damaging to his mental health: "the thought of finishing in football brought me down mentally in an instant" (McKenzie and Swann, 2012, p. 30).

Challenging Perceptions of Athlete Immunity to Depression

The occurrence of depression was hard for some of the athletes to accept initially, some demonstrated inner conflict between how they felt, and how they thought they should feel. Apparently underpinned by the perception of athletes and successful people being immune to depression and mental illness, some of the athletes, such as Trescothick, articulated their self-critical internal voice: "what the hell did I have to be depressed about? We'd just won the Ashes, life was going pretty well. . ." (Trescothick and Hayter, 2008, p. 247). Hatton, similarly, stated that "it wasn't the right way to think" (Hatton and Dixon, 2013, p. 233). Thorpe was concerned about the perceptions of others: "I can imagine how some people, when they look at my life. . . could say that I have no right to be depressed" (Thorpe and Wainwright, 2012, p. 276). Carlisle described though, how the process of being educated on depression challenged this perception: "Finding out what the illness actually is and how it manifests itself is a process that liberates you from the stigma about the 'D' word" (Carlisle and Marshall, 2013, p. 163). A number of the athletes described a similar change in opinion as their mental health literacy increased, leading them to encourage others to change their perception of athlete immunity. Thorpe best depicted this: "it's another reason why athletes shouldn't be seen as a robotic group of super humans. We're all different, each with our own problems" (Thorpe and Wainwright, 2012, p. 279).

DISCUSSION

Through an analysis of autobiographies we investigated elite sport performers' depressive experiences and explored the relationship between these experiences and the athletes' sport performance. This relationship was reciprocal and was characterized by a circuitous association whereby performance impacted on the occurrence of depressive experiences which, in turn, impacted on performance. The integral role of sport, and specifically sport performance, in relation to the depressive experiences was a key feature of the athletes' narratives and was often characterized by inner conflict about the athletes' continuation in elite sport typified by a 'can't live with it, can't live without it' approach. Interestingly, the nature of the role of sport in the athletes' depressive experiences vacillated between the positive and the negative; on occasions sport had a positive impact on depression and other occasions it had a negative impact. On the latter point, the link with performance was salient with an overreliance on performance success for self-validation leading to extreme emotional costs of performance failure which in turn intensified depressive symptoms. Accordingly, the intensified symptoms following performance failure often had further negative implications for subsequent sport performance. Consistent with the literature that has identified a reluctance to engage with mental health services (Gulliver et al., 2012), help-seeking was delayed by many of the athletes' as a result of their internalization of the notion that as elite athletes at the height of their careers they should *not* be experiencing depression.

The vacillating nature of the role of sport, along a positive–negative dimension highlighted the complexity of the relationship between sport and depression, and this study partially addresses some of the inconsistencies in student athlete research (Storch et al., 2005; Armstrong and Oomen-Early, 2009; Proctor and Boan-Lenzo, 2010). The cross-sectional design of the previous studies meant that they have identified poor or positive mental health at a specific moment in time, rather than accessing the temporal and dynamic nature of responses about mental health states. It is apparent in the analysis of the autobiographies that self-worth afforded by performance success, and the extreme emotional costs of performance failure, that prevalence rates may be highly affected by recent performance results.

Increased self-esteem was demonstrated in the current study to be a fleeting response to performance success that was ultimately short-lived. This aligns with general psychology literature which regards self-esteem as a relatively stable trait; small changes are possible, but large shifts from relatively low self-esteem to relatively high self-esteem are unlikely (Orth and Robins, 2014). A dominant narrative articulated by the elite athletes was the elevated emotional cost of failure. Although previous research had proposed a relationship between failure and depression (e.g., Hammond et al., 2013), the current study identified that, for elite athletes the need to succeed is integral

to their sense of self and was commensurate with their identity as elite athletes, therefore their perceptions of the personal significance of failure was enhanced. The need to succeed was not dependent solely on what was at stake in their professional careers but also what was at stake in their personal lives. The significant negative psychological impact of failure described appeared to form part of a cycle in which the need for success created an intense fear of failure. If failure occurred, depressive symptoms intensified, further driving the need for success to increase self-worth and validate the athletes' existence. Although failure tended to intensify the symptoms of depression, these symptoms had subsequent negative implications for performance, therefore increasing the possibility of failure. The negative impact of depression on performance found in the athletes emulates that identified in the occupational psychology literature, which has found that the capacity to work is fragmented, with time management, daily work demands, and emotions causing difficulties for depressed individuals (Bertilsson et al., 2015).

In his recent editorial, Bauman (2016) posed the question: "Are mental toughness and mental health seen as contradictory in elite sport (p. 135)?" The answer is, unfortunately, sometimes yes. Confusion occurs when, paradoxically, weakness is misconstrued as strength. There are numerous examples of this elite sport – the promotion of a single-minded ruthlessness, a stubborn bloody-mindedness, conforming to unhealthy behaviors, pushing oneself beyond one's limits – but one of the most pervasive and damaging instances is that a mentally tough or resilient athlete should deny the stress that they are experiencing and/or not disclosure any mental health issues they are experiencing to avoid appearing weak or vulnerable, despite nothing being further from the truth. Mentally tough and resilient athletes seek social and professional support (cf. Jones et al., 2002; Fletcher and Sarkar, 2012), both proactively in anticipation of challenges and reactively in times of adversity. The promulgation of the 'macho heroic myth' of mental toughness and resilience does *not* represent informed, evidence-based understanding or critique of these concepts; rather, it only serves to perpetuate misunderstanding about the complex relationship between performance enhancement and mental health in elite sport. Researchers and practitioners should expose inaccurately labeled 'mentally tough and resilient behaviors' for what they really are – weaknesses that will ultimately compromise mental health and wellbeing.

Sport psychologists, coaches, parents, and other key figures involved with elite athletes should be cognizant of the dynamic role that sport may play in relation to experiences of depression. It is apparent that many elite athletes may at various times in their lives use sport as a sanctuary from life's adversities such as depression (cf. Howells and Fletcher, 2015). Practitioners and significant others should be aware that this tactic does not preclude sport becoming a source of poor mental health particularly in those athletes with a strong athletic identity (cf. Brewer, 1993) who have an intense fear of failure. Depression has been identified as a symptom of overtraining (Purvis et al., 2010), and therefore, in those who appear to immerse themselves in their sport as a form of escape, training load, and volume should be monitored to prevent further negative consequence. They should also take an active interest in the athletes' lives beyond sport, ensuring that they are aware that support is available for any issues they may have within, or external, to their sport. It is important to note that the symptoms of depression, particularly those that are evident in sport, such as the implications for performance, may not be evident from the beginning of the athletes' depressive experience. Initially, the escapism that the athletes engaged in had positive consequences which is consistent with Stenseng et al.'s (2012) model of escapism which described using activity engagement as a form of self-development. For some of the athletes in this study, the impact to performance, and the loss of sport as a 'safe haven,' only occurred after they had been battling with depression for some time. Therefore it is important for practitioners to be aware of potential pre-cursors, or warning signs, such as an overly self-critical nature, perfectionism, and fear of failure. Measures could be put in place to identify and monitor these signs, as well as the monitoring of responses to stressors, such as performance failure, bereavement, and family problems, as experienced by the athletes in this study.

The publication of Howells and Fletcher's (2015) and Morgan et al.'s (2015) original analyses of autobiographies in sport psychology research prompted impassioned, yet contrasting, responses (see, e.g., Collins et al., 2016; Day, 2016; Sparkes and Stewart, 2016). For example, Collins et al. (2016) were largely disdainful of the use of autobiographies as an analytical resource and, somewhat inexplicably, quoted purported participants from their study to illustrate and emphasize their points. In contrast, Sparkes and Stewart (2016) presented a zealous promotion of autobiographies in sport-related research, arguing that "negative views and misplaced assumptions. . .. are somewhat exaggerated. . . [and that] our presentation in this article has been necessarily celebratory of possibilities rather than critical of actualities" (pp. 115, 119, 127). We prefer to adopt the balanced stance taken by Howells and Fletcher (2015) that autobiographies *do* provide a source of valuable information for researchers seeking to better understanding psychosocial aspects of sport, *but* that for a variety of reasons such sources need to be critically analyzed and interpreted (like any other type of data or documents; see also Morgan et al., 2015). Moreover, perhaps a more fundamental point worth emphasizing is that qualitative research is by its very nature subjective (cf. Denzin and Lincoln, 2011), so attempts to enforce epistemological or procedural impositions on researchers is, in our opinion, contrary and counterproductive. Rather, the choice of methods, analysis and interpretative approach adopted should embrace (qualitative *and* quantitative) diversity and in large part be driven and judged by their appropriateness to answer the research question(s) posed (cf. Hardy et al., 1996; see also Fletcher and Wagstaff, 2009; Hardy, 2015); as Fletcher and Arnold (2016) recently remarked, "in any area of psychosocial research, methodological partiality based on erroneous dogmatism should not. . . dictate the selection of methods in preference to their appropriateness for addressing original and significant research questions" (p. 17). The decision to use (or not to use) and how to use autobiographies in research should be no different in this regard.

Future research investigating depression in elite athletes should further examine the complex relationship between depression and performance. Of particular interest are the

specific antecedents or mechanisms that accompany the transition from sport as a safe haven to sport being a source of a deleterious emotional response for those who have experienced depression or are susceptible to depressive experiences. Further research is also needed regarding the inner conflict that athletes experience when they are unable to alleviate their symptoms through continuing their sport or through retiring or taking a break. This is important because it is in this stage, when sport no longer constitutes an escape, it appears that athletes' appear to turn to other, more harmful, forms of escapism, such as alcohol, drugs, or suicide (e.g., Carlisle and Marshall, 2013). As Sarkar and Fletcher (2014) noted, more research is required to examine the interrelationships between psychological resilience, mental health, and wellbeing in elite athletes. However, rather than inaccurately labeling 'mentally weak behaviors,' such as denying stress or support, as a 'dysfunctional side of resilience,' sport psychologists should expose such myths so that psychosocially virtuous qualities are nurtured to enhance *both* performance and health.

CONCLUSION

Through the analysis of autobiographies this study has enhanced understanding of elite athletes' experiences of depression, and the implications of its interaction with sport performance. The findings display a two-way interaction, with depression having implications for performance, and performance having implications for depression. The athletes' studied in this research were able to use sport as an escape for a short period of time, but eventually the pressure to perform and the need to succeed generated a fear of failure and emotional cost of failure that inevitably exacerbated their symptoms.

AUTHOR CONTRIBUTIONS

All authors listed, have made substantial, direct and intellectual contribution to the work, and approved it for publication.

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frontiers in Psychology

GENERAL COMMENTARY
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Commentary: The Dark Side of Top Level Sport: An Autobiographic Study of Depressive Experiences in Elite Sport Performers

Jonathan Males *

Performance1 Ltd, London, UK

Keywords: depression, performance, qualitative methods, sport psychology, elite athletes

A commentary on

The Dark Side of Top Level Sport: An Autobiographic Study of Depressive Experiences in Elite Sport Performers

by Newman, H. J. H., Howells, K. L., and Fletcher, D. (2016). Front. Psychol. 7:868. doi: 10.3389/fpsyg.2016.00868

This intriguing article explored a challenging topic using a novel albeit somewhat controversial methodology. This commentary is made from the perspective of an applied sports psychology practitioner who has conducted qualitative research, with the primary focus on how this informs best practice in consulting with athletes.

Newman et al. (2016) certainly raised questions for practitioners about the use of autobiographies, particularly those which have had input from a second author. The act of writing encourages retrospective sense making (Gersie and King, 2003). A skilled writer creates a narrative coherence that is engaging for the reader. This is challenging when they are primarily used as data sets for qualitative enquiry. As Newman et al. (2016) suggest, stories of depression are marketable, and does this perhaps mean that authors or ghostwriters are prone to exaggeration? One should also be curious about how well the narrative description of depression matched the lived experience of the athletes at the time. Were the athletes able to describe their situation using eloquent metaphors or alliteration in the midst of their despair? Practitioner experience would question whether a depressed athlete is likely to have such fluent self-awareness—the reality of depression is more likely to be informed by a fuzzy logic, which is harder to articulate and marked more by withdrawn silences or frustrated outbursts than eloquent prose.

The authors chose to focus on elite athletes, and by definition any athlete who writes an autobiography is likely to have, or had, a high public profile. To what extent is being in the public eye a mediating factor in the role of depression and performance? Certainly it would seem to add weight to both the approval of others and the emotional cost of failure, key factors that emerged in the analysis. This train of thought raises the possibility that one should consider celebrity performers in other fields such as music or acting who have reported depression. A quick Wikipedia search suggests there is no shortage of candidates for such a study. Do they report a similar relationship between their "craft" and depression as the elite athletes in this study? From my own limited reading it seems likely they do (e.g., Clapton, 2007). If so, then perhaps the issue is less about depression and elite sport performance and more about being human and the search for a meaningful identity.

As a practitioner, I have encountered a small handful of "non-celebrity" yet elite athletes with depression and similar causal factors were present to those identified in this study;

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Tadhg Eoghan MacIntyre, University of Limerick, Ireland

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***Correspondence:**
Jonathan Males
jmales@performance-1.co.uk

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especially an over-reliance on sporting success as a source of self-worth, identity foreclosure and conflict over whether to continue with their sport. Overall I was able to recognize the authors' analysis of the factors likely to lead to, or result from, depression. The warning signs of "an overly self-critical nature, perfectionism, and fear of failure" are usefully defined.

A further issue is raised by Newman et al. (2016) which is the ethical boundary as an applied sport psychology practitioner when encountering a mental health issue such as depression. Assuming that a strong working relationship has been established, sport psychologists may find themselves a confidante and source of emotional support for an athlete suffering from depression. Yet I have heard many practitioners in sport psychology express doubts about their competence to deal with mental health problems, indicating a reluctance to get too "close" and preferring to refer to a clinical psychologist. Given that the major risk factor with depression is self-harm and in the worst-case scenario suicide, caution is justified. I also believe that this highlights the need for sport psychologists to be trained in counseling skills and to possess sufficient personal integrity to be able to "hold" an effective relationship with a client in psychological distress. Depression is a complex and multi-faceted condition that often requires both medical and psychological intervention.

Whilst depression is of one of the most common mental health problems, others such as anxiety and eating disorders are prevalent too. An example of an effective and pragmatic educational Mental Health program for coaches and athletes comes from the Australian Institute of Sport. Sebbens et al. (2016) developed and tested a 4 h workshop that identifies and normalizes mental health problems and gives a simple framework, "reach out, refer and remain supportive" that is just as applicable to non-clinically trained sport psychologists as it is to coaches or parents.

My closing reflection is on the quandary that practitioners can face when working with a depressed elite performer. Is the practitioner's role to enable the athlete to perform, or to help them live a healthy and satisfying life? Whilst these two outcomes are not necessarily exclusive, in many elite sport settings the explicit expectation from coaches and management will be to prioritize performance. So whilst a focus on the athlete's internal experience and psychological dynamics is relevant, let's not forget the impact of systemic and cultural factors on athlete's mental health.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

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Examining the Role of Mental Health and Clinical Issues within Talent Development

Andy Hill[1]*, *Áine MacNamara*[1], *Dave Collins*[1] and *Sheelagh Rodgers*[2]

[1] Institute of Coaching and Performance, University of Central Lancashire, Preston, UK, [2] Clinical Psychologist, Private Practice, Inverness, UK

Although significant research supports the association between physical activity and mental wellbeing, current literature acknowledges that athletes are no less susceptible to mental illness than the general population. Despite welcomed initiatives aimed at improving mental health within elite sport, these programs often fail to target young athletes; an important concern given that the genesis of many mental illnesses are recognized to occur during this critical period. Given the importance of early intervention and effective treatment, and the potentially devastating consequences of clinical issues going undiagnosed, the implications for talent identification and development (TID) become obvious. With this in mind, this study sought to examine the range of mental health issues that may impact upon developing athletes and potential consequences for the development process, specific risk and protective factors associated with talent development, along with an examination of current practices concerning the identification of mental health issues in such environments. Qualitative interviews were conducted with purposively sampled clinicians ($n = 8$) experienced in working with adolescents and/or young athletes. Inductive content analysis was undertaken, identifying four main themes: key behavioral indicators; associated risk factors; associated protective factors; and issues around identification and diagnosis. Key behavioral indicators included behavioral change, along with behaviors associated with eating disorders, anxiety and depression. Risk factors centered on family background, the performance environment, and issues surrounding adolescence. Protective factors were primarily social in nature. Finally, a lack of awareness and understanding of clinical issues, multiple causes of symptoms, non-disclosure and the need for triangulation of assessment were identified. The need for improved identification and intervention strategies was apparent, with coaches identified as well placed to detect general "warning signs" such as behavioral change. Short of integrating trained clinicians into talent development environments, as part of a triangulation process, ecologically validated assessment tools—coupled with appropriate training and signposting—could offer a practical way of flagging potential issues in developing athletes. The need for the development of such an instrument is therefore apparent. Finally, education around the influential role of family is also recommended in order to promote the protective elements and mitigate risk factors.

Keywords: mental health, clinical psychology, talent development, behavioral indicators, behavioral change, assessment, warning signs

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Alan Ringland, Institute of Technology, Tralee, Ireland
Russell Martindale, Edinburgh Napier University, Scotland

***Correspondence:**
Andy Hill
ahill@uclan.ac.uk

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INTRODUCTION

Mental health issues within elite sport have received significant media attention of late, with athletes such as Marcus Trescothick, Clarke Carlisle, and Dame Kelly Homes all offering high-profile examples of its prevalence. Although there is a significant body of literature supporting the association between physical activity and mental health (e.g., Morgan et al., 2013), as well as the erroneous assumption that mental toughness may offer a protective factor (cf. Mazzer and Rickwood, 2015), current literature acknowledges that athletes are no less susceptible to mental illness than the general populations (Markser, 2011; Bär and Markser, 2013). Indeed, recent reporting of high profile athletes discussing their mental health issues has led to a series of initiatives designed to make an impact in performance sport, such as the work of the organization State of Mind, and the Performance Matters program by the mental health charity Mind. These initiatives include education around behavioral indicators of potential clinical issues and improved signposting of referral programs within professional organizations, all aimed at providing elite athletes with appropriate support.

Despite these initiatives within sport being both necessary and welcome, there appears to be an underlying limitation to their effectiveness. Given that membership of professional bodies and high performance support usually requires athletes to have attained professional status or have been awarded a position on a performance program, what happens if the athlete requires support prior to this point? Within the UK, approximately 10% of children aged between 5 and 15 have a clinically diagnosable (i.e., can be categorized according to the Diagnostic and Statistical Manual of Mental Disorders, DSM-V; American Psychiatric Association, 2013) mental disorder (Green et al., 2004), with half of all lifetime cases of mental illness beginning by the age of 14, and three-quarters by the age of 24 (Kessler et al., 2005). Given the importance of early intervention and effective treatment (Burns and Birrell, 2014), the age groups concerned, and the potentially devastating consequences of clinical issues going undiagnosed, the implications for talent identification and development (TID) become obvious. Despite these concerns, however, there appears to be a dearth of research examining both the nature and impact of mental health issues in a TID setting and, more specifically, a dearth of research involving genuine clinical expertise. For effective understanding and expert advice on this highly sensitive issue, this is of paramount importance.

In their investigation into psycho-behavioral features of effective talent development, Hill et al. (2015) reported a range of mental health issues identified by coaches within elite rugby union academies as negatively impacting upon the athlete and potentially leading to talent derailment. These included anxiety and depression, eating disorders, perfectionistic behaviors and suicidal thoughts and feelings. Along with the obvious primary issue of detrimental impact on an athlete's wellbeing, there are also several negative implications for the talent development process itself. For example, research has shown that symptoms of anxiety and depression can predict avoidance-based coping behaviors within students (Grant et al., 2013). Avoidance coping, defined as an attempt to "minimize, deny, or otherwise circumvent managing specific stressors" (Grant et al., 2013), is particularly detrimental to development, as it mitigates the interaction between the athlete and developmental challenge (Phillips et al., 2010; Collins and MacNamara, 2012). In possible contrast, developmental challenge, though described as inherently stressful, has been shown to be a key driver of development by enabling young performers to develop and refine the psycho-behavioral skills (e.g., resilience) required to negotiate their pathway to excellence (Collins and MacNamara, 2012; Sarkar and Fletcher, 2014). Grant et al. (2013) also demonstrated that the relationship between avoidance coping and anxiety and depression was reciprocal, suggesting that if an athlete choses to consistently employ avoidance-coping behaviors to mediate developmental challenge, then they are at an increased risk of developing depressive or anxious symptoms, which may in turn lead to a vicious cycle of avoidance and anxiety and/or depression.

High levels of perfectionism, recognized as prevalent yet potentially maladaptive within the context of talent development (Flett and Hewitt, 2005; Stoeber, 2011; Hill et al., 2015; MacNamara and Collins, 2015), have also been observed as a precursor to major depression, anxiety disorders and eating disorders (Sassaroli et al., 2008), with such influence tending to center around evaluative concerns (DiBartolo et al., 2007). As well as the associated maladaptive aspects of perfectionism, eating disorders such as anorexia nervosa and bulimia nervosa also bring with them other issues, such as potential nutrient deficiency, further compromising the physical adaptation to exercise and initiating other cycles of underachievement-depression. Indeed, although often perceived as a predominantly female issue—perhaps in part due to the female athlete triad (Nattiv et al., 2007) and the lack of a male equivalent (Thompson and Sherman, 2014)—both male and female athletes are recognized as at risk of disordered eating and eating disorders (Baum, 2006; Thompson and Sherman, 2010). Furthermore, some sports carry a greater risk of eating disorder, such as aesthetic sports (e.g., gymnastics), sports where low body fat is advantageous (e.g., long distance running), weight-making sports (e.g., boxing) (Baum, 2006), and sports such as rugby, where increased body mass is advantageous (Hill et al., 2015; Till et al., 2015). As such, issues surrounding body image and related eating disorders are pervasive throughout sport (Kong and Harris, 2015). It may also be that the stage of development and age of the athlete represent even more important considerations than the sport itself. Indeed, Thompson and Sherman (2014) have identified young developing athletes as a particularly high risk group, citing less available support, lower levels of awareness and being at a high-risk age as extra risk factors. Unfortunately, there is relatively little evidence to support this and further research is warranted with this at-risk cohort. So, despite coaches acknowledging the impact of mental health issues in TID and given that these coaches are often the primary identification tool for such issues (Sherman et al., 2005), they report a lack of understanding about clinical mental health issues in sport (Hill et al., 2015). With this in mind, the purpose of this study was three-fold. The first aim was to identify the range of mental health issues that may impact on such

individuals, both as developing athletes and as adolescents, along with potential consequences for the development process. The second aim was to investigate specific risk and protective factors that may be associated with, or incorporated into talent development environments. Finally, this study sought to examine current practices around identification of mental health issues within a TID setting, with a view to addressing potential inefficiencies.

METHODS

Participants

This study set out to investigate the range of clinical mental health issues that impact upon developing athletes and high achieving adolescents through a series of cross-sectional, retrospective qualitative interviews. Such an approach has been widely adopted throughout sport psychology literature (e.g., MacNamara et al., 2010) as a way of identifying phenomena and eliciting high levels of information-rich data, whilst acknowledging limitations relating to truthfulness and self-report bias (Patton, 2002; Amis, 2005; Atkinson and Delamont, 2005). A purposive, criterion-based sampling approach was adopted (Patton, 2002), with potential participants identified based on their clinical qualifications, roles and experience of working with developing adolescents. Semi-structured interviews were conducted with clinicians specializing in children and young people and/or athletes ($n = 8$; 2 male, 6 female), in a bid to draw on their unique understanding of issues that may impact upon developing athletes and high achieving adolescents. The participants' experience ranged from 13 to 31 years of providing clinical support ($M = 20.2$ years, $SD = 7.91$), with all participants experienced in working with adolescents, and six participants experienced in both sport and adolescent environments.

Procedure

Ethical approval was obtained from the authors' institutional ethics committee prior to the commencement of the study, with informed consent obtained from all participants and with confidentiality assured. A semi-structured interview guide was developed (see Supplementary Material), designed to explore the different types of clinical issues experienced and their consequences, along with follow-up probes and prompts to elicit data in specific areas of interest. Topics addressed included the types of issues and their impact (e.g., "Based on your experience, can you describe the types of issues that have been presented in developing athletes?"), the role of the environment (e.g., "What protective factors do they offer?"), and issues surrounding identification and assessment (e.g., "What observable behaviors might give you cause for concern in a developing athlete?"). Interviews were conducted by the first author, who had previous experience in interviewing, qualitative methods and talent development. Interviews lasted between 45 and 76 min, ($M = 60.3$ min, $SD = 11.01$ min), preceded by a briefing and an introduction, and were conducted at locations chosen by the participants.

Data Analysis

Interviews were transcribed verbatim, with the researcher's notes, questions and annotations regarding possible misinterpretations added. These were then returned for participant checking, allowing the participants opportunity to clarify meanings in a bid to enhance credibility (Patton, 2002; Amis, 2005). Clarifications were received from two practitioners, with the appropriate amendments made to the transcript prior to analysis. In the first instance, content analysis was undertaken in line with the recommendations of Côté et al. (1993), whereby meaning units were created from raw data segments. Inductive content analysis was then performed, whereby meaning units were grouped together in emergent categories based on their similarity to each other and distinction from other categories (Côté et al., 1993; Patton, 2002). This process was then repeated in order to generate higher-order themes until theoretical saturation was reached, whereby all new meaning units fit into the existing code structure (Strauss and Corbin, 1998).

As the researcher is the primary data collection tool within qualitative interviewing, the scope for researcher bias must be recognized. In a bid to aid credibility, conformability and dependability (Strauss and Corbin, 1998; Patton, 2002; Amis, 2005), an independent researcher experienced in both qualitative methods and talent development was invited to critically analyze the emergent categories to ensure they accurately reflected the participants' quotations. Where this resulted in disagreement between the researchers, interpretations were put forward until an agreed explanation was found (as per Patton, 2002), leading to the re-categorization of four items.

RESULTS

The purpose of this study was to identify the range of clinical issues experienced by clinical psychologists in a talent development setting. Four main over-arching themes were identified in the study: behavioral indicators; associated risk factors; associated protective factors; and identification and diagnosis issues. An overview of the emergent themes is also presented in **Table 1**, with the themes italicized within the main text to aid clarity.

Behavioral Indicators

A host of behavioral indicators were identified as being indicative of, or a precursor to, mental health issues. The primary indicator identified by all of the participants was that of *changes in behavior and/or performance*. Deviations away from an individual's regular behavior—particularly those that were currently unexplained—were highlighted as fundamental, and typified by the following example:

> Change. Identifying change is key. It's really a shift, and it's a shift over a period of time. So it's not just a one off, but if you get persistent behavioral change, then I would say that's a very important feature (Clinician 1)

Given its generality, such a behavioral indicator places an emphasis on the need to be familiar with an individual's regular

TABLE 1 | Clinical issues in talent development.

Higher order theme	Theme	Sub-theme
Behavioral indicators	Anger and aggression	–
	Anxiety and OCD-type behaviors	Obsessive compulsive disorder
		Performance anxiety
		Social anxiety
		Superstition
	Changes in behavior	–
	Communication and interaction	–
	Depression and low mood	Rumination
		Withdrawal
	Disruptive behavior	–
	Eating disorders	Excessive focus on bodyweight
		Hiding the body
		Low energy
		Weight loss
	Emotional suppression	–
	Injury and illness behavior	–
	Non-typical development patterns	–
	Not adhering to coaching and authority	–
	Obsession and perfectionism	–
	Phobias	–
	Self-medication	–
	Self-harm	–
	Sleeplessness	–
Identification and diagnosis issues	Assessment and screening tools	–
	Awareness of issues and symptoms	–
	Individualized approach	–
	Multiple causes of symptoms	–
	Need for clinical skills	–
	Non-disclosure by athletes	Lack of awareness
		Reluctance to disclose
	Normal developmental behavior	–
	Observation	–
	Understanding the athlete's environment	–
Protective factors	Open and supportive coaching environment	Communication
		Safe environment
		Structure and purpose
	Social protective factors	Interested role models
		Parental and family support
		Peer support
		Effective relationships
Risk factors	Body image	–
	Developmental risk factors	Adolescence
		Attachment and identity
		Cognitive ability
	Family and home environment	Pushy parents
	Performance environment	Club culture
		Competitiveness
		Deselection, transition, and exit
		Excessive downtime
		Performance pressure
	Social factors	Isolation and removal from peer group
		Peer competition
		Peer pressure
		Social evaluation
	Unbalanced approach to sport	–

patterns of behavior, a point also reflected in the data. (e.g., "And if they know the kids really well, some [coaches] are good at picking up [the changes], if children aren't their normal self." (Clinician 4). *Disruptive behaviors* were also identified as potential indicators, along with issues around *not adhering to coaching and authority*, *displays of anger and aggression*, although these were not symptomatic of a particular clinical issue; rather, they were recognized as more general "warning signs" that warrant further investigation: "…[you find out] more when you talk to them. So it would be more around the clinical questioning, I suppose, and trying to get underneath when things aren't working well" (Clinician 7).

Along with these more general characteristics, a range of behavioral issues associated with specific clinical issues were also identified. Indicators associated with *eating disorders* included unexplained or unscheduled weight loss [e.g., "And it's looking for the usual thing—a kid getting skinnier, without having suddenly put on a growth spurt" (Clinician 3)], low energy levels [e.g., "The heavy load sports—swimmers for example—couldn't keep going at a heavy session. And coaches have noticed that's been a lack of stamina has come up" (Clinician 4)], hiding the body with excessively baggy clothes, feeling the cold more readily than normal (or than their peers), and restricted eating, as typified by this example:

> "I can think of a top climber who was eating mackerel salads for weeks, and I mean just a piece of lettuce and a piece of mackerel for tea; really small amounts to lose as much as possible before trying an ascent of a hard route" (Clinician 7)

The potential influence of weight on performance was cited as a key contributing factor, with practitioners acknowledging the delicate balance:

> It's about getting that balance just right…when you get a performance benefit from losing a bit of weight, it can be quite appealing to keep going with it" (Clinician 6)

The extent to which this could manifest itself was demonstrated by data from Clinician 4, with athletes taking seemingly drastic measures:

> I think with things like weight-making sports, you've got to get in and address it early. There was someone at the [city removed] Olympics in [name of sport] who cut their hair to try to make weight. Now the amount of hair [they] removed wasn't going to make a difference in the slightest. (Clinician 4)

Indicators of *anxiety* were reported throughout the data and were recognized as the most common types of issue presented to the clinical sports practitioners; even amongst the non-sport clinical psychologists, anxiety was reported as commonplace:

> So the major problems that we see come through [name of organization], a lot of that is around anxiety (Clinician 3)

> In terms of my clinical experience, I would say anxiety is more prevalent than depression, certainly more prevalent than psychosis, but we do get a skewed view in terms of children coming to see us." (Clinician 1)

Certainly within a sporting context, *performance anxiety* was reported as a contributing factor [e.g., "You'll certainly come across a lot of people who are very, very anxious before games. They're not sure how to channel that anxiety or those symptoms." (Clinician 3); "…and having to manage anxiety around performance is important" (Clinician 1)]. Along with the performance aspects, issues around *social anxiety* were also prevalent [e.g., "…a young person I worked with as well had massive social anxiety, as in could barely even talk to me" (Clinician 7)]. A range of performance-based consequences were attributed to or influenced by these anxieties, including panic attacks, communication breakdown, poor decision making, nervousness, the "yips" and lost move syndrome.

Sharing a high level of comorbidity with anxiety disorders (American Psychiatric Association, 2013), *obsessive compulsive-type behaviors* were prevalent throughout the data, and were employed by people in a bid to control their environment [e.g., "…actually it's about controlling their world. It's not just anxiety, it's controlling their world that feels out of control, even though maybe it isn't, and it's just one tiny aspect of it." (Clinician 2)]. This manifested itself through a range of behaviors such as checking and rituals [e.g., "It's noticing things like do they have a ritual when they're packing their bags?…I think towels were always lined up for [name of athlete]—I think it's noticing things like that" (Clinician 4)]. Similarly, *superstitions*—differing from OCD-type rituals in their unreasonable beliefs around cause and effect, rather than a compulsion to act upon intrusive thoughts (Živanović et al., 2012; American Psychiatric Association, 2013)—were also recognized to impact upon an individual's performance and anxieties:

> A lot of superstitious behavior is around in sport, and I think it's getting people to recognize that and then taking action. "This is a superstition, it's not a fact"…It's picking up things like that, that maybe gets "Oh I can't do this, I've not got my lucky rabbit's foot with me" (Clinician 4)

Depression, also highly comorbid with anxiety, was identified as a key issue, with behavioral indicators such as persistent *low mood*, *rumination* [e.g., "…ruminating on mistakes and getting very stuck in that 'I have failed"—it's all black and white. They're actually stuck in their heads." (Clinician 7)], *withdrawal* [e.g., "Are they not turning up? Are they ill a lot?" (Clinician 2); "They become quite isolated within the environment" (Clinician 5)], and *sleeplessness* [e.g., "But in terms of the younger people that I work with it's been sort of not sleeping, going back to ruminating" (Clinician 8)]. *Sleeplessness* was also associated with *anxiety*, and was a particular issue when away from home or at training camps, as highlighted in the following example: "They were perhaps struggling with sleeping when they were away from home, things like that, and obviously [the coaches] didn't want to give them sleeping tablets, so teaching the behavioral techniques to manage anxiety [was important]" (Clinician 4). As a precursor to *depression*, *emotional suppression* was recognized as potentially having drastic consequences to an athlete's development, as highlighted in the following example:

> So things trundle along and then all of a sudden you get burnout…Fundamentally, that suppression, that avoidance, that lack of acknowledgement of the emotional impact of what they're doing, longer term can set up high risk for depression—that bottle-bang…When a kid, all of a sudden one day turns around and says I don't want to do it anymore. (Clinician 5)

Obsession and perfectionism were recognized as a common feature, particularly amongst the clinical sport psychologists when compared to their non-sport counterparts. This was characterized by extreme perspectives and "binary" thinking [e.g., "I think you also have a range of what might be called extreme perspectives, because players will talk about that they need to be unbelievably focused so they'll be successful. (Clinician 3); "It tends to be very much about the black and white thinking, that kind of all or nothing stuff. So either I've done this perfectly or I've completely failed" (Clinician 7)].

Issues around *self-harming* and around *self-medication* were recognized as features of the general clinical population, but were not reported by the participants as prevalent within sport. However, due to the qualitative nature of this study, and in particular the use of few, high quality subjects, caution should be taken when drawing any quantitative conclusions; an absence in this study does not necessarily suggest that this is not an issue in a sporting context.

Risk Factors

Of the risk factors identified, *family background and home life* was the most widely acknowledged. An *unstable home life* was cited as a key issue (e.g., "If it's an unstable home, if there's trauma in the person's background, then they don't have the resources themselves, the resilience to deal with [setbacks]" (Clinician 2); "…Often dating back to divorce; the parents separating, and just having a hard time at home." (Clinician 4). Similarly, other family-related issues have been seen to have an impact, such as caring for a parent:

> So kids who have become carers in any form, in my view always have a certain amount of struggle as to their role in life, as to whether they take care of people or whether they take care of themselves, and their childhood is compromised. (Clinician 2)

However, a stable family background does not in itself mitigate any associated risk, as each of the clinical psychologists highlighted the potentially detrimental role of *pushy parents*:

> One of the kids that I was thinking about who came to me very, very socially anxious, was more pushed in to the coaching by his dad than he wanted to be himself…he was a very talented climber and I think he's pretty much off the radar now. (Clinician 7)
>
> But there could be a lot of pressure. I'll never forget in skating, sitting at a competition and people going on about "their parents must be so embarrassed," and I was thinking that's really interesting, the comments and the investment that the parents are making (Clinician 4)

The *performance environment* was recognized to bring with it a range of factors that could increase the risk of developing mental health issues. With wide-ranging consequences (or at least perceived consequences) surrounding performance failure, *pressure to perform* was a key driver for many of the potential associated issues (e.g., "everything is task oriented [i.e., tasks must be completed], goal driven—that, we know, or at least we have strong indicators that that style over time increases our risk of mental health problems" (Clinician 6). The *competitive nature* of the environment was particularly associated with *hiding weakness*, which was seen to carry potential negative consequences:

> And if that mentality of remaining tough and not wanting to show any weakness on the pitch, if you take that in to your daily life, the potential is you can't show any sort of weakness whatsoever, and that will stop you getting help and support. (Clinician 3)

Such a competitive environment and the associated impression management was also viewed as being potentially self-perpetuating:

> Sometimes the things that are valued in elite sport environments are the very things in the short term that look really good, but in the long term increase the risk of future difficulties…So you hear things like mature for their age, independent, driven, focused. And of course it's not just the individual—the system gets seduced to reinforce that, as do the coaches. So you've got an individual who's perfect, who's the ideal kid—they worry the hell out of me. (Clinician 5)

As a fundamental part of the talent development pathway, *transitions, deselection and exit* were identified as potential obstacles that, without the appropriate skills and/or support, could increase the risk of a young athlete developing mental health issues:

> Well the obvious one is not making it, and then what does that mean for your life? If you look at a CV and everything on it is going toward one goal, and they don't make that goal, where do they go then? (Clinician 1)
>
> If there's a transition—I'm a 17 year-old, I'm idolized by everybody and then I'm put up in to the 19s or in to the senior squad, and I'm now not the best in the class—how will they cope? (Clinician 5)

As "micro-transitions" themselves, periods of *injury* also posed potential risk [e.g., "Even if you're out for six weeks, it's a big issue because you don't feel part of that training squad, that camaraderie, you become distanced from it. Watching from the side lines is a lonely place" (Clinician 3)], especially if rehab is problematic or is over a long period of time:

> I think we mustn't forget as well that with chronic long term injury, people can get depressed too, just because they're not getting that—and that was often a factor with people in their rehab—they weren't getting where they wanted to be. (Clinician 4)

Away from the performance environment, *developmental risk factors* included *adolescence* itself [e.g., "I think in adolescence, and understanding the nature of adolescence, which is very black and white, I think it's only as we get older that we realize that life has more gray." (Clinician 2)]. Differing levels of physical maturity was seen to be potentially problematic both on an individual level for the young person and how it affects their relationships with others:

> Adolescence is such a time when you're super sensitive as to the world around you, so it's a very insular thing, but it's also about how I fit in the world, and if you're not fitting in for any tiny thing then it seems to exacerbate everything else. (Clinician 1)
>
> Children are not mini adults and we treat them as mini adults. They're developing, so physically they may develop, a 15 year-old in rugby, for example, they may physically look like they're men but they're still sometimes little boys. (Clinician 5)

Similarly, issues around *identity and attachment* were shown to have developed over time, with an attachment to the sport often viewed by the individual as a valuation of their own worth. This can then become problematic if their sport performance subsequently dips:

> So being good at something gives you a sense that you're a good person, therefore if you start to play up and you're not so good

> at something, and this can work one way or another, then the very thing that keeps you thinking you're a good person, you're not doing so well, and that can tip you in to a negative spiral. (Clinician 5)

Social risk factors included issues around *peer pressure* [e.g., "What are your peer group doing? Are you going to do the same or are you aware that your sport needs to be your focus?" (Clinician 8)], *social evaluation* (e.g., "[Sport]'s a really small community, so everybody knows each other and there's that sense of your performance is always being evaluated by somebody else. So that's one of the biggest things that I think holds people back" (Clinician 7), and due to the unique nature of talent development environments, *peer competition*, whereby your peers within a system are also your rivals for the finite number of positions available at elite level. This was seen to compromise the effectiveness of peer support.

> If your social network is around those squads of 20–30 players, there'll always be jealousy. Players will think I should have got that contract, so that will impact on the potential social interactions with those people again for the future. (Clinician 3)
>
> Often it's when they've become very much attached to their peer group, and that isn't very supportive particularly, and again it's not a place for them to necessarily talk about things that are going wrong for them, because they might see that as showing weakness (Clinician 1)

Protective Factors

In contrast to the risk factors identified above, a range of protective factors were also identified. Of primary importance were the *social protective factors*, deemed to have a significant positive influence on an adolescent's development. Of these social factors, the role of *parental and family support* was viewed by the participants as fundamental to wellbeing throughout development:

> There's something out of child development that says there are some kids that have got immune to certain things because they've had good supportive upbringings, so although they might be upset by a bereavement or a separation of their parents for example, they might not be as bad as others because there may be a good stable grounding behind them. (Clinician 1)

Similarly, having an *interested role model* to look up to was recognized to have a positive effect throughout development, again through providing stability [e.g., "Sometimes being almost like a surrogate parent—the stable person in their lives, being there for them no matter how much they're acting out. That you're still there but you're not tolerating necessarily" (Clinician 2)]. Despite the nature of many talent development environments necessitating between-peer competition (e.g., for professional contracts), *peer support* was evident as a protective factor in some circumstances (e.g., "A lot of players will find support, so if a couple of players are injured, if they're doing the same rehab at the same time, [they'll help each other through]" (Clinician 3)). Such utilization of social support was recognized to be underpinned by the ability to form good *relationships*:

> It wasn't about ability, so it wasn't the brightest from there that did best, it was the ones that did best in other areas so that sort of being able to create and make good relationships seems to be a very key element. (Clinician 1)

An *open and supportive coaching environment* was seen as a valuable way to encourage building those types of relationships, as well as providing opportunities for role modeling:

> But from a coach's perspective, it's about opening up a conversation, if it's possible to do so. You have to have an environment to do that. . . . If it isn't with the coach, who's it going to be with? You have to have that link person or somebody who's trusted enough to speak to. I think trust and confidentiality is the key really. (Clinician 8)

Identification and Diagnosis Issues

Throughout the data, key issues around identification and diagnosis were raised. Of these issues, all participants highlighted the need for greater *awareness of clinical issues* that impact upon adolescents. This requirement was not limited to the coaching environment, but was felt to be an issue for everybody deemed part of the young person's life. This increased awareness was not only deemed important to help identify the issues more effectively, but also to increase awareness around how to take the first steps in addressing the issue, as highlighted by the following example:

> I think awareness is really important. I was just speaking to a father the other day about his child and he just didn't have a clue. He's obviously a very nice man, but he didn't have a clue about how you got help, what help was there, and he was a very able individual. It wasn't like he was somebody who didn't know life, but when he was faced with anxiety in his child, he didn't have a clue what to do. (Clinician 1)

However, simply increasing the awareness of symptoms was recognized as problematic, due to the *multiple causes of symptoms*, especially symptoms associated with normal adolescent development [e.g., "Especially dealing with teenagers. They've got a hell of a lot on their plate, haven't they, so you can't be sure what was causing the issue." (Clinician 7); "So sometimes it can be a little difficult easing out what's normal adolescent behavior and what actually we should be worried about." (Clinician 4)].

Muddying the waters further is the issue of non-disclosure. *Non-disclosure by athletes* was attributed to two main factors: a lack of self-awareness and a reluctance to disclose their concerns about their mental wellbeing. *Lack of awareness* was particularly an issue for the younger adolescents, with some issues more likely to be picked up than others [e.g., "Insight's a difficult thing, and sometimes I think it is hard to know what's wrong because you're just feeling rubbish. Or if things aren't going right or nothing seems to be right at the moment." (Clinician 1); "Whereas they might actually say "Oh, I do feel funny" and they might be experiencing a panic attack. They're more likely to talk about that than a feeling of sadness." (Clinician 4)]. A *reluctance to disclose* to somebody was recognized to occur for multiple

reasons. Inhibiting factors included that of stigma around mental health issues [e.g., "I think across many sports I think stigma is a really big issue" (Clinician 3)], the potential impact it may have on future selection [e.g., "…you may be worried about the potential impact—it depends upon the coach, I think" (Clinician 8)], and fear of upsetting others, particularly parents [e.g., "The issue that I've found, …is that children and young people really don't like telling their mum and dad because they don't want to upset them." (Clinician 2)]. Away from the individual, *non-disclosure by others* was also recognized as a significant barrier. Despite recognizing potential issues in adolescents, significant others were often seen to attribute them to developmental "phases" and were therefore unlikely to seek further help in addressing them:

> And that notion of "it's just a phase," generally speaking, probably isn't a great thing. It can be, you know, it can be at times, but if something persists, then you do need to go about getting help…I think parents try to be very optimistic. They don't really like the idea of their child not being quite right. (Clinician 1)

In order to address this obfuscation, a range of actions were identified as necessary. *Observation* was utilized on an individualized level, in order to pick up on any potential issues [e.g., "When you've got them there at an academy, you're going to have at least one coach who would pick up perhaps some of the issues as well." (Clinician 4); "I think it's about extremely observant people, and it comes back to people getting to know each young person as best they can, so that actually that's when you start to notice when things are different." (Clinician 2)], clinical questioning skills were employed by practitioners where appropriate, and a range of *assessment and screening tools* were administered, including the Generalized Anxiety Disorder 7 item scale (GAD-7; Spitzer et al., 2006) and the Patient Health Questionnaire 9 item scale (PHQ-9; Kroenke et al., 2001):

> In the education sessions we use with players, we use the PHQ9 and GAD7. We don't ask the players directly, we ask them to think about people who they might know who might be stressed, which is usually coaches. So they get to listen to those ideas around that, or perhaps assess a former player and get them to tell us if they think there's a problem or not. (Clinician 3)

However, there were several notable limitations to such an approach, including the emotional literacy of the subject [e.g., "So I think for some of the people, there's a degree of emotional literacy that you need first before you could get anywhere with even a questionnaire." (Clinician 7)], and the sensitivity of the assessment tool itself [e.g., "You have to be more subtle, which is why questionnaires and these things fundamentally don't work, because you don't pick up" (Clinician 6)]. In recognition of such limitations, assessment tools were used by practitioners as part of a triangulation process as part of an assessments, and sometimes as a guide for more informal conversations.

DISCUSSION

A range of clinical issues were identified within the data with negative consequences for young developing athletes, including eating disorders, anxiety, and depression. Due to the qualitative and exploratory nature of this study, the results do not indicate an order of prevalence or importance of issues; only their existence in the specified domain. However, the consequences of such issues, if not diagnosed and/or managed appropriately, were recognized to increase the likelihood of derailment from the talent pathway. Accordingly, there is a clear need for effective identification and intervention strategies in order to ensure the wellbeing of the athlete and maintain the efficacy of the talent development process. Such issues had clear and specific behavioral indicators specific to the illness that trained clinicians could readily identify. Concurrently, the onset of mental health issues in young people was also reported to yield a more general set of indicators in the form of behavioral change. It was suggested that these more general "warning signs" were readily identifiable by those without a clinical background, on the proviso that they were familiar with the individual, their circumstances and their normal patterns of behavior; a fact supported by existing research (see Hill et al., 2015; Mazzer and Rickwood, 2015).

However, given that athletes often have close working relationships with their coaches (Sherman et al., 2005; Davis and Jowett, 2014), yet the participants in this study raise the point that many young people still "slip through the net," there becomes apparent the need to identify and address this discrepancy; both for the benefit of the talent development system, and more importantly, for the welfare of the developing athletes. Given the logistical unfeasibility of providing coaches with a comprehensive clinical skillset, in order to address this issue, a more systemic approach is needed.

As the data suggests coaches who have long-standing relationships with their athletes will notice the behavioral change, interventions designed to optimize the coach-athlete relationship, along with education around changes in behavior and understanding the associated implications are recommended, in order to address the issue of non-disclosure by others. As part of a triangulation process, similar to that used by the participants, ecologically validated assessment tools could aid in bringing to the fore specific "warning signs" that may otherwise have gone unnoticed. Further education around signposting, enabling the coaches to know what to do next—and more specifically—who to contact, is vital, if effective intervention and management of any potential clinical issue is to occur. As a more holistic approach to identifying clinical issues in talent development, the incorporation of trained clinicians in to talent development environments would potentially be an effective solution to both identification issues and that of appropriate clinical intervention.

Despite such recommendations for improving the effectiveness of identification and intervention around clinical issues in talent development, the key point of how to limit the development of such clinical issues still remains. In order to attempt to address this, examination of the associated risk factors and protective factors is required. Of the risk factors identified within the data, social issues around an athlete's background and family life were deemed the most impactful by the participants. The role of the family was seen as particularly important, given

the psychological stress caused by traumatic life events such as bereavement (Sarkar et al., 2014), parental divorce (Amato and Keith, 1991; Amato and Sobolewski, 2001), and caring for family members (Aldridge and Becker, 1999). Such key events, along with the identified issues readily associated with adolescence (MacLeod and Brownlie, 2014), are not confined to the domain of talent development, but are more general in both nature and genesis—a fact borne out by the data. As such, there is limited practical scope for preventative or remedial action by the talent development system to mitigate the impact of these issues, other than by helping to support (directly or indirectly) the young athlete through the process. However, one family-based risk factor where the talent development environment can have a pro-active, positive impact is in mediating the maladaptive influence of parental behavior, in particular the role of the "pushy" or "problem" parent.

As key stakeholders in the talent development process (Pankhurst et al., 2013), parents are highly influential in establishing an athlete's motivational climate through their values and behaviors (Gould et al., 2008; Gustafsson et al., 2015). Consequently, athletes are not only able to benefit from supportive parents, but are also susceptible to a parent's own anxieties around their child's performance (Beidel and Turner, 1997; Ginsburg, 2009). Given the amount of time, money and emotion invested by parents in their child's sporting success, it is perhaps then unsurprising that such anxieties can manifest themselves as behaviors detrimental to the athlete's wellbeing and development, such as over-involvement (Wuerth et al., 2004), negative verbal behaviors during performance (Kidman et al., 1999), and negative debriefing (Elliott and Drummond, 2015). Despite the likely underpinning good intent, there appears to be a lack of common understanding of the parental role between parent and child in a talent development setting (Kanters et al., 2008), and it is the perceptions and possible misinterpretations of these behaviors that, in turn, often act as sources of acute stress for the developing athlete (Babkes and Weiss, 1999; Puente-Díaz and Anshel, 2005; Kanters et al., 2008). Worryingly, issues such as anxiety and fear of failure having been shown to transfer from parent to child, however such transference has also been demonstrated as amenable to intervention (Sagar and Lavallee, 2010; Ginsburg et al., 2015). Similarly, group education-based interventions have also proved effective at facilitating adaptive parental support through the provision of "real-world" strategies and improved awareness (e.g., Richards and Winter, 2013). Based on the apparent success of such programs and given the established need within a talent development setting, we would propose proactive, education-style interventions aimed at promoting parental awareness of the issues around talent development, and in particular parental behaviors and their potential impact upon their child's mental well-being.

Given that the role of the talent development environment is to prepare a developing athlete for elite level competition, and that elite level sport is widely recognized as high pressured and highly competitive (Pensgaard and Roberts, 2000; Jordet, 2009), addressing the risk to mental wellbeing associated with the environment's competitive nature proves problematic, and must be done with care. A reduction in the level of competitiveness and/or pressure within a talent development environment may—in the short-term—allay any concerns over a developing athlete's mental health, yet in the long-term may only serve to under-prepare the individual for what lies ahead; thus potentially exposing them to the risk of potential mental health issues in the future. As such, we would propose a three-stage strategy in addressing this issue. First, careful consideration must be given to the potential impact on an individual's mental wellbeing of any likely outcome, as part of a professional judgment and decision making process (see Martindale and Collins, 2005, 2013). This would require a good level of awareness of the individual, the environment, and of mental health issues, and would therefore need to be underpinned by specific training where appropriate. For example, a transition from an academy program into elite competition brings with it many pressures, such as a heightened emphasis on results and increased expectation. Such pressures are often associated with fear of failure (Sagar et al., 2007), and the subsequent defensive behaviors (e.g., avoidance; Birney et al., 1969) are associated with mental health issues (Grant et al., 2013). Accordingly, appropriate measures to mitigate the detrimental impact of such pressures may be required. Second, regular monitoring of both coping skills (e.g., psychological characteristics of developing excellence; MacNamara et al., 2010) and of mental wellbeing would be required, in order to maintain the appropriate level of challenge for the individual and to target the necessary areas for development. Finally, appropriate support and signposting must be provided where necessary, in order to identify and address any potential mental health issue as soon as possible, with timely intervention often the key to successful treatment (Kamm, 2008).

In many respects, the range of associated protective factors offer a reflection of the risk factors discussed earlier. For example, whilst the role of the family, the competitive nature of the talent development environment, and social evaluation from peers have all been identified as sources of stress, family and parental support, an open and supportive coaching environment, and peer support were all said to play a significant role in protecting a developing athlete's mental wellbeing. The fact both the family environment and the talent development environment can offer both protection from and susceptibility to mental health issues highlights the importance of the effectiveness of the relationships formed between the people within these environments; a point borne out by the study's data. As such, talent development environments should seek to establish and actively promote such relationships throughout their system. Concurrently, supportive family relationships must also be fostered wherever possible, in a bid to offer each young athlete the best possible protection and support.

CONCLUSION

The aim of this study was to address the nature of clinical issues within talent development, and their associated issues. Following a series of qualitative interviews with clinical practitioners with experience of working with adolescents and/or elite developing athletes, four key areas were identified: behavioral

indicators; associated risk factors; associated protective factors; and identification and diagnosis issues. In a bid to address these issues, several key recommendations were made. First, the incorporation of clinical expertise into the talent development process is crucial (either through direct employment or referral), as without such expertise, diagnosis and intervention cannot occur. Second, as those best placed to identify more general warning signs of mental health issues, coaches and support staff are likely to require training and support in dealing with such issues. Thirdly, as part of a triangulation process, an ecologically validated and reliable assessment tool would aid in the regular monitoring of athletes' coping skills and mental wellbeing throughout the development process. Finally, as effective relationships are fundamental to an environment's protective qualities, such supportive relationships need to be established and actively promoted throughout. Through the implementation of such measures, the effectiveness of talent development processes will be improved due to the potential decrease in talent derailment. This is, however, of less significance than the positive impact it will have on the mental wellbeing of young athletes.

AUTHOR CONTRIBUTIONS

All the authors have made substantive contributions to the article and assume full responsibility for its content. AH, DC, AM, SR designed the study, developed the methodology, and wrote the manuscript. AH collected the data and AH, DC, and AM conducted the data analysis.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: http://journal.frontiersin.org/article/10.3389/fpsyg.2015.02042

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The Experience of Depression during the Careers of Elite Male Athletes

*Steve Doherty[1], Barbara Hannigan[1] and Mark J. Campbell[2]**

[1] School of Psychology, Trinity College Dublin, Dublin, Ireland, [2] Health Research Institute – Department of Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland

The topic of depression during the career of elite male athletes has been the subject of much public interest and attention in recent years. Despite numerous debates and personal disclosures within the media, there is a dearth of published research directly exploring the phenomenon. This study sought to explore how elite male athletes experience depression during their sporting careers. Eight former/current elite male athletes who had previously publically self-identified as having experienced depression while participating in sport were recruited for this study. A qualitative methodology was employed and each participant was interviewed using semi-structured interviews. Data analysis which was conducted using descriptive and interpretive thematic analysis uncovered three domains: (1) The emergence of depression, (2) The manifestation of symptoms of depression, and (3) Adaptive and Maladaptive proceesses of recovery. Findings from the current study reveal the nature of how male athletes experience, express, and respond to depression during their careers. Additionally, this is influenced by a myriad of factors embedded in the masculine elite sport environment. Implications are discussed particularly in relation to atypical expressions of depression not necessarily reflected on or in standard diagnostic criteria. Future research is encouraged to examine in depth moderating factors (e.g., athletic sense of identity and masculine elite sport environments) for the relationship between depression and participation in elite sport.

Keywords: male, depression, elite sport culture, Identity, masculinity

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****Correspondence:***
Mark J. Campbell
mark.campbell@ul.ie

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INTRODUCTION

Within the Diagnostic statistical manual of mental disorders (DSM-V; American Psychiatric Association [APA], 2013), numerous disorders fall under the category of depression. While the specific criteria for these disorders differ, individuals diagnosed with depression are generally observed to experience a reduction in functioning (e.g., occupational) while presenting with a range of persistent symptomology. Such symptoms include; experiences of low mood, sadness, decreased energy and motivation, feelings of worthlessness or guilt, difficulties in concentration, changes in appetite, problems sleeping and recurrent thoughts of death or suicidal ideation over at least a 2-week period (American Psychiatric Association [APA], 2013).

Recently, there has been an upsurge of interest in qualitative explorations of male depression (Martin et al., 2013). While the components of depression vary throughout these studies, they tend to describe overlapping, cyclical, suppressive, avoidant, and externalizing symptomatology or attempts to mask depression. Participants in these studies have consistently described

experiences related to; increased interpersonal withdrawal, substance abuse, increased frequency of interpersonal conflict, self-destruction, an over investment in work, avoidance of help seeking and an escalation in anger outbursts (Brownhill et al., 2005; Chuick et al., 2009; Oliffe et al., 2010). Researchers have hypothesized that learned typical gender norms such as dominance, emotional control, avoidance of femininity, risk taking, pursuit of status and winning, primacy of work and extreme self-reliance encourage the manifestation of these atypical symptoms or "depression equivalents" (Cochran and Rabinowitz, 2000; Mahalik et al., 2003; Brownhill et al., 2005). While the processes which underlie and are assumed to be involved in the experience of more masculine forms of depression are not directly supported by empirical research (Addis, 2008), indirect evidence broadly supports the theory that traditional masculine cultures shape how men experience, express and respond to depression (Addis and Cohane, 2005; Cochran, 2005). It is on this basis that scholars often question the prevalence rates for depression in the male population. The DSM-V (American Psychiatric Association [APA], 2013) criteria for the disorder which is regularly employed within epidemiological research studies has been hypothesized to represent a more feminine congruent coping process while not reflecting the manifestation of more masculine expressions of depression (Kilmartin, 2005). This body of research has fuelled subsequent studies that have attempted to establish more efficient methods of assessing manifestations of depression in men (Martin et al., 2013).

Athlete Mental Health

The topic of mental health in sport has not received that much attention within academic literature. Reardon and Factor (2010) claim that our tendency to idealize elite athletes has led the general public and some within the healthcare profession to assume a low prevalence of mental health issues in sport. Problems related to recognizing psychological difficulties within an elite sport culture have also been hypothesized. For example, a review carried out by Thompson and Sherman (1999) discussed how the specific manifestation of Anorexia Nervosa such as overtraining or denying discomfort could be confused for what they termed 'good athlete characteristics.' Furthermore, as empirical research reports that athletes have a negative perception of help-seeking (Steinfeldt and Steinfeldt, 2012) and often accept pain while minimizing displays of weakness (Sinden, 2010), it could be inferred that they may be less likely to willingly present to mental health professionals for support related to psychological distress during their careers. Numerous high profile individuals retrospectively reporting episodes of depression during their sporting careers has fuelled a recent surge of public and media interest (Trescothick, 2008; Kirwan and Thomson, 2010). While epidemiological research on the prevalence of depression and various forms of psychopathology in the male or female elite sport context does exist, it is limited and mired with inconsistent findings. For example, consider the large contrast in the following two studies; Resch and Haasz (2009) suggested that prevalence rates for depression were 37.5% amongst the athletes recruited to participate in their study, while Schaal et al. (2011) observed that only 1% of the athletes within their study suffered from Major Depressive Disorder (MDD). It is worth noting that Resch and Haasz (2009) administered surveys to athletes and focused their study primarily on eating disorders, while Schaal et al. (2011) recruited both high level and junior level elite athletes and derived their results from nationwide data that were obtained from the athletes yearly psychological evaluations. While the topic continues to gain traction within media circles, based on the current available evidence in an elite sport context, it remains challenging, at present, to quantify the precise extent and nature of athlete's problems with depression during their careers.

The Costs Associated with Competing in Elite Sport and Their Link to Mental Health

A plethora of studies have presented the positive and protective factors associated with engaging in sport and exercise (Buckworth and Dishman, 2002; Rethorst et al., 2009). Since Miller and Kerr's (2002) review article, there has been a substantial increase in research seeking to understand the person behind the athlete (Warriner and Lavallee, 2008; Carless and Douglas, 2012, 2013).

Numerous researchers have commented on the concerning phenomenon that while athletes strive to achieve excellence within the elite sport environment their identity often becomes completely foreclosed or constructed around their ability to perform in their athletic career (Warriner and Lavallee, 2008; Carless and Douglas, 2009). In addition to the 'performance narrative' which some scholars observe as the dominant message that athletes internalize within their day to day lives (Douglas and Carless, 2006), studies have also discussed how athletes are exposed to values that serve to reinforce qualities (competition, aggression, and toughness) which are often associated with traditional conceptualisations of masculinity (Steinfeldt and Steinfeldt, 2012). Various papers have added to our understanding of masculinity and the possible negative consequences associated with constructions of strength and toughness in sport (Young et al., 1994; Wacquant, 2001; Sinden, 2010). Elite rowers retrospectively reported actively suppressing emotions to avoid appearing mentally weak, negative, or irrational while suffering from health problems during training (Sinden, 2010). Further papers which have covered topics such as organizational stress (Fletcher et al., 2012), extrinsic motivation (Lemyre et al., 2007), burnout (Cresswell and Eklund, 2007), attitudes to help seeking (Steinfeldt and Steinfeldt, 2012), risk taking (Schnell et al., 2014), and adversity (Howells and Fletcher, 2015) have prompted numerous researchers to speculate that athletes are vulnerable to developing mental health issues (Reardon and Factor, 2010; Hughes and Leavey, 2012).

While a number of studies have indirectly mentioned depressive mood within their discussions (e.g., Brewer et al., 1993; Carless and Douglas, 2009), from the outset these studies have not specifically focused on the construct of depression. Furthermore, while there are an increasing number of review articles on the subject of mental health and depression in elite sport (Reardon and Factor, 2010; Hughes and Leavey, 2012) there currently is a dearth of research directly exploring the phenomenon.

Rationale for Current Study

The last decade has seen a growing acceptance of qualitative methods within the sport psychology domain (Biddle et al., 2001) and the authors of this paper argue that there is also a need for employing this paradigm when attempting to understand the phenomenon of depression within the male athletic population. There is a general consensus within sport psychology literature that elite sport has unique challenges, stresses, and constraints (Schaal et al., 2011). While reflecting on the established necessity to understand depression in the context of the culture in which an individual resides (Cochran and Rabinowitz, 2000), it is imperative that researchers seek to explore the subjective experiences of those living within the environment of elite male sport. This seems particularly important considering the recent suggestion that practitioners have begun to accept that the psychological care of athletes is being delivered without a full understanding of the diagnostic and therapeutic issues unique to this population (Reardon and Factor, 2010). In many ways it would seem prudent to embrace viewpoints from previous commentators who encouraged researchers to move away from a foreclosed focus on measurement and simply 'ask men' and in this case 'elite male athletes' about their experiences (Cochran and Rabinowitz, 2000).

To summarize, the present paper utilizes qualitative methods to elucidate the meaning and nature of depression within the context of an elite male athletic career. With the exception of Jones (2010) who asked female non-elite athletes about depression, this topic has received little attention within academic literature. This paper represents the first published study to explore elite male athlete's experiences of depression during their sporting careers.

MATERIALS AND METHODS

Design

A qualitative methodology was utilized and semi structured interviews were employed as the method of data collection (Smith, 2007).

Development of Semi-structured Interview

An interview schedule which was developed by the research team and informed by their clinical knowledge and the contemporaneous research literature in the area (e.g., Chuick et al., 2009) was divided into three stages. Within the first stage, attention was directed toward how the athletes *understood* the initial development and experience of depression during their careers. The second stage focused on how elite male athletes *expressed* their depression during their careers, while the third and final stage of the interview focused on how elite male athletes *coped* with their encounter(s) with depression during their careers. Evocative wording, prompts and the empathic communication skills of the researcher were used in the interview with a view to encouraging the participants to reflect deeply on their experiences. Prior to beginning the research interviews, a pilot interview was conducted with a college athlete who had previously experienced depression. Based on this pilot study, the draft interview schedule was modified to incorporate the experience of the interview, and feedback from the pilot interviewee.

Recruitment

Purposeful sampling which has been previously employed in qualitative explorations of various athletes' experiences (Kirby et al., 2011) was employed during the recruitment stage. Through broad internet searches, 43 males who had publically disclosed having encountered depression during their sporting careers were identified as potential participants. Contact was made with prospective participants through an ethically approved invitation sent via email or through private messages on social media sites in the public domain. Eight out of the 15 who responded to the invitation, agreed to participate in the study.

Participants

Eight Caucasian male current/former elite athletes from seven different sports who had previously publically self-disclosed having had depression during their sporting careers participated in this study. A recent paper by Swann et al. (2015) critiqued the use of the term 'elite athlete' within sport psychology research and suggested that the term varied on a continuum of validity. The authors further translated their findings into a taxonomy for classifying expert samples within future studies and developed an equation to position athlete's levels of expertise into four categories; semi- elite; competitive elite, successful elite, and world class elite. This model was employed within this paper in an attempt to illustrate participant's levels of experience and success within their respective sport. As per the Swann et al. (2015) classifications, *semi-elite athletes* are those whose highest level of participation is below the top standard possible in their sport; *Competitive-elite athletes* regularly compete at the highest level in their sport but have not had any success at that level; *Successful-elite athletes* not only compete at the highest level, but have experienced some (infrequent) success at that standard (e.g., winning an event or a medal); *World-class elite athletes* experience sustained success at the highest level, with six repeated wins over a prolonged period of time (e.g., winning gold medals in consecutive Olympics, or major competitive victories over a number of seasons). While anonymity could not be guaranteed due to the public nature of the athletes stories, all efforts were made to anonymize data throughout each stage of the research project. To illustrate how participants met criteria for this project and to provide some context to the analysis process, some pertinent demographic information is provided in **Table 1**.

Data Collection

As five of the participants recruited in the study were residents in North America and Australia/Oceania these interviews took place on Skype. The remaining three interviews took place in various private locations throughout Ireland and the UK. Data collection occurred between July 2013 and March 2014. Each interview was audio recorded and lasted between 65 and 90 min with a mean length of 79 min and standard deviation of 14.5.

TABLE 1 | Participant demographic information.

Participant (P)	Age	Nationality	Format	Elite level	Diagnosis of depression*	Treatment†
1	22	British/Irish	Team	Competitive elite	Yes	Yes
2	29	North America	Individual	Competitive elite	Yes	Yes
3	32	North America	Team	Successful elite	No	No
4	58	British/Irish	Team	World class elite	Yes	Yes
5	45	North America	Individual	Successful elite	Yes	Yes
6	35	British/Irish	Team	Competitive elite	Yes	Yes
7	37	Australia/Oceania	Team	Successful elite	Yes	Yes
8	65	North America	Individual	Successful elite	Yes	Yes

*Diagnosis- The 'diagnosis of depression' column above, indicates whether or not the athlete was formally diagnosed with depression by a mental health professional such as a GP, Psychiatrist, or Psychologist.

†The treatment column above indicates whether the athlete had ever attended for psychological therapy, such as cognitive behavior therapy or psychodynamic therapy, or similar clinical intervention and or were prescribed medication such as anti-depressants or a similar psychopharmacological treatment indicted for treating depression.

Data Analysis

Descriptive and Interpretative Analysis (Elliott and Timulak, 2005) was employed to analyze the experiences of depression during elite sport careers. The steps followed during data analysis are outlined below;

(i) Interviews were transcribed verbatim and read and re-read by the principal researcher and initial notes related to any key themes or reactions to the research were recorded.
(ii) Notes were recorded on segments of text which were judged to contain a meaningful idea. These meaning units were used to divide the transcript.
(iii) Each meaning unit was further analyzed to understand its core idea.
(iv) Themes which represented a summary of meaningful ideas were identified for each meaning unit. While there was an inevitable level of interpretation throughout the data analysis, the team endeavored to stay close to the participants own words when locating themes.
(v) Domains were initially identified based on initial impressions of the data, a review of the literature and on the interview questions. These broad domains provided an organizing structure and a conceptual framework for the data. They facilitated the data analysis process by starting with a top down rather than a bottom up approach.
(vi) Each meaning unit and theme was then allocated to a main domain.
(vii) Themes were grouped with other themes which contained similar ideas to form categories.
(viii) Themes within categories were then reviewed and grouped with similar themes to form subcategories. The intention within this stage of the data analysis was to create an overall or abstracted meaning from the data which still reflected the underlying data at an interpretative rather than a descriptive level.

Based on the recommendation by Hill et al. (2005) that themes are labeled to provide a common unit for describing results and to further aid with future between study comparisons the following theme labels will be applied when describing the findings; Themes applying to seven or more participants are referred to as *general themes*; Themes applying to five or six participants are referred to as *typical themes*; Themes applying to two, three, and four participants are referred to as *variant themes.*

Credibility and Trustworthiness

The credibility and trustworthiness of the data was assured through multiple processes in line with guidelines for completing and reporting qualitative research (Tong et al., 2007; Yardley, 2008). For example, all participants were sent their transcripts and asked to review them and given the opportunity to add, delete or rework any data that they felt did not accurately represent their experiences. Furthermore, several samples of the analysis were discussed and cross analyzed by the research team. Consensus was agreed on the meaning units, categories, core ideas, and themes/categories within these transcripts. Five of the interviews were fully analyzed by three researchers, two trainee psychologists and one research psychologist. Therefore, four auditors were involved in validating and modifying the analysis of the primary researcher. All data analysis was then further cross checked and closely reviewed by the research supervisor. During the write up, the primary researcher grounded Domains, Categories, and Themes/Subcategories in multiple examples from the transcripts. This was completed with the aim of illustrating examples and demonstrating a fit between the data and the meaning that was assigned.

Ethical Approval

Ethical approval for this research study was obtained from the School of Psychology Research Ethics Committee, Trinity College Dublin.

RESULTS AND DISCUSSION

The Emergence of Depression

The first domain that emerged from the thematic analysis was entitled; *The emergence of depression*. This domain which consisted of three categories and 10 themes is presented in **Table 2**.

While the benefits to having a salient athletic identity have been discussed in previous literature (e.g., Horton and Mack,

2000), the participants experiences in this paper reflect what Brewer et al. (1993) termed the 'Achilles heel' associated with having an overly salient athletic understanding of self. Central to the athletes understanding of the development of their depression were issues pertaining to identity and an 'unhealthy' or 'dysfunctional' relationship with sport. Indeed, an exclusive identity on the all-consuming demands of sport represented a general theme within the findings. One participant stated; "I was eating and drinking and sleeping sport, it was my focus every day. Whatever in my life that had to be jigged around, my mind was on it" (p. 2). The social influence on identity development (Stryker and Burke, 2000) was clearly expressed in this study as the athletes recounted how their athletic sense of self became more salient through the positive reinforcement received within the wider sporting community. Another important related vulnerability factor for depression was expressed in the theme: Sporting performance publically evaluated and perceived acceptance in elite environment conditional on results. This finding could be compared to previous research that captures the highly demanding and pressurized elite sporting environment, where performance narratives are observed to be the dominant message that athletes internalize (Carless and Douglas, 2009). One participant reflected; "A positive and negative reaction (from coaches/sponsors) is based on performance, we appreciate and affirm each other for things that we do as opposed to who we actually are" (p. 6). The typically endorsed theme; Global self-worth conditional on results and levels of perceived acceptance in elite sport further emphasizes how for most of the participants their "worth was on the line when playing sport" (p. 3). Drawing on person centered theory (Mearns et al., 2013), it could be suggested that while engaging with sport under these perceived 'conditions of worth,' it is understandable that the athletes typically developed an external locus of evaluation and endorsed the theme: Playing sport to prove worth and gain acceptance from others. Previous empirical research has suggested that high degrees of external motivation can have a detrimental impact on an athlete's wellbeing and overall functioning in sport (Lemyre et al., 2007).

Another important component of the athletes understanding of depression was related to their relationship with the masculine values espoused in the elite sport context (Steinfeldt and Steinfeldt, 2010). While conformity to masculine norms is often observed to be adaptive is some contexts (Levant and Kopecky, 1995), when difficulties in their life emerged there was little space for the participants to admit despair and express vulnerability. A typical theme endorsed within this domain; Emphasize on and the need to hide frailties and project images of strength speaks to messages they received from the sporting culture and internalized as an important component of their athletic identity. One participant reflected: "In sport being tough and being driven are really admired" (p. 8). The theme further supports the argument that in addition to their worth being conditional on results, performances, and actions on the sporting stage, they were expected to express positivity, deny weakness, display emotionless qualities and fit the script of the mentally tough athlete.

A typical theme endorsed by the athletes reflected the: obsessive drive and will to win they had during their sporting careers. While this dedication, which one participant described as "bloody mindedness, not willing to stop doing something" (p. 7) is positively reinforced in sporting environments and is a characteristic that is central to being an elite level athlete (Jones et al., 2007), for some participants it was a psychological trait that when coupled with the aforementioned external demands contributed to the development or rendered them vulnerable to depression. This was observed in the variant theme: Obsessive drive and not feeling able to practice self-care in the context of persistent financial/sponsorship demands.

An important typical precipitating factor for depression in this study reflected: Unacceptable results or loss of skills shown in competition. This fits with the term 'narrative wreckage' recently employed by Carless and Douglas (2009) to describe the psychological impact and emotional consequences of failing to live up to the internalized performance narrative in the highest echelons of their sport. Central to the concept of identity foreclosure is the idea that it closes off any further exploration of other identities or social roles (Warriner and Lavallee, 2008). Athletes in previous studies infused all areas of life with sport while having diminished concern or time to focus on broader life concerns (Lavallee and Robinson, 2007; Carless and Douglas, 2009). Within this study, participants typically endorsed the theme; Inability to cope with broader life stressors/vulnerabilities or adjust in the off season. For some of these participants their sporting career had masked problems or had not allowed space to develop skills to deal with life outside the athletic domain. "Sport had masked problems in my personal life, on

TABLE 2 | Domain 1: The emergence of depression.

Categories and Themes and No. of participants disclosing the theme
Category 1: Extreme athletic identity and elite sporting pressures as important vulnerability factors for depression
Exclusive identity on the all-consuming demands of sport (7/8)
Sporting performance publicly evaluated and perceived acceptance in elite (6/8) environment (from coaches/fans/family/sponsors) conditional on results
Global self-worth conditional on result and levels of perceived acceptance in elite sport (6/8)
Emphasis on and the need to hide frailties and project images of strength (6/8)
Category 2: Intrinsic characteristics, extrinsic motivations, external locus of evaluation, and their relationship with depression
Obsessive drive and will to win (8/8)
Playing sport to prove worth and gain acceptance from others (family/coaches) (5/8)
Category 3: Perceived precipitating factors for depression
Inability to cope with broader life stressors/vulnerabilities or adjust in the Offseason (6/8)
Unacceptable results or loss of skills shown in competition (5/8)
Obsessive drive and not feeling able to practice self-care in the context (3/8) of persistent financial/sponsorship demands (3/8)
Adjusting to post-competition void regardless of result and/or the anti-climax and lack of satisfaction derived from success (3/8)

TABLE 3 | Domain 2: The manifestation of symptoms of depression.

Categories and Themes and No. of participants disclosing the theme
Category 1: Initial manifestation of depression in training and competition
Continued competing at an elite level without initial impact on ability to function (7/8)
Inaccurate self-understanding and insight about depression (7/8)
Gaining temporary relief and avoiding depression symptomology through participating in sport (6/8)
A lack of enjoyment derived from sport and a sense of going through the motions (4/8)
Early experience of depression temporarily spurts a push into sport orientated determination and overtraining (3/8)
Category 2: Initial manifestation of depression outside of training and competition
Early depression symptoms more apparent away from sporting environment (5/8)
Relationship breakdowns in sport and broader life (5/8)
Category 3: The development of depression both in and outside sport
Natural self-critique turns to global negative self-evaluations (7/8)
Shame and hiding depression/vulnerabilities from coaches/opponents/teammates (6/8)
Depression intensifying and the inability to keep hiding depression in competition (6/8)

some level I had been using it to mask over my cracks and keep me going" (p. 1). On some level this fits with Miller and Kerr's (2002) suggestion that athletes are encouraged to develop performance excellence in sport at the expense of developing a multidimensional self. A related variant theme that was endorsed reflected the precipitating factor for depression; Adjusting to post competition void regardless of result and/or the anti-climax and lack of satisfaction derived from success. While sport demanded so much attention for such prolonged periods of time, during the off season or in moments when they had space to reflect on their life and on their experiences, more uncomfortable emotions or questions about their existence began to emerge. For some of the athletes, these vulnerable experiences and existential concerns arose even after achieving their goals and childhood dreams. This finding can be compared to retirement experiences where athletes have spoken about feeling lost or undefined and not having an understanding of self when their careers came to an end (Lavallee and Robinson, 2007). These findings differ in the fact that such emotional difficulties arose during rather than post career.

The Manifestation of Symptoms of Depression

The second domain in the findings was entitled: The manifestation of symptoms of depression. This domain which consisted of three categories and ten themes is presented in **Table 3**.

The participants endorsed the variant theme: A lack of enjoyment derived from sport and a sense of going through the motions. While this retrospectively represented early signs of their slide into depression, the general theme endorsed: Continued competing at an elite level without initial impact on ability to function conveys how the athletes initially responded to their difficulties. One of the athletes reflected "I was still doing fairly well, if you look back on the record books I was still maintaining a top 30 or 40 world ranking and winning an odd tournament here and there" (p. 8). Another general theme: Gaining temporary relief and avoiding depression symptomatology through participating in sport offers insight into some of the possible functions and benefits associated with taking a more action orientated or avoidant approach to their early experiences of distress. One participant described how: "playing was the escape for me. I guess that was where I was most comfortable" (p. 5).

The findings in this domain can be compared with previous qualitative explorations of depression in men (Heifner, 1997; Brownhill et al., 2005; Chuick et al., 2009; Oliffe et al., 2010). Previous empirical research suggests that depression in men often presents in more externalized and avoidant patterns where they may over invest in work, present as anxiously attached to work performance and make conscious or unconscious efforts to hide distress form their peers (Heifner, 1997; Brownhill et al., 2005; Chuick et al., 2009; Oliffe et al., 2010). Indeed, the fact that the majority of the participants related to the theme: Early depression symptoms were more apparent away from sporting environment gives further credence to the view that the athletes depression did not present, at least at its early stage in a form that would warrant a DSM-V diagnosis (American Psychiatric Association [APA], 2013). The typically endorsed theme; Relationship breakdowns both in and outside of sport further supports the presence of more externalized symptoms that have been displayed in previous research (Oliffe et al., 2010).

The participants typically endorsed the theme: Shame and hiding depression vulnerabilities from coaches/opponent's/teammates. One participant described his internal dialog: "I can't tell my sponsors that this is happening because I could be a liability to them, does suicidal represent your brand?" (p. 2). The athlete's view that depression represented the antithesis of what would be accepted in sport is understandable as desired behaviors such as; ability to goal set, being self-directed, prioritizing sport over other activities, dealing with setbacks, having unshakable confidence, superior concentration skills, and pushing through pain (Crust, 2008; MacNamara et al., 2010) do not fit with the low mood, poor motivation, irritability, and lack of concentration associated with the experience of depression (American Psychiatric Association [APA], 2013). Taking the above discussion into account it is not surprising that the variant theme: Early experience of depression temporarily spurts a push into sport orientated determination and overtraining emerged within the data. "My train of thought with depression was that I am a failure, I need to be strong, as an athlete when you make a mistake you have to bounce back, the races don't stop" (p. 6). Furthermore, given that many of the athletes' individual sense of self was so intertwined with sporting performance and what others thought of them, returning to the sporting arena in the name of looking for success and external feedback seems an understandable desire. Another process at play is recognized in the generally endorsed them: Inaccurate self-understanding

and insight about depression. It would appear that this theme is central to the shame and confusion the athletes experienced. A related general theme: Natural self-critique turns to global negative self-evaluation further conveys the internal cognitive processes that were manifesting underneath the desperate attempts to present themselves as 'mentally tough' in public. Such internal dialogs and inaccurate understandings of depression is observed in previous descriptions of male depression. For example, some evidence has suggested that men who align themselves to masculine norms may have difficulty in identifying and communicating emotions and affective experience (Levant et al., 2003). The findings could be compared to previous empirical research that showed how depressive symptoms triggered self-doubt and broad concerns about having a 'faulty' masculinity (Oliffe et al., 2010). It could be suggested that additional factors may impact on athletes understanding of depression. For example, a number of the athletes in the study understood their early depression as a lack of mental skills or poor sport psychology. "I just thought it was my own mental lack, I thought my mental game was just weak" (p. 2). This highlights a possible risk that athletes may view their mental health through these performance narratives and in the process fail to develop the vocabulary to understand, recognize, and explain depression.

A typically endorsed theme: Depression intensifying and the ability to keep hiding depression in competition shows how the athletes failed in their bid to hide their distress and overcome their problems through avoidant and action orientated behaviors. In fact, many examples were seen where the depression or difficulties were exposed or came to the surface when playing sport. Previous empirical research has described similar intensifying, escalating, and cyclical patterns of depression in men where suppression leads to externalizing behaviors and a decisive event. For example, Brownhill et al. (2005) used the term 'big build' to convey the process of negative emotion (sadness and anger) intensifying through suppressive processes of coping. The participants in the study reported experiencing a 'snap' or a particular turning point when their distress and behavior reached 'out of control' or 'unacceptable' levels. "I couldn't focus on what the task in hand was, and (perform skills in his sport), every (game) felt like a house of cards, like sooner or later I was going to collapse. (p. 3). Scholars have suggested that masculine norms limit social acceptance of depressive encounters, prohibit expression of typical depression symptomatology, restrict ways by which men can cope and encourage a pattern of both masking emotions and an escalating of self-destructive behaviors (Valkonen and Hänninen, 2013).

Adaptive and Maladaptive Processes of Recovery

The third domain in the findings was concerned with the process of recovery and the associated helpful and hindering coping strategies employed by the athletes. This domain which consisted of three categories and 13 themes is presented in **Table 4**.

Overtraining interpreted as self-harm which was expressed as a variant theme within the data reflects how extreme overinvestment in sporting activities may have served the function of a cry for help and a maladaptive attempt to communicate their internal distress (O'Connor et al., 1989; Armstrong et al., 1991; Raglin, 1993). "I am overtraining in the gym, to the point where my hands were bleeding" (p. 4). Considering the content of earlier discussions that outlined psychological characteristics espoused and encouraged within the domain of elite sport, (for example the ability to focus and block out distractions, competitiveness, hard-work ethic, ability to set and achieve goals, pushing self to limits) it is understandable how such extreme behaviors could possibly have been reinforced or at least not recognized as problematic in nature.

A sport specific barrier to recovery was seen in the typically endorsed theme; Dealing with publicity and the continued expectations from elite sport. It would appear that the external pressures and conditions of worth that impacted on the development and initial maintenance of depression, further exerted their influence as the athletes embarked on recovery. For some of the participants they felt challenged in their attempt to bring changes in self, for example attitudes to self-care into the athletic domain. This supports previous empirical research that emphasized how athletes often felt silenced in their attempt to construct attitudes and behaviors that did not fit within the conditions of worth espoused in that pressurized and demanding

TABLE 4 | Domain 3: Adaptive and maladaptive processes of recovery .

Categories and Themes and No. of participants disclosing the theme
Category 1: The experience of maladaptive coping responses and the perceived barriers to recovery
Isolating self from social support (6/8)
Using alcohol to gain temporary relief and to both avoid depression and associated emotions (5/8)
Lack of available psychological support or understanding of depression from others (4/8)
Not being listened to and the lack of collaboration in first experience of treatment (4/8)
Dealing with publicity and the continued expectations from elite sport (4/8)
Overtraining interpreted as self-harm (3/8)
Category 2: Adaptive processes and turning points in recovery
Separate from elite sport environment to understand depression and embark on self-discovery (6/8)
Channeling sporting will to win and personal agency toward a high level of commitment to recovery (6/8)
Experiencing acceptance and expressing real self in therapeutic relationship (5/8)
Support from significant other, recognizing depression and developing hope (4/8)
Category 3: The process of recovery and the transitions within the self
Being less defined by sport, broadening identity, and adopting self-care (5/8)
Developing intrinsic motivation an internal locus of evaluation and falling in love with sport again (5/8)
Coming out and gaining self-acceptance in sport and society as central to healing and recovery (4/8)

environment (Carless and Douglas, 2009). A variant theme endorsed within the interviews: A lack of psychological support or understanding of depression from others reflects another barrier to recovery. The lack of understanding from others regarding depression could be linked to previous authors who have described how our tendency to idealize athletes often encourages us to not understand or observe mental health issues in those who play elite sport (Reardon and Factor, 2010).

The variant theme: Support from significant other, recognizing depression and developing hope which was endorsed by some of the participants conveys how interventions from significant others often represented the turning point in their story of depression. Indeed, social support has been established as a pertinent protective factor in the development of depression (Carr and McNulty, 2014), while an external intervention or interruption was central to the beginning of the recovery process specifically with males encountering depression (Pederson and Vogel, 2007).

Previous empirical research not directly studying depression has shown how athletes needed to gain 'asylum' or break away from sport in efforts to escape performance values and deal with emotional distress (Carless and Douglas, 2009). Those findings can be observed in this study within the typically endorsed them; Separate from elite sport environment to understand depression and embark on self-discovery. Considering many of the participants understood their depression as a consequence of their identity being intertwined to their performance as an athlete, and in further reflecting on the masculine dominant values that seemed to discourage emotional expression and self-reflection, it is understandable that they needed to gain distance and perspective from this environment during their attempts to understand and recover from depression. One participant reflected: "I felt I needed to find myself away from sport, find out who I was as a person" (p. 1).

While sporting characteristics were perceived as possible etiological and maintaining factors for depression, there was a clear sense within the data that many of these factors were protective in nature and used to their advantage in recovery. This is supported in the typically endorsed theme; Channeling sporting will to win and personal agency toward a high level of commitment to recovery. As one athlete reflected, 'what got me here, got me back out again.' (p. 4). It was observed that as they recognized they had depression, they took personal responsibility and embarked on their therapeutic journeys with the same focus and commitment that was demanded of them in their respective sports. Indeed, the personal characteristics of the clients, for example having high levels of motivation and belief in the process of therapy is viewed as central to successful outcomes (Paulson et al., 1999).

The typically endorsed theme: Experiencing acceptance and expressing real self in therapeutic relationship emerged as a decisive component to adaptive coping and supports previous empirical research that has emphasized the importance of emotional expression, receiving acceptance, and building a strong professional relationship within a therapeutic intervention (Paulson et al., 1999). Furthermore, a central aspect of the athletes understanding of their recovery is observed in the typically endorsed theme; Being less defined by sport, broadening identity and adopting self-care. In many ways this theme reflects the result of taking the time to develop what Miller and Kerr (2002) referred to as the person behind the athlete. As one athlete reflected; 'I went back as a different person, as a different athlete, had to re-invent myself, sport wasn't the whole me' (p. 5). Indeed, previous research has shown that athletes can resist performance narratives or indeed adopt new narratives from which to participate in sport (Carless and Douglas, 2012, 2013).

The typical theme: Developing intrinsic motivation an internal locus of evaluations and falling in love with sport again represented another aspect of the athlete's new sense of self. It supports previous research that emphasized the importance of having a self-defined motivation for competing in sport (Lemyre et al., 2007). Incorporating an internal locus of evaluation is observed to be central to an individual's overall health and wellbeing (Mearns et al., 2013). "I came to a point in my life where I was able to realize that there is a lot of things that I could control, but there were things I couldn't control in my life, other people's reactions" (p. 7). Another aspect of their recovery is reflected in the theme: Coming out and gaining self-acceptance in sport and society as central to healing and recovery. While previous themes have reflected on the negative impact sport had on recovery, four of the athlete's emphasized how being accepted for having had depression within their sporting careers consolidated the recovery process. The fact that they had previously often felt silenced, misunderstood or not valued for their whole being in this environment, seemed to add to the power of this acceptance.

Strengths and Limitations

Given the challenges associated with accessing an elite sport population (Beamon, 2012) the profile of the participants and the classification of their levels of expertise into specific categories developed by Swann et al. (2015) are recognized strengths of this study. While seven out of the eight participants confirmed that they were diagnosed with depression, no third party information was sought and comorbidity which is observed as the norm with depression (American Psychiatric Association [APA], 2013), was not accounted for in this study. It is possible that the findings representing the experience of depression may be a function of some correlated comorbid disorder.

Researchers have previously called into question the reliability of employing retrospective designs. Such criticisms have largely revolved around issues pertaining to possible recall bias. This seems particularly relevant to depression as evidence suggests that memory loss is a possible side effect of MDD (Gotlib and Hammen, 2008). The current study contained two participants who reflected on depressive experiences that occurred up to and beyond 10 years prior to the interviews.

Implications of Research

While it is beyond the scope of the study to decipher the intricacies of each participant's experience with depression, the findings offer numerous themes that from the athlete's

perspective, provide a broad picture of some of the important aspects. While the participants, experiences can be viewed from a multitude of perspectives, including person centered theory (e.g., Mearns et al., 2013), masculine frameworks (Addis, 2008), and theories of identity (Brewer et al., 1993), the processes that underlie the athletes' experiences can only be hypothesized.

Data that emerged across all three domains may provide elite sport coaches/teams and organizations with understanding and insight into the personal vulnerabilities that athletes may experience beneath the tough exterior that they are likely to portray. It may further draw their attention to the role that sport may have in the development and maintenance of psychological distress. With specific regard to the experience of depression, it may be important for individuals working with athletes to be aware of some of the more atypical, masked or sport specific expressions of depression. Furthermore, while mental toughness and psychological resilience is encouraged within the elite sport environment, this study would argue that these skills and attributes should not be fostered at the expense of healthy emotional expression. The findings support previous studies which have reflected on the importance of developing all aspects of the person behind the athlete and encouraging an environment where personal development and professional excellence are equalled (Miller and Kerr, 2002).

This paper may provide mental health professionals with some important insights into areas related to detection, assessment, and treatment of depression with male athletes. As recognized in previous qualitative explorations of depression in men in non-sporting contexts (Martin et al., 2013), it may be important to look beyond the DSM criteria (American Psychiatric Association [APA], 2013) as the data suggests that depression may manifest in more atypical, externalized and masked forms in this particular population. For example, the athletes in this study suggested that their outward appearance and actions (performing at a high level, training, conversing with teammates) did not match the underlying distress they were experiencing. It could be suggested that psychologists working with athletes would need to be extra prudent when assessing for depression. For example, it may be important to ask more questions pertaining to their functioning away from sport. Relationship breakdowns and over investment in training may be possible signs as depression may initially manifest through these processes. Effective psychological formulations and therapeutic interventions would likely somewhat rely upon the clinicians ability to draw on positive athlete traits while providing the core conditions so central to the humanistic therapies (Mearns et al., 2013).

Future Research

As aforementioned, the experience of depression is seen to be heavily influenced on context (Cochran and Rabinowitz, 2000). It is worth noting that many types of sports have varying demands and differing cultural influences and expectations (Steinfeldt and Steinfeldt, 2012). While elite athletes in any sport may encounter ubiquitous challenges, future research may benefit from exploring similar lines of enquiry in one specific context, for example in elite male rugby. There is also a need to examine in more depth moderating factors (e.g., athletic sense of self and sense of identity and masculine elite sport environments) for the relationship between depression and participation in elite sport.

CONCLUSION

This paper represents the first published study to explore elite male athlete's experiences of depression during their sporting careers. The findings give insight into how the culture of sport and the interplay between the athletes sense of self and the elite performance environment influenced how they experienced, expressed, and responded to depression during their careers. The three domains represent the major themes disclosed in the course of data collection and illustrate a categorical interpretation of how the emergence of depression was recognized, the nature of how depression manifested in the participants and how the athletes navigated their way through the recovery process.

Data analysis suggested how masculine values, commitment to excellence and high levels of athletic identity which were embraced by the athletes and reinforced by the elite sporting environment played a role in the development and maintenance of their depression. The findings further point to how the male athletes experienced and responded to depression during their careers was influenced by a myriad of factors embedded in the masculine elite sport performance focused environment. The athletes performing within the elite sport culture appeared to respond to depression often with further investment in sport and with more atypical, externalizing or avoidance expressions of their internal distress. The recovery process was outlined and revealed ensuing periods or episodes of high, lows, and turning points. Recovery, as in most conditions was not a linear, straightforward process. Effective forms of coping included; expressing vulnerability and cementing genuine connections with others, taking a break from the elite sport environment and drawing on high levels of commitment (athlete characteristic) to understand depression. Building a broader sense of identity and returning to sport with greater self-knowledge, higher levels of self-acceptance and a more healthy relationship with sport represented central processes in recovery. While it may provide coaches, sporting organizations and mental health professionals with some preliminary insight into the area of depression in elite male sport, further research is needed to develop our understanding of this complex and understudied phenomenon.

AUTHOR CONTRIBUTIONS

Conceived and designed the study: SD and BH. Performed the study: SD. Analyzed the data: SD, BH, and MC. Contributed reagents/materials/analysis tools: SD, BH, and MC. Wrote the paper: SD, BH, and MC.

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frontiers in Psychology

GENERAL COMMENTARY
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Commentary: The Experience of Depression during Careers of Elite Male Athletes

Monna Arvinen-Barrow *

Department of Kinesiology, Integrative Health Care and Performance, University of Wisconsin-Milwaukee, Milwaukee, WI, USA

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A commentary on

The Experience of Depression during Careers of Elite Male Athletes
by Doherty, S., Hannigan, B., and Campbell, M. J. (2016). Front. Psychol. 7:1069. doi: 10.3389/fpsyg.2016.01069

As I am writing this commentary on "The Experience of Depression during Careers of Elite Male Athletes" by Doherty et al. (2016) concurrently with the 2016 Olympics in Rio, the topicality of the paper is felicitous. A number of prominent Olympians, both male and female, have openly come out in the popular media and discussed their personal battles with depression, including English Gardener (USA; track & field), Jack Green (UK; track & field), Michael Phelps (USA; swimming), and Allison Schmitt (USA; swimming) to name a few (Frank, 2016; Murphy, 2016; Powers, 2016; Schnell, 2016). These personal accounts highlight the importance of recognizing that elite athletes, who, like the population at large, are not immune to mental health problems (Rice et al., 2016).

The article by Doherty et al. (2016) is the first of its kind to truly delve into retrospective experiences of athletes who had experienced depression during their sporting careers. By adopting a qualitative research design, and using both descriptive and interpretative analysis (Elliot and Timulak, 2005), the authors have cleverly chosen a methodology that enables the exploration of a phenomenon from the participant perspective. This allowed the emergence of data in relation to the nature and defining features of depression in male elite athletes, as well as detailed exploration of "how the culture of sport and the interplay between the athletes' sense of self and the elite performance environment influenced how they experience, expressed, and responded to depression during their careers" (Doherty et al., 2016). As such, the authors were able to explore an under researched area in greater depth, and to provide commendable and meaningful insights into the phenomenon.

One of the key findings worthy of further attention is the role of identity in depression. Athletic identity, which according to Horton and Mack (2000) is considered to be both a cognitive structure (e.g., "I am athletic") and a social role (e.g., "I am a swimmer") and is typically associated with positive impressions of oneself. However, the current study suggested that athletic identity can influence the emergence, manifestation, development, and the adaptive and maladaptive processes of recovery from depression. More specifically, Doherty et al. (2016) found that having a strong athletic identity and performance pressures made athletes more vulnerable for depression, and enabled the masking of depressive symptoms. Identity also influenced the process of recovery, as it was partially characterized by shifts in identity toward more multidimensional sense of self.

When placed in the wider social context of sport, it is easy to see how athletic identity development among elite male athletes can predispose an individual to depression. Internal and external expectations of personal characteristics such as masculinity, mental toughness, and grit

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***Correspondence:**
Monna Arvinen-Barrow
arvinenb@uwm.edu

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are likely to contribute the development of a more unidimensional identity (Young and White, 2000; Jones et al., 2002; Duckworth et al., 2007). One does not have to look far to see how the above characteristics are differently constructed for male and female athletes (e.g., Rogers, 2016). Male athletes are often referred in the popular and social media as strong, powerful, and fast. In contrast, female athlete media coverage includes explicit references to other social identities they possess: wife, fiancée, mother, grandmother, and both of the above portrayals have also sparked a lot of social media interest and controversy. Although the little feminist in me finds the apparent differences in male and female portrayals offensive and sexist, the mental health professional in me cannot help but wonder: How do popular and social media contribute to the development of athlete's multi/unidimensional identities of self? To what extent does popular and social media and its portrayal of male and female athletes contribute to the occurrence and manifestation of, and recovery from depression? Moreover, how does athlete's own engagement and interaction with different forms of media influence their affect and ultimately their mental health?

Given that research in the area of elite athlete depression is sparse, further high-quality research is certainly warranted. Thus far, existing literature has highlighted significant major life events, sport injury, and chronic stress as potential risk factors for depression and other mental health problems (Rice et al., 2016) particularly when an athletes' sense of self is strongly tied into being an athlete. It is therefore important that the professionals working with elite athletes "know their athletes" both in sport and out of their immediate sporting environment, and have an understanding of events that might act as a catalyst for the emergence of depression. Building on Doherty et al. (2016) work, I would particularly welcome more phenomenological research investigating elite athlete depression from a more interprofessional and biopsychosocial perspective. After all, depression is typically characterized by physiological (e.g., loss of energy, appetite, inability to sleep), and psychological (e.g., range of debilitative cognitive appraisals, negative emotions, and/or changes in typical behaviors) maladaptive changes in the body. Moreover, depression typically affects, and is affected by, number of personal (e.g., genetics, age) and social factors (e.g., environment, climate, professionals working with the athlete).

In summary, I am honored to comment on this article and applaud the authors for addressing such an important, yet hugely under attended topic. I find the article to be an important addition to the elite athlete depression literature. From building a rationale, to aims, design, data analysis, and interpretation of the findings, the authors are able to capture athletes own accounts of experiencing depression, and pave the way for further important research in this field. Looking forward to more to come.

AUTHOR CONTRIBUTIONS

MAB is solely responsible for the conception or design of the work; and drafting the work or revising it critically for important intellectual content; and final approval of the version to be published; and agreeing to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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GENERAL COMMENTARY
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Commentary: The Experience of Depression during the Careers of Elite Male Athletes

Alan Ringland *

Health and Leisure, Institute of Technology, Tralee, Ireland

Keywords: mental health, depression, sport, multi-faceted, definition

A commentary on

The Experience of Depression during the Careers of Elite Male Athletes
by Doherty, S., Hannigan, B., and Campbell, M. J. (2016). Front. Psychol. 7:1069. doi: 10.3389/fpsyg.2016.01069

Currently little is known about the prevalence and etiology of depression in the athletic population (Nixdorf et al., 2015). Almost 75% of mental health difficulties first emerge between the ages of 15 and 25 (Kessler et al., 2005). And arguably the peak years for elite sport performance overlap with the period where the risk of mental health disorders are highest. Given the context of sport and the nature of competition and youth sport, how many coaches, parents and sporting organizations have ever considered this evidence or acted upon it? Sport and mental health have been artificially decoupled due in part to mental health stigma.

Mental health stigma is a hurdle that is prevalent in the sport context and one that is particularly challenging in the patriarchal culture of elite sport. This paper draws attention to the poignant issue that men's experience of gender role conflict may be associated with an increased endorsement of stigmatization around mental health concerns (Gulliver et al., 2012). The consequences of mental health stigma include a decreased willingness to refer friends and family members experiencing a mental health concern to access relevant services. Social supports in the form of peers, teammates, coaches, sporting organizations and managers may paradoxically be perceived as linked to stressors. It is plausible that individuals and the organizational culture may be perceived by the individual as putting performance and achieving podium positions ahead of the athlete's well-being. As sporting performance is a key indicator of sporting excellence this may mask individual mental health issues. Arguably, the primacy of performance over the person is a challenge within elite sport. Admitting to a problem is viewed as acknowledging a weakness and this does not fit with the script of the "mentally tough athlete" as the authors propose in their interpretation of an "unhealthy" and "dysfunctional" relationship with sport.

As noted by Doherty et al. (2016), public perception tends to hold elite performers in superstar recognition as heroes rather than role models. Success and celebrity unfortunately offer little refuge into the wide area of mental health as recent biographies (e.g., Jonny Wilkinson, Victoria Pendleton) have illustrated (Newman et al., 2016). Three key questions arise. Firstly, is it beneficial for athletes to come out (i.e., public about their episodes) about their experience of depression? Secondly, to what extent does this act of public disclosure encourage other athletes to seek appropriate help? And finally, does this really change the nature and prevalence of mental health stigma in sport? It is possible that cognitive dissonance and social cognitive biases may increase service aversion (e.g., my symptoms aren't like their, I'm not under the pressures they were). Future research should explore the consequences for mental health stigma of public disclosures of depression by elite athletes on their peers, on their support staff (e.g., coaches) and on the public at large.

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Edited by:
Judy Van Raalte, Springfield College, USA

Reviewed by:
Antoinette Minniti, American Psychological Association, USA

***Correspondence:**
Alan Ringland
alan.ringland@staff.ittralee.ie

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Doherty et al. (2016) do not provide comprehensive details (e.g., exclusion criteria; DSM V scores) beyond the transcripts on the thoughts, feelings, behaviors and physical symptoms (e.g., sleep and diet changes) of the elite male sporting athletes. The authors could have augmented their analysis by analyzing the nature of the language used by the athletes. The article has produced meaningful data but further exploration of the specific how's and whys of the causes, symptoms and coping mechanisms and the layers and levels of each category of depression deserves further attention. There are few examples of athletes using sport as a coping strategy and this may be explained by their lack of understanding of their self-regulatory strategies. What is striking is the masking of the depression symptoms outside of their sporting environment and their isolation from social support. Nevertheless, there are significant recommendations to be gleamed from this research for sporting bodies, coaches and support networks when dealing with individuals who behave, feel and think like the individual narratives conveyed in this research.

Experiencing mental health problems may be described as clinical or sub-clinical, for example. If we truly view mental health as a continuum, then the quality of an individual's mental health needs may provide insight into the possible levels and layers of the construct. Depression is fraught with inherent operational definitional difficulties because of the multi-layered and multifaceted nature which requires additional research from the clinical domain but also the different contextual environments. These may additionally highlight when and how individuals withdraw from their work, how and why conflicts develop and indicate the pattern of avoidance of seeking help. The suppression of emotion may have been misinterpreted in previous literature as mood states and depression have become interchangeably linked (Lane and Terry, 2000). An operational definition of depression as a construct is essential. While the author's acknowledge this limitation of depression it is an aspect worthy of further exploration.

Arguably, there needs to be care with the interpretation of some of the findings. Many of the symptoms of depression experienced by the male athletes in this study have been negatively portrayed and it is not known, as the data is retrospective, if the individual's perception was distorted by decaying memories. It was not always clear of the timelines of the stressors they faced in relation to their depressive episodes. Triangulation of the data by interviewing others within their sporting system or members of their social support structure would have provided a more valid and accurate narrative to emerge.

Athletes, particularly those recovering from injury, should be supported by all members of multi-disciplinary teams not just to seek help for mental disorders, but to develop their positive mental health through access to appropriate medical and sport science professionals. As a result, depression should be viewed as an inclusive challenge for all in high performance sport, from performers to practitioners. If we are to diminish the impact of mental health stigma then mental health is not simply an issue for an individual and their psychologist, but it is a challenge for sporting communities at large.

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The author confirms being the sole contributor of this work and approved it for publication.

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ORIGINAL RESEARCH
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Comparison of Athletes' Proneness to Depressive Symptoms in Individual and Team Sports: Research on Psychological Mediators in Junior Elite Athletes

Insa Nixdorf, Raphael Frank and Jürgen Beckmann*

Department of Sport Psychology, Technical University of Munich, Munich, Germany

Depression among elite athletes is a topic of increasing interest and public awareness. Currently, empirical data on elite athletes' depressive symptoms are rare. Recent results indicate sport-related mechanisms and effects on depression prevalence in elite athlete samples; specific factors associated with depression include overtraining, injury, and failure in competition. One such effect is that athletes competing in individual sports were found to be more prone to depressive symptoms than athletes competing in team sports. The present study examined this effect by testing three possible, psychological mediators based on theoretical and empirical assumptions: namely, cohesion in team or training groups; perception of perfectionistic expectations from others; and negative attribution after failure. In a cross-sectional study, 199 German junior elite athletes ($M_{age} = 14.96$; $SD = 1.56$) participated and completed questionnaires on perfectionism, cohesion, attribution after failure, and depressive symptoms. Mediation analysis using path analysis with bootstrapping was used for data analysis. As expected, athletes in individual sports showed higher scores in depression than athletes in team sports [$t(197) = 2.05$; $p < 0.05$; $d = 0.30$]. Furthermore, negative attribution after failure was associated with individual sports ($\beta = 0.27$; $p < 0.001$), as well as with the dependent variable depression ($\beta = 0.26$; $p < 0.01$). Mediation hypothesis was supported by a significant indirect effect ($\beta = 0.07$; $p < 0.05$). Negative attribution after failure mediated the relationship between individual sports and depression scores. Neither cohesion nor perfectionism met essential criteria to serve as mediators: cohesion was not elevated in either team or individual sports, and perfectionism was positively related to team sports. The results support the assumption of previous findings on sport-specific mechanisms (here the effect between individual and team sports) contributing to depressive symptoms among elite athletes. Additionally, attribution after failure seems to play an important role in this regard and could be considered in further research and practitioners in the field of sport psychology.

Keywords: depression, junior elite athletes, team sports, individual sports, attribution

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Tadhg Eoghan MacIntyre, University of Limerick, Ireland

Reviewed by:
Hugh John Gilmore, English Institute of Sport, UK
Katie Lynn Andrews, University of Limerick, Ireland

****Correspondence:***
Insa Nixdorf
insa.nixdorf@tum.de

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INTRODUCTION

Although depression among elite athletes seems to be a topic of interest, empirical data on prevalence rates and research on mechanisms in this regard are still rare. However, recent results on depression prevalence in elite athlete samples are noteworthy and range between 4% (Schaal et al., 2011), 24% (Wolanin et al., 2016), 27% (Gulliver et al., 2015), and in some cases even up to 68% in the last 36 months (Hammond et al., 2013). Obviously, there is variability in prevalence estimates, which might be due to different assessment methods (questionnaire vs. interview), different assessment times (period of heavy exercise, recovery, or championship), or samples (different sport disciplines, gender etc.). In fact, recent reviews on this matter (Frank et al., 2013; Wolanin et al., 2015) suggest depression in elite athletes to be connected to sport-specific mechanisms and factors, such as injuries, overtraining, or exceeding stress. Consequently, such factors should be taken into consideration while assessing depression in athletes.

However, few such sport-specific factors are known. For example, Hammond et al. (2013) showed largely increased levels of depressive symptoms among swimmers during competition. Moreover, the study found performance failure to account for an increase in the levels of depressive symptoms. Besides the importance of failure, research showed injuries during the athletic career as predictors for depressive syndromes (Leddy et al., 1994). Leddy et al. (1994) found injured athletes to experience depression not only within 1 week after an athletic injury but also to have significantly higher depression scores even 2 months *post*-injury. Appaneal et al. (2009) found similar results with elevated depression scores from 1 week up to 1 month after injury when compared with healthy controls. There has been a number of evidence suggesting that sport-related concussions can lead to changes in emotional state (Hutchison et al., 2009) and might be connected to depression (Kerr et al., 2012). But while there might be a significant connection between concussions and depression, there is evidence suggesting that other sport injuries may have comparable or greater effects on mental health (Mainwaring et al., 2010). Besides the effect of acute injuries, the overtraining syndrome can also threaten the mental and physical health of an athlete and has been connected to depression in athletes (Puffer and McShane, 1992; Armstrong and Van Heest, 2002).

Recent findings also showed a sport-related effect, indicating that depressive symptoms vary by sport type. It has been repeatedly shown that athletes competing in individual sports were more prone to depressive symptoms than athletes competing in team sports (Schaal et al., 2011; Nixdorf et al., 2013). In a German sample, Nixdorf et al. (2013) found higher scores in depressive symptoms for athletes competing in individual sports than those competing in team sports. In a French sample, Schaal et al. (2011) found differences between sport disciplines indicating higher scores in esthetic sports (24%) and fine motor skill sports (18%) in comparison to team ball sports (8%). In North America, Wolanin et al. (2016) found that athletes competing in track and field had the highest rate of depression scores, while lacrosse players had significantly lower levels of depression. Although these authors do not explicitly address a differentiation into individual sports and team sports, their results further support the assumption that higher depression scores are found in disciplines with competitions based mainly on an individual performance.

From a psychological perspective, there are some reasonable arguments for athletes in individual sports to be at a higher risk for depression. In this regard, attribution of failure and success might be one such psychological difference. Hanrahan and Cerin (2009) showed that athletes in individual and team sports differ in style of attribution. In detail, athletes competing in individual-sport disciplines showed attribution with higher levels in the dimension "internality". For positive events, individual-sport athletes showed attributions to be more internal, stable, and global. As the authors point out, it seems logical for individual-sport athletes to make more internal attributions as they do not have teammates which can be credited or blamed for results. For positive events, this style of attribution has potentially benefits in regard to performance or persistence (Hanrahan and Biddle, 2008). However, for negative events it can be a risk factor for depression and negative mood (Abramson et al., 1989). Internal attribution after negative events (failure) is associated with negative effect, such as guilt and shame (Tracy and Robins, 2004). Moreover, research on depression indicated that internal, stable, and global attribution after failure can lead to depression (e.g., Hull and Mendolia, 1991; Alloy et al., 2006). It is thus plausible that internal attribution can explain why athletes in individual sports might be at greater risk for depressive symptoms after failure.

Regarding cognition and attitudes, perfectionism is another plausible underlying mechanism. Perfectionism can be defined as a personal disposition characterized by striving for flawlessness and setting exceedingly high standards. Furthermore, it is accompanied by tendencies for overly critical evaluations of one's behavior (see Frost et al., 1990; Hewitt and Flett, 1991b; Flett and Hewitt, 2002). The concept of a multidimensional personality disposition (Enns and Cox, 2002) has different aspects, which can be regarded as maladaptive and adaptive (Stoeber and Otto, 2006). Maladaptive aspects have been demonstrated to be linked to depression (Hewitt and Flett, 1991a). In athletes, research also discusses maladaptive and adaptive aspects (Gotwals et al., 2012). On the maladaptive side, perfectionistic concerns have been repeatedly linked to burnout in athletes (Hill et al., 2008; e.g., Hill, 2013; Madigan et al., 2015). One aspect of perfectionistic concerns is perfectionistic expectations from others, e.g., coaches, teammates, and parents (Enns and Cox, 2002; Stoeber et al., 2004). Such perfectionistic expectations appear as one possible aspect to showcase the difference between individual and team sports. Most athletes reaching for an elite level will probably perceive pressure to perform well and therefore experience perfectionistic expectation from outside. But whereas in team sports, responsibilities can more likely be diffused, identifiability can be greater

in individual sports (Scanlan, 1984; Widmeyer et al., 1992). Data also show greater interest in athlete's performance in individual sports from a motivational perspective (van de Pol et al., 2015). These circumstances are discussed in regard to research indicating higher levels of social anxiety (Norton et al., 2000) and trait anxiety in individual athlete compared to team-sport athletes (Martin and Hall, 1997). Following this argumentation, while individual- and team-sport athletes both experience perfectionistic expectations these might be more intensified for individual sports. However, differences between perfectionism and sport disciplines have not been examined, neither its possible mediating role toward depressive symptoms in contrast between team and individual-sport athletes.

Besides cognitive factors such as attribution or attitudes, social factors (cohesion or social support) are associated with depressive symptoms and its development (e.g., Alloy et al., 2006; Au et al., 2009). Therefore, low social support is connected with elevated depressive scores. The relevance of these social factors for depression in athletes has been demonstrated (Armstrong and Oomen-Early, 2009; Ohlert, 2012). Recent articles indicated that even in retired athletes low social support is connected to depression throughout and after the athlete's career (Gouttebarge et al., 2015). In regard to cohesion in teams and training groups of individual sports, differences can be assumed. The presence of shared goals and interdependent structures, e.g., can strengthen cohesion in teams (Evans and Eys, 2015). Feedback from coaches, experience of failure during important competition, surroundings, and support might be different depending on the sport discipline. Therefore, higher cohesion in teams can be expected and potentially mediate differences in depressive symptoms across sport disciplines.

In summary, it can be stated that there are plausible arguments for negative attribution after failure, perfectionistic expectations from outside and cohesion to be important variables for the association between depressive symptoms, team sports, and individual sports. More specifically, these variables could potentially mediate the observed differences regarding depressive symptoms among individual- and team-sport athletes. For testing these assumptions, we examined these variables in a cross-sectional study among German junior elite athletes. It was assumed (i) that even in junior elite athletes we would find differences regarding depressive symptoms between athletes in individual and team sports. Therefore, we expect higher depressive scores among individual-sport athletes. Furthermore, we hypothesized (ii) that negative attribution after failure, perfectionistic expectations from outside, and cohesion would mediate the association between individual sports and depression. No specific assumption was made about which variable was most likely to mediate this effect. As not all connections between possible mediators and type of sport have been established by previous research, this has been tested according to the stepwise approach from Baron and Kenny (1986). However, mediation was tested using path modeling with bootstrapping to check for possible indirect effects and have more power and control over type I error rates (Hayes, 2009).

MATERIALS AND METHODS

Participants

In a cross-sectional study, $N = 199$ German junior elite athletes ($M_{age} = 14.96$; $SD = 1.56$) participated and completed questionnaires on perfectionism, attribution, cohesion, and depressive symptoms. Originally, 295 junior elite athletes had participated, of which 199 completed all questionnaires and therefore were included in the present study. Participants were part of a scientific project which was reviewed, approved and financially supported by the German Federal Institute of Sport Science (*Bundesinstitut für Sportwissenschaft;* BISp) in order to investigate and help prevent depression and burnout in young elite athletes. Therefore, only junior athletes with high competition level (at least regional selection squad or members in professional junior development facilities) were included in the study. Participants came from different sport disciplines. Individual sports were: mountain bike ($n = 16$), badminton ($n = 9$), gymnastics ($n = 5$), swimming ($n = 10$), ice running ($n = 19$), and short track ($n = 12$). Team sports were: soccer ($n = 113$) and hockey ($n = 15$).

Measures

Depression

Depressive symptoms in junior athletes were assessed with the widely used German version of the Center for Epidemiologic Studies Depression Scale (CES-D) from the National Institute of Mental Health (Radloff, 1977; Hautzinger et al., 2011). The CES-D is a short, self-report scale designed to measure depressive symptomatology in the general population. It was also repeatedly used to assess depressive symptoms among elite athletes (Yang et al., 2007; e.g., Armstrong and Oomen-Early, 2009; Junge and Feddermann-Demont, 2016). The 20 items are assessed on a scale ranging from 0 to 3. The scale is constructed, reliable, and standardized for the age range 11–90 years. The scale has been found to have high internal consistency ($\alpha = 0.89$), which was in the present study $\alpha = 0.85$.

Cohesion

Cohesion in team and individual athletes was measured using the German version of the Group Environment Questionnaire (GEQ; Carron et al., 1985) by Ohlert (2012). The GEQ is a widely used questionnaire to assess cohesion by four factors, namely group integration (related to task), group integration (social), individual attraction to group (related to task), and individual attraction to group (social). The widely used GEQ was translated, adapted, and validated by ($N = 418$) German athletes (Ohlert, 2012). Adaption of the German version allowed assessment of cohesion in team and individual sports. Therefore, 18 items with a nine-point Likert scale (strongly agree to strongly disagree) were used. The scale was found to be internal consistent with Cronbach's alpha ranging between $\alpha = 0.74$ and $\alpha = 0.78$ for the four subscales. Overall, reliability was good in the present study with an internal consistency of $\alpha = 0.81$.

Perfectionism

Perception of perfectionistic expectations from outside was assessed using the subscale of the German Version of the Multidimensional Inventory of Perfectionism in Sport (MIPS; Stoeber et al., 2004). The MIPS was developed following existing questionnaires dominating research in the field of perfectionism (e.g., Frost Multidimensional Perfectionism Scale; FMPS; Frost et al., 1990; Multidimensional Perfectionism Scale; MPS; Hewitt and Flett, 1991b). The scale consists of nine subscales which can be regarded as either adaptive or maladaptive (Stoeber et al., 2004). The subscale used in the present study has eight items on a six-point Likert scale covering experiences of perfectionistic expectations from outside (from the coach) and is regarded as rather maladaptive (see Ashby and Rice, 2002; Enns and Cox, 2002). The scale was validated and tested regarding its reliability in two studies indicating good internal consistency (study 1: Cronbach's $\alpha = 0.94$; study 2: Cronbach's $\alpha = 0.86$). Reliability was good in the present study with Cronbach's $\alpha = 0.88$.

Attribution after Failure

Attribution after failure was assessed using the relevant dimensions, such as internality, stability, and globality after the last failure according to the Sport Attributional Style Scale (SASS; Hanrahan and Grove, 1990). Athletes had to rate their personal cause for failure and success on the following dimensions: internality, stability, globality, personal controllability, external controllability, and intentionality on separate seven-point bipolar scales. The SASS was shown to have adequate psychometric properties (Hanrahan and Grove, 1990). For analysis in the present study, the sum score for the three dimensions, such as internality, stability, and globality for the last failure was used.

Procedure

After review and approval of the BISp, written informed consent by athletes and parents of each participating athlete was provided. Data were assessed anonymously and pre-season in all sport disciplines with an online questionnaire battery. In case of interest or for further information on personal data, participants could use an individual code to access their individual data.

RESULTS

For replicating previous findings, athletes competing in team sports were compared with athletes in individual sports regarding depressive symptoms. A one-sided *t*-test revealed significant differences between the groups [$t(197) = 2.05$; $p < 0.05$; $d = 0.30$] with higher levels of depressive symptoms in athletes in individual sports ($M = 11.55$; $SD = 7.67$) than in team sports ($M = 9.47$; $SD = 6.80$).

Second, the hypothesized mediating variables negative attribution after failure, perfectionistic expectations from outside and cohesion were tested and results are shown in **Table 1**. Higher scores in individual sports are shown for the factor negative attribution after failure [$t(197) = 3.87$; $p < 0.001$]. Cohesion did not differ between team and individual sports and perfectionism differed contradictory to the hypothesis [$t(197) = -3.57$; $p < 0.001$].

Mediation analysis using path analysis with bootstrapping was used for data analysis. Therefore, the statistical program R using the package lavaan was employed. The categorical variable sport discipline (either team sports or individual sports) was included in the regression model as dummy coded variable (team = 0; individual = 1). As individual sports were coded with a higher value than team sports, the variable is called individual sports for easier interpretation of negative and positive pathways. For comparison between mediators, all scales were standardized and standardized path coefficients are reported. In addition, to illustrate associations between mediators and the dependent variable correlations between these variables were computed. In this regard, **Table 2** shows correlations between cohesion and depressive symptoms ($r = -0.41$; $p < 0.001$) as well as with negative attribution and depressive symptoms ($r = 0.28$; $p < 0.001$). Correlation between perfectionism and depressive symptoms was small ($r = 0.14$; $p = 0.045$). Also, inter-correlation between possible mediators was small (cohesion and negative attribution after failure; $r = 0.19$; $p = 0.008$) or absent (perfectionism and cohesion; perfectionism and negative attribution after failure).

Regarding the mediation analysis, the overall model for negative attribution after failure as mediator between individual and team sports and depression is shown in **Figure 1**. Negative attribution after failure was associated with individual sports ($\beta = 0.27$; $p < 0.001$), as well as with the dependent variable depression ($\beta = 0.26$; $p < 0.01$). Mediation hypothesis was supported by a significant indirect effect ($\beta = 0.07$; $p < 0.05$) which showed a possible range between $CI_{0.95} = 0.13, 0.02$ with a 95% confidence interval ($R^2_{med} = 0.07$). Therefore negative attribution after failure mediated the relationship between individual sports and depression scores.

Regarding the other possible mediators cohesion was significantly related to depression ($\beta = -0.40$; $p < 0.001$), as was perfectionism ($\beta = 0.19$; $p < 0.05$). However, as **Table 1** illustrates cohesion was not related to team sports and perfectionism was positively related to team sports, which was contradictory to the hypothesized mechanism in both regard. Thus, these variables did not meet essential criteria to serve as mediators (Baron and Kenny, 1986). Consequently, no analysis for mediating effects was performed.

DISCUSSION

The present study replicates the previously found difference in depressive symptoms between team- and individual-sport athletes (Schaal et al., 2011; Nixdorf et al., 2013; Wolanin et al., 2016), and results support the assumptions of previous findings on sport-specific mechanisms contributing to depressive symptoms among elite athletes. Athletes in individual sports showed higher scores in depressive symptoms than athletes in team sports, both in a non-clinical range in average. Along with other sport-specific mechanisms such as performance failure (Hammond et al., 2013) or

TABLE 1 | Comparison of athletes in team and individual sports regarding possible mediators.

	Individual sports	Team sports	*t*-Test
Perfectionism	$M = 13.79$; $SD = 8.33$	$M = 18.01$; $SD = 8.05$	$t(197) = -3.57$; $p < 0.001$
Cohesion	$M = 94.79$; $SD = 23.16$	$M = 97.75$; $SD = 17.07$	$^{*}t(197) = -0.94$; $p = 0.174$
Negative attribution after failure	$M = 12.55$; $SD = 3.03$	$M = 10.77$; $SD = 3.14$	$t(197) = 3.87$; $p < 0.001$

t-Tests were one sided as specific direction of difference was assumed. As perfectionism was distributed contradictory to hypothesis, two-tailored t-test was performed post hoc. As variances regarding the variable cohesion were not equal, Welch T-Test (*) was performed in this regard.

TABLE 2 | Pearson correlation between possible mediators and depressive symptoms.

	Cohesion	Negative attribution after failure	Perfectionism
Depressive symptoms	$r = -0.41$; $p < 0.001$	$r = 0.28$; $p < 0.001$	$r = 0.14$; $p = 0.045$
Cohesion	–	$r = -0.19$; $p = 0.008$	$r = 0.01$; $p = 0.906$
Negative attribution after failure	–	–	$r = 0.00$; $p = 0.958$

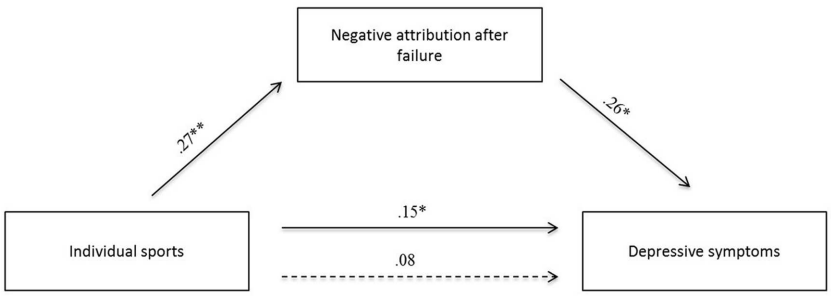

FIGURE 1 | Model of mediation path analysis with negative attribution after failure as mediator for the effect between sports and depressive symptoms (*$p < 0.05$; **$p < 0.001$).

injuries (Hutchison et al., 2009; Junge and Feddermann-Demont, 2016), the effects of individual vs. team sports should be taken into account when assessing clinical relevant prevalence in athletes to further explore the present sport-specific factors.

Whereas the previous studies referred to adult athletes, the present study was conducted with a relatively young athlete sample. Development of depression in the German general population is mostly evolving around adolescence and early adulthood (Jacobi et al., 2004). Therefore, the presence of this however small effect seems noteworthy and an increase in older samples seems likely. Furthermore, it indicates that possible underlying mechanisms for this effect are also sport inherent from an early stage.

Attribution after failure appears to be one such sport inherent factor that accounted for mediation in the present study. Thus, attribution seems to play an important role in explaining the different vulnerability to depression in team and individual sports. Since success and failure in individual sports are mostly based on the single athletes' performance an internal attributional style is more common in individual sports than in team sports (Hanrahan and Cerin, 2009). Future research should develop this assumption by going into greater detail regarding the level of interaction in different sports (assuming a continuum from single performance, through added, to coactive and finally interactive performance). Attribution after failure can be compared across sport disciplines such as swimming (single performance), relays (added performance), rowing (coactive performance), and volleyball (interactive performance).

Besides depressive symptoms, other outcomes such as motivational or emotional aspects could be affected by an internal attributional style in athletes. Following the framework of Tracy and Robins (2004) on self-conscious emotions, the internal attribution could lead to stronger experiences of emotions such as pride (positive event) and guilt or shame (negative events) in athletes in individual sports. Therefore, further investigations on possible outcomes contrasting individual- and team-sport athletes could support existing theories on attributional style and deliver useful information for practitioners in the field.

Comparable to research on athlete burnout (Hill et al., 2008; Madigan et al., 2015), the present study found a connection between one maladaptive aspect of perfectionism (perfectionistic expectations from outside) with depression. Applying knowledge from the research on perfectionism and burnout to depression could be useful in this regard. Perfectionism had a positive relationship with team sports, with athletes in team sports being more prone to perfectionism than athletes in individual sports. Thus, the assumed relationship that individual athletes would experience higher levels of perfectionistic expectations due to

their more obvious performance was clearly not supported. Recent research on burnout showed perfectionistic strivings to be connected to autonomous motivation and therefore prevent burnout (Jowett et al., 2013). Only perfectionism associated with controlled motivation should increase vulnerability to depression. However, Jowett et al. (2013) findings show once more that there is no unidimensional relationship between perfectionism and negative outcomes such as burnout or depression. Although in the present study a rather maladaptive aspect of perfectionism was used (Stoeber et al., 2004) this may also indicate that the construct as well as the assessment of perfectionism may be in need of further elaboration to clearly cover the different aspects associated with perfectionism.

Cohesion was associated with lower levels of depression in the present sample, leading to the assumption of cohesion being a protective factor for athletes. In line with previous findings (Armstrong and Oomen-Early, 2009; Gouttebarge et al., 2015), social factors might be important regarding depressive symptoms in athletes. However, no difference between individual- and team-sport athletes for cohesion was observed. This could be due to our sample. Also, it seems plausible that cohesion may not be the suitable factor to assess social connectedness and group dynamics. Evans et al. (2012) promote the investigation of group dynamics and social influence in individual sport by proposing a typology that distinguishes types of sport group environments according to levels of structural interdependence. Here, the individual athlete may still be exposed to similar cohesion effects as the team of athletes. Therefore, other variables such as coaching behavior and training environments could be important for the association between cohesion and depression.

As above mentioned, the present study assessed depressive symptoms in a relatively young sample. Goal of the study was to gather hints for underlying mechanisms with sport related connection in order to support prevention in this regard. Although differences in depressive symptoms were observed, results showed comparable means to the general population and most athletes were in a non-clinical range. Therefore, assumptions on the clinical relevance of this effect have to be further explored, using valid cut-off scores or clinical diagnosis by structured diagnostic interviews.

The present study is correlational in nature. Thus, causal implications cannot be drawn from the design. It is highly likely for the type of sport to be stable and can therefore be regarded as an early factor in a possible underlying sequence. However, no sequential order in regards to attribution or depression can be made. Thus results on mediator and outcome have no causal implication. Future research could investigate such causal mechanisms in prospective study designs. Nevertheless, practitioners could use these findings by considering attributional style and attribution after highly relevant events, especially in individual-sport disciplines and even in junior elite athletes in order to prevent negative reactions to failure such as depression.

AUTHOR CONTRIBUTIONS

IN, RF, and JB are a research group at the Chair of Sport psychology at the Technical University of Munich, Germany. The original research is part of the Ph.D.-Theses of IN and RF of which JB is the Ph.D. supervisor. Therefore, the conception and design of the work was a process done by all three authors in equal parts. The acquisition and analysis has been mainly lead by IN and RF. The interpretation of the data and the actual writing of the manuscript have been done by all three authors in equal parts. It is critically revised and approved to be published by IN, RF, and JB. All three authors agree to be accountable for all aspects of the work and ensure that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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GENERAL COMMENTARY
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Commentary: Comparison of Athletes' Proneness to Depressive Symptoms in Individual and Team Sports: Research on Psychological Mediators in Junior Elite Athletes

*Anne-Marie Elbe * and Stine Nylandsted Jensen*

Department of Nutrition, Exercise and Sports, University of Copenhagen, Copenhagen, Denmark

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****Correspondence:***
Anne-Marie Elbe
amelbe@nexs.ku.dk

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Depression, one of the most commonly diagnosed mental health disorders, is an emerging public health problem (Andersen et al., 2011). Depression is defined as frequently experienced depressive moods, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration (American Psychiatric Association, 2013). As a consequence, depression increases physical distress and health problems, ultimately impairing functional well-being and quality of life (American Psychiatric Association, 2013). It has been estimated that approximately 15% of the population worldwide is at risk of developing depressive symptoms (Richards, 2011; Vilhelmsson, 2013). While research on depression in the general public is extensive, research on depression in the sport context, however, is limited. The few studies that do exist, outlined in Nixdorf et al.'s (2016) introduction, identified prevalence rates of 4–68%. A main research focus has been on sport's antidepressant function and how regular physical activity can reduce depressive symptoms, preventing the occurrence of depression (Babiss and Gangwisch, 2009). In line with this research it has been assumed that because elite athletes are so physically active they are immune to depression. Recent studies (Hammond et al., 2013; Gulliver et al., 2015) have, however, highlighted that elite athletes might be just as likely as non-athletes to experience depression, and that psychosocial benefits attributed to sport do not inherently occur through mere sport participation. Studies in the general population indicate that young people are especially at risk for depression due to the developmental challenges and life transitions they face (Suvisaari et al., 2009; Gulliver et al., 2015). Because junior elite athletes, who face the same developmental challenges as all other young people, are additionally confronted with challenges inherent in elite sports, research on depression in this specific population seems especially warranted.

While strides have been made in the classification, assessment, and identification of depression, given its complexity, the cause of depression is difficult to articulate, and has not been adequately elucidated (Beck and Alford, 2009). It is therefore particularly important to examine which sources may contribute to depression among elite athletes as these might differ from those affecting non-elite athletes. Nixdorf et al. (2016) nicely outlined the risks related to being an elite athlete (e.g.,

injuries, overtraining, or simply competing in a different sport discipline) and illustrated well how these risks might be related to developing depression. Nevertheless, there is a noticeable research gap when it comes to investigating personality and social factors as possible precursors of depressive symptoms among junior as well as senior elite athletes. Therefore, examining attributional style, perfectionism, and cohesion in relation to depressive symptoms seems highly relevant.

Nixdorf et al.'s (2016) finding that attributional style after failure mediated depression in individual sport athletes is important for several reasons. Attributional style, which refers to the reasons individuals give for their success and failure, has been shown to be related to emotional well-being (Allen, 2012). Not only can this finding help explain how depression develops; it can also inform recommendations for practical interventions. Attributional styles can be changed through systematic sport psychological training in such a way that they enhance positive emotions (Beckmann and Elbe, 2015). Hence, if athletes were taught how to talk to themselves better after they have experienced failure, this might contribute to alleviating depressive symptoms and at the same time also enhance motivation. It has been shown that attributing failure to external, unstable, and specific factors is a more adaptive attributional style than blaming failures on internal, stable, and global factors (Buchanan and Seligman, 1995).

It is also interesting that maladaptive perfectionism and low cohesion were related to depression in Nixdorf et al.'s (2016) study. The result concerning maladaptive perfectionism is in line with other studies suggesting a relationship between maladaptive perfectionism and depression (Ashby et al., 2012; Zhou et al., 2013; Noble et al., 2014). The self-blame/defeating component related to maladaptive perfectionism, which is similar in nature to an attributional style, that blames failure on internal, stable, and global factors could be the decisive factor for the occurrence of depression.

Last but not least, the paper clearly identifies that young elite athletes participating in an individual sport are at a higher risk for depressive symptoms than team sport athletes. This finding is consistent with previous research examining the health advantages of team sports over individual sports. The studies investigating different types of physical activity interventions and which indicated that team sports are more conducive for participants' motivation (Nielsen et al., 2014), experiences of flow (Elbe et al., 2010), and cardiovascular health (Krustrup et al., 2010), could possibly explain why young elite athletes participating in individual sports are more at risk for depressive symptoms than older athletes.

This paper addresses an important issue because psychological well-being and mental disorders have increasingly become of public and scientific interest in elite sports, particularly since several cases of prominent elite athletes affected by depression have become publicly known (Nixdorf et al., 2013). The European Federation of Sport Psychology (FEPSAC) is currently working on the topic, developing a position statement related to the mental health of elite athletes.

Knowledge of psychological and social factors related to depression in elite athletes is scarce. This paper, therefore makes an important contribution to the knowledge about the mental health of young athletes but also gives a useful recommendation for applied practitioners, namely, to pay attention to athletes' attributional styles. This study illustrates that the mental health of young athletes needs stronger attention in order to prevent depressive symptoms and depression, especially in individual sport athletes. Given the fact that specific challenges are associated with depression like the comorbidity with other mental disorders such as anxiety and eating disorders, it is important to keep the mental health of young athletes in focus. Due to the stigma related to depression and the fact that athletes might hesitate to seek help, providing them with information about how and where to seek help should be a priority. Individuals in contact with young athletes like coaches, parents, and physical therapists should be informed about support services for young athletes with depressive symptoms so that they can be referred to them. Finally, longitudinal studies are needed to better understand the duration of depressive symptoms in young athletes and causal relationships between depression and psychological precursors.

AUTHOR CONTRIBUTIONS

AE and SN contributed equally to the writing of this commentary.

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Blurred lines: Performance Enhancement, Common Mental Disorders and Referral in the U.K. Athletic Population

Claire-Marie Roberts[1]*, *Andrea L. Faull*[1] and *David Tod*[2]

[1] Institute of Sport & Exercise Sciences, University of Worcester, Worcester, UK, [2] School of Sport and Exercise Science, Liverpool John Moores University, Liverpool, UK

Through the awareness-raising efforts of several high-profile current and former athletes, the issue of common mental disorders (CMD) in this population is gaining increasing attention from researchers and practitioners alike. Yet the prevalence is unclear and most likely, under-reported. Whilst the characteristics of the sporting environment may generate CMD within the athletic population, it also may exacerbate pre-existing conditions, and hence it is not surprising that sport psychology and sport science practitioners are anecdotally reporting increased incidences of athletes seeking support for CMD. In a population where there are many barriers to reporting and seeking help for CMD, due in part to the culture of the high performance sporting environment, anecdotal reports suggest that those athletes asking for help are approaching personnel who they are most comfortable talking to. In some cases, this may be a sport scientist, the sport psychologist or sport psychology consultant. Among personnel in the sporting domain, there is a perception that the sport psychologist or sport psychology consultant is best placed to assist athletes seeking assistance for CMD. However, sport psychology as a profession is split by two competing philosophical perspectives; one of which suggests that sport psychologists should work exclusively with athletes on performance enhancement, and the other views the athlete more holistically and accepts that their welfare may directly impact on their performance. To add further complication, the development of the profession of sport psychology varies widely between countries, meaning that practice in this field is not always clearly defined. This article examines case studies that illustrate the blurred lines in applied sport psychology practice, highlighting challenges with the process of referral in the U.K. athletic population. The article concludes with suggestions for ensuring the field of applied sport psychology is continually evolving and reconfiguring to ensure that it continues to meet the demands of its clients.

Keywords: common mental disorders, referral, elite athletes, case study, clinical psychology

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***Correspondence:**
Claire-Marie Roberts
c.roberts@worc.ac.uk

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INTRODUCTION

The prevalence of mental ill-health in the athletic population is a topic that has received increasing amounts of both media and research attention in recent years (cf. Hill et al., 2015; MacIntyre et al., 2015). Driven in part by the awareness-raising of elite athletes who have suffered and in some cases continue to suffer with mental ill-health, this topic is one that deserves the momentum it has attained. Amongst those who have spoken out about their struggles with mental ill-health are cricketers Jonathan Trott, Michael Yardy, Marcus Trescothick, and Matthew Hoggard; footballers Stan Collymore, Clarke Carlisle and Neil Lennon; cyclist Victoria Pendleton; track and field athlete, Dame Kelly Holmes; rugby union player Duncan Bell; boxer Frank Bruno and snooker player Ronnie O'Sullivan. Despite these attempts to put mental ill-health in sport under the spotlight, there remains a consensus that the true prevalence is under-reported.

Measuring the prevalence of mental ill-health in the athletic population is problematic. There are many barriers to reporting and seeking help for mental ill-health in this population, including (a) public, perceived, personal and self-stigmatizing attitudes to help-seeking, and (b) a lack of knowledge about mental health services on offer and the symptoms of mental disorders. Negative past experiences, lifestyle factors (e.g., a lack of time, money, or transportation) and personal characteristics such as gender are identified as personal obstacles to accessing assistance (Gulliver et al., 2012). Additionally, there are claims of sporting governing bodies attempting to downplay the significance of mental ill-health in the athletic population thereby raising concerns over the culture of these organizations (Reardon and Factor, 2010). Indeed, Bauman (2015) suggests that the culture of sport dictates that "mental toughness and mental health are seen as contradictory terms in the world of elite performance" (p. 1). These suggestions are reinforced by recent research commissioned by the Football World Players' Union, FIFPro, which confirmed that the reporting of mental ill-health in professional football is still considered taboo and therefore prevalence rates are likely to be vastly underestimated (Gouttebarge et al., 2015). There have, however been attempts to estimate the likely prevalence of mental ill-health in this population, with a number of studies concluding that it may in fact be on a level comparable with the general population (Yang et al., 2007; Markser, 2011; Bar and Markser, 2013). Bauman claims that this is unsurprising given "a growing number of complex and more intense mental health challenges" within this population, driven by the sporting environment (2015a, p. 1). Indeed, a number of studies have highlighted the role of the sport performance environment in increasing the risk of mental ill-health in athletes, focusing on issues such as: early sport-specialization, a loss of personal autonomy and disempowerment (Cresswell and Eklund, 2007), no opportunities to develop psychological coping skills (Bauman, 2015), sport-related stress (Noblet et al., 2002), living away from home (Bruner et al., 2008), limited social support due to relocation (Noblet and Gifford, 2002), disordered eating as a result of esthetic and weight-dependent sport (Sundgot-Borgen, 1994; Sundgot-Borgen and Torstveit, 2004), and high injury risk (Smith et al., 1990). To add further weight to this case, a recent literature review by Arnold and Fletcher (2012) identified that young elite athletes are faced with over 600 different stressors within their sport environment. These stressors pertain to a variety of matters including leadership, personal, team, cultural, environmental, and logistical issues. Arnold and Fletcher (2012) concluded that the existence of symptoms related to mental ill-health in this population is therefore unsurprising.

Notwithstanding the socio-contextual characteristics of competitive sport that may generate these mental health challenges, there is a further issue to consider: the sporting environment may exacerbate pre-existing mental ill-health as the full range of psychopathology is likely to exist within the athletic population (MacIntyre et al., 2015). Indeed, Bauman (2015) suggests that mental ill-health that began prior to involvement in sport may "become more evident when athletes are faced with stressors associated with elite sport" (p. 1). Either way, a continuous exposure to some, if not all of these challenges, has the potential to cause a deterioration in the athlete's well-being, carrying with it potentially negative outcomes such as common mental disorders (CMD) that may include anxiety and depression (Hughes and Leavey, 2012).

Common mental disorders (CMD) are defined as symptoms that relate to distress, anxiety, depression, substance abuse or dependence and are reported to be more frequent in young adults than in any other stage of life (Korten and Henderson, 2000; King et al., 2008; American Psychiatric Association, 2013). A recent study by Gouttebarge et al. (2015) was the first to examine the prevalence of CMD symptoms in current and former professional football (soccer) players across five European countries. They concluded that the prevalence of CMD ranged from 5% (burnout) to 26% (anxiety/depression) in 149 current players and from 16% (burnout) to 39% (anxiety/depression) in 104 former footballers. Gouttebarge et al. (2016) extended this research to retired rugby union players from France, Ireland and South Africa. The prevalence of CMD in this cohort ranged from 25% for distress, 28% for anxiety/depression, 29% for sleeping disturbance and 24% for adverse alcohol behavior. Elsewhere, there are suggestions that the athletic population as a whole are at *higher* risk of developing mental health problems such as eating disorders (Sundgot-Borgen and Torstveit, 2004), suicide (Baum, 2005), when experiencing "performance failure" (Rice et al., 2016, p. 12) and on retirement (Roberts et al., 2015; Gouttebarge et al., 2015). Others suggest prevalence rates of mental ill-health are comparable to the general population (Gulliver et al., 2015). Although, the details of the prevalence of CMD in the athlete population is imprecise, the aforementioned studies provide support for continuing to raise awareness of CMD within both populations, and elsewhere in sport, as a priority.

As awareness of CMD in sport is on the increase, so are the instances of practitioners encountering athletes presenting with problems related to these disorders. A small number of commentaries from those working in the sport and exercise science domain provide an insight to the issues faced. Firstly, observations by Morton and Roberts (2013) discussed the practitioners' (a nutritionist/physiologist and a sport psychology

consultant) experiences of working with athletes suffering from the consequences of the relentless pursuit of success, fear of failure and balancing sport with other life commitments. Their article explained that athletes seeking assistance may approach the individual within their support team whom they feel most comfortable talking to, which is not always the most qualified or suitably trained person. Indeed, they make reference to the difficulties with athletes accepting referrals to other professionals (e.g., clinical psychologists) where there may be an absence of trust or skepticism surrounding the professionals' understanding of the challenges of the sporting environment. They finish by making a case for a review of the training of sport scientists to ensure that all practitioners develop an awareness of the likelihood of consulting with athletes experiencing CMDs, and to gain further skills (e.g., counseling) to help equip them adequately to deal with such a situation. Additional reference was made to the increased prevalence of athletes seeking sport psychology support for a combination of CMD and performance enhancement purposes in a conference presentation by Faull and Roberts (2014). Moreover, recent studies by Hill et al. (2015) and Newman et al. (2016) identified a wide range of mental health issues in young athletes involved in a sporting talent development environment and the negative impact of depression on sport performance, respectively. However, it was the dedication of a 60 minute panel discussion at the 30th Annual Conference of the Association for Applied Sport Psychology (AASP) in Indianapolis in 2015 that brought together sport psychology researchers and practitioners to examine the trend of CMD in the athletic population, concluding with a call to carry out further work to establish the nature and extent of the problem (MacIntyre et al., 2015).

Illustratively, given that one in four British adults will suffer with mental ill-health during the course of their lifetime (Mentalhealthorguk, 2016), and comparatively around 18% of the adult population in the United States of America (U.S.A.; Nihgov, 2016), combined with the suggestion that athletes are as (if not more) susceptible to mental ill-health as the general population, it is highly likely that practitioners in elite sport will encounter individuals suffering from CMD at some point in their career. Given that many athletes are often provided with a wide range of support services through their National Governing Bodies or clubs, or from private practice, there is an underlying debate regarding who is best placed to support athletes with mental health concerns. Anecdotally, there is a perception amongst personnel within the sporting domain that sport psychologists or sport psychology consultants are best placed to assist athletes in this predicament. For clarification, in the U.K. sport psychologists are licensed and accredited by the British Psychological Society (BPS) and the Health Care Professions Council (HCPC). Sport psychology consultants are usually sport scientists, accredited by the British Association of Sport and Exercise Sciences (BASES) as specialists in sport psychology. Further guidance on this distinction is featured later in this article.

Focusing on sport psychologists specifically, there is a difference in perspective between those who focus exclusively on performance issues, and those who add clinical issues as part of their service. The former group would refer any clinical issues to those trained to deal with them. Both groups are concerned with their clients welfare. One school of thought conceptualizes sport psychology as focusing exclusively on performance enhancement as opposed to clinical disorders (Hardy et al., 1996; Ravizza, 2001; Marchant and Gibbs, 2004). The other *balances* the athlete's performance with their welfare in a more holistic sense (Stambulova et al., 2006). Indeed, the holistic approach appears to support the long-held yet somewhat controversial concept that positive mental health increases the likelihood of success in sport (Morgan, 1985). This philosophical difference does not imply that performance focused practitioners are uncaring toward their clients, but rather their emphasis is on enhancing performance and letting other professionals take responsibility for mental health (for various reasons such as a lack of competence).

To further define the distinction in the services under debate, Herzog and Hays (2012) proposed a useful diagram illustrating the hypothetical continuum of psychotherapy to mental skills training in sport psychology consulting (see **Figure 1**).

To elaborate, psychotherapy is defined by Murphy and Murphy (2010) as "an intense process focused on helping clients deal with persistent and distressing life problems" (p. 13) and counseling as "the work of helping people cope with everyday problems and opportunities" (pp. 12–13). Mental skills training is considered to be an educational process that helps the client build particular skills in order to enhance performance (Steele, 2011). In the diagram above, counseling provides that middle ground between mental skills training and psychotherapy, which Herzog and Hays (2012) suggest may be imperceptible on a practical level. To further support these blurred lines in approaches to athlete support, in his recent book entitled *Being a Sport Psychologist*, Keegan (2016) suggests that sport psychology has "struggled to break free from the "mental toolkit" approach" (p. 49). He goes on to suggest that a well-rounded sport psychology service acknowledges a breadth of approach which may or may not encompass competing priorities between an athlete's performance and their well-being. Reflectively, he considers that focusing "purely on performance may severely constrain the effectiveness of the sport psychologist" (p. 50).

To demonstrate the reality of the practitioner's consulting approach to their clients, a range of case studies published by Herzog and Hays (2012) documented the complex "balance and shift" (p. 495) of psychotherapy and mental skills training in athletic consultations. Although, both authors are licensed mental health practitioners in the U.S.A., and thus may expect to encounter clients with mental health concerns, their cases presented highlight that the practitioner cannot always accurately predict the course that consultations will take, and that some will often require a change in tack. This mirrors the commentary by Morton and Roberts (2013) who discussed their experiences of working in high performance sport exposing them to situations where the distinction between performance-related and mental health concerns in athletes was somewhat blurred. To add weight to this argument, a large scale survey of sport psychology services provided to athletes at the U.S. Olympic Training Centre (USOTC) highlighted that in 85% of cases, sport psychology staff provided personal counseling to athletes (Meyers et al., 1995).

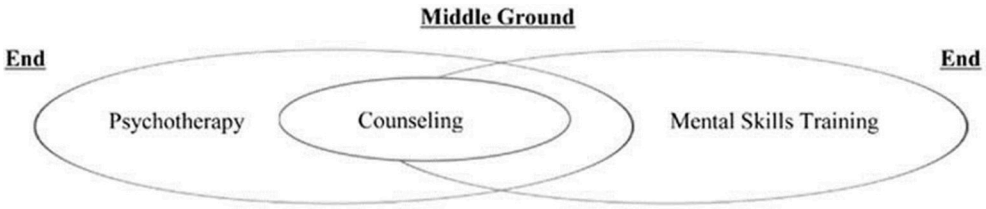

FIGURE 1 | The psychotherapy-mental skills training continuum. Reproduced from Herzog and Hays (2012).

Given that sport psychology consultation may include the requirement for psychotherapy, counseling and mental skills training, an in-depth examination of the competencies required of sport psychologists and sport psychology consultants is necessary. The topic of competencies within this field is a complex one. Fletcher and Maher (2013) recently reviewed competency literature in professional psychology and its implications for applied sport psychology. They evaluated key documentation used in the training and development of sport psychologists such as the Association of Applied Sport Psychology (AASP) certification criteria (AASP, 2012), the International Society of Sport Psychology (ISSP) competencies position stand (Tenenbaum et al., 2003), the APA Proficiency in Sport Psychology checklist (Lesyk, 2005), and the first study to explore the competencies of applied sport psychologists by Ward et al. (2005). They concluded that the documentation available for the training and development of sport psychologists "does not adequately prepare trainees in all the necessary competencies" (p. 268), suggesting that there were six generic limitations, one of which was the lack of distinction between work focused on performance enhancement and therapeutic work with athletes (Aoyagi et al., 2012). This view mirrored the approach of Tod and Lavallee (2011) who had previously suggested that the "traditional" focus on performance enhancement and mental skills training was not adequate enough to meet the needs of the client in elite sport.

There are many lessons to be learned from the Herzog and Hays (2012) case studies, from the empirical evidence of the focus of sport psychology services at the USOTC (Meyers et al., 1995) to the review of competency literature by Fletcher and Maher (2013). However, each of the aforementioned articles relates to either sport psychology services in the USA or international competency standards for psychologists, which often vary between countries (Morris et al., 2003). Those variances have arisen from "diverse educational systems and philosophical differences among countries" (Gualberto Cremades et al., 2014, p. 3). In turn, this has led to great variation in the developmental patterns, certification, registration, licensure, accreditation, and process for the delivery of sport psychology services internationally. Accordingly, Gualberto Cremades et al. (2014) suggest the failure to address the requirement for a consistent set of competencies within the profession leads to "diverse methods of service delivery and training which may result in the blurring of the boundaries regarding what practice in the field is..." (p. 6).

To further illustrate the variance in approach to sport psychology provision internationally, the present article focuses on performance enhancement, CMDs and referral in the U.K. athletic population. The practice of sport psychology in the U.K. is nuanced (cf. McCarthy and Jones, 2013). First and foremost, the regulation of the psychology profession in the U.K. is governed by law. Practitioner psychologists are licensed and regulated through the Health and Care Professions Council (HCPC), a quasi-autonomous non-governmental organization (Quango). Training routes for sport psychologists typically involve a 3 year undergraduate degree accredited by the British Psychological Society (BPS), a BPS accredited master's degree in sport and exercise psychology, or the BPS qualification in sport and exercise psychology (QSEP) stage 1 and a further period of around 3 years of supervised practice through the QSEP stage 2 (British Psychological Society, 2014). This differs from clinical and counseling psychologists who typically undertake a 3 year professional doctorate at the end of their studies (e.g., McEwan and Tod, 2015). In the U.K. there is an alternative training route for those who do not wish to become practitioner psychologists. The British Association of Sport and Exercise Sciences (BASES) offers individuals accreditation as a sport and exercise scientist if they have completed a BASES endorsed undergraduate degree and a relevant MSc in a sport and exercise science-related discipline (e.g., sport and exercise psychology) and a further post-master's period of between 2 and 6 years of supervised experience. Through the BASES route, accredited sport and exercise scientists may work as mental skills coaches/trainers, sport performance consultants and sport psychology consultants. For further information on routes to practicing as a sport and exercise psychologist in the U.K. please see Cotterill (2011).

Sport psychology practitioners in the U.K. will often work in private practice, be employed directly by national governing bodies, individual sport teams or by a publically-funded quango such as the English Institute of Sport (EIS) or Sport Wales. Depending on the conditions of their appointment, they may be fully embedded in a high performance support team, contribute to it on a part-time or ad hoc basis, or they may work with individual athletes in isolation. In the U.K. the emphasis of sport psychology support is on performance enhancement. Indeed the training and supervision of sport psychologists or sport scientists in the U.K. involves minimal clinical psychology content, although elective courses aimed at continuing professional development (CPD) can help broaden skills. Service delivery models tend to be focused

on psychological skills training and in some cases cognitive behavioral therapy (CBT) and humanistic counseling, depending on the practitioner's consulting philosophy. If, during the course of consultation with a client, practitioners are faced with an issue outside of their competency, the requirement is to refer the individual to the most appropriate professional for further assistance. Anecdotally, this situation arises on an increasingly regular basis in the U.K., where practitioners are faced with clinical issues that require that the individual be referred to a clinical psychologist.

In the U.K., a seemingly simple referral to a clinical psychologist has the potential to bring with it many complexities. If a client needs to see a clinical psychologist, they are often presented with two options: see a clinical psychologist through the National Health Service (NHS), or pay to see a clinical psychologist in private practice. In order to elaborate further, in the U.K., the majority of medical care is provided by the NHS which is free at the point of use. The NHS is a publically funded health care system for legal residents, paid for through general taxation. This is the option that individuals may pursue, especially if they are unable to meet the costs of private healthcare or if they do not hold private medical insurance. If the individual opts to see a clinical psychologist through the NHS, they may need a referral through a general practitioner (G.P.) or in some cases, depending on the facility, the individual may be able to self-refer. When seeking the assistance of a clinical psychologist in private practice, a referral can be arranged by the sport psychologist / sport psychology consultant or indeed a self-referral can be made. Regardless of their route to a clinical psychologist, the NHS will assign one to the individual on the basis of availability and geographical proximity. There are no guarantees that the clinical psychologist will have experience in working with the athletic population. Anecdotally, being referred to specialists with no knowledge of the sporting environment can lead to athletes being somewhat resistant to seeking such support for fear of not being understood. Additionally, the initial appointment with the clinical psychologist can take some time to occur, due to the length of waiting lists in the NHS. In some cases this can take up to 12 weeks.

In essence, it is the "blurring of the boundaries" of sport psychology practice that is the focus for this article. To summarize from the beginning: through the awareness-raising efforts of several high-profile current and former athletes, the issue of CMD in sport is gaining increasing attention, yet the prevalence is unclear and most likely, under-reported. Whilst the characteristics of the sporting environment may generate CMD within the athletic population, it also may exacerbate pre-existing conditions, and hence it is not surprising that sport psychology and sport science practitioners are anecdotally reporting increased incidences of athletes seeking support for CMDs. In a population where there are many barriers to reporting and seeking help for CMD, due in part to the culture of the high performance sporting environment, anecdotal reports suggest that those athletes asking for help are approaching personnel whom they are most comfortable talking to. In some cases, this may be a sport scientist or the sport psychologist or sport psychology consultant. Amongst personnel in the sporting domain, there is a perception that the sport psychologist or sport psychology consultant is best placed to assist athletes seeking assistance for CMD. However, sport psychology as a profession is split by two competing perspectives; one of which suggests that sport psychologists should work exclusively with athletes on performance enhancement, and another view that suggests adequately trained practitioners best serve their clients by being able to offer more than performance enhancement strategies. To add further complication, the development of the profession of sport psychology varies widely between countries, meaning that competence in this field is not always clearly defined.

In this article, the authors address these "blurred lines" in applied sport psychology by illustrating their experiences of practicing in the United Kingdom (U.K.). Two different case studies will be presented that highlight the complexities of supporting high performing athletes within the boundaries of the profession in the U.K. The first case study aims to demonstrate the dilemma that Practitioner A faced when the course of a consultation with an elite female lightweight rower took a deviation from the original scope of performance enhancement. The second case study focuses on Practitioner B's consultation with the medical team treating a professional rugby union player who had suffered a career-ending injury. The case involved Practitioner B assisting the medical team to "break bad news" to the player regarding the end of his professional rugby union career, before working with him to help him adhere to his rehabilitation programme and plan his transition out of the sport. The case details Practitioner B's suspicions that the athlete may have been suffering from depression and their attempt to refer him to a clinical psychologist for further assistance. In both instances, the data is presented in accordance with the recommendations of the University of Worcester's Ethics Committee with written informed consent from all subjects involved. All subjects gave written informed consent in accordance with the Declaration of Helsinki, including permission to disclose the details of their consultations. Any identifiers within the case studies have been removed to provide anonymity to the individuals and teams involved.

After the presentation of the two case studies, the article goes on to examine the professional guidelines that exist that govern the practice of sport psychology and an evaluation of their relevance to circumstances involving CMDs and referral encountered in applied practice. The article concludes with recommendations for the practice of applied sport psychology in order that it may continue to effectively meet the needs of client.

CASE STUDY 1: ELITE FEMALE LIGHTWEIGHT ROWER

The athlete at the center of this case sought out the support of the sport psychology consultant (referred to herein as "Practitioner A") through her rowing club, on relocation to the geographical area. Practitioner A had previously worked at several rowing clubs and had experience and contacts with selected coaches and athletes. The athlete was an elite lightweight rower and had been training for around 6 years when she sought assistance in

handling pre-competition anxiety and "dealing with pressure." After several weeks of support, building rapport and trust (e.g., Beckmann and Kellman, 2004; Fifer et al., 2008), the athlete disclosed a history of an eating disorder and explained how she felt that she was starting to "slip" and at "quite a rapid rate." On hearing this information, Practitioner A reassured the athlete that this was useful information to know but made it clear that this was something that they may have to refer onto a clinical psychologist given their lack of clinical training.

The disclosure presented a challenge to Practitioner A for two reasons; firstly, a detailed intake session with the athlete had been conducted at the first meeting, where she had not disclosed any history of eating disorders despite being asked. Secondly, it was apparent that Practitioner A would now have to make decisions about how best to support the athlete given the nature of her disclosure which would involve the referral of the client to a clinical psychologist.

On examining the options for seeking the support of a clinical psychologist, the athlete explained how she was unable to meet the costs of a private practitioner. In addition, she did not hold private medical insurance; therefore, seeing a clinical psychologist through the NHS was the only option available to her. From previous experience, Practitioner A was aware that a referral of this nature could take up to 8 weeks. Having to potentially wait this long for an appointment with the clinical psychologist in a relatively urgent case such as this was considered detrimental to the athlete.

The further information raised a number of supplementary questions for Practitioner A to consider at this juncture; Firstly, how should the practitioner help maintain the well-being of the athlete until they were able to meet with the clinical psychologist? Secondly, how (if at all) should they continue with performance enhancement work in the interim period? The initial response from Practitioner A was to find out more about the eating disorder from the athlete, in an attempt to understand it better, to reassure her that other athletes have experienced similar issues, and to further understand how long she had experienced the feeling that she was "starting to slip." She also wanted to understand the impact of the eating disorder on the athlete's rowing performance, what support she had been provided with in the past and the associated outcomes. Whilst all of these questions may appear logical, the paradox was that the practitioner was offering the athlete an opportunity to talk about her issues further, even though they knew that they were unable to directly assist her with the issue. In response, the athlete reported that the clinical psychologist whom she had seen previously was no longer working in the U.K. Furthermore, the athlete also reported that she would not choose to seek assistance from her in the future as she felt that the clinical psychologist lacked understanding of the demands of her particular sport.

In an attempt to expedite the process of clinical assistance to the athlete, Practitioner A requested details of the athlete's (G.P.) for the purposes of requesting a slightly different course of action in the form of a direct referral to a specialist in eating disorders from the local NHS. She was concerned that the athlete would not go to the G.P. of her own accord and that the clinical referral would take too long, so thought this course of action was the most supportive and expedient under the circumstances. The option was followed up and resulted in a 2 week wait for the athlete to see the specialist in eating disorders.

At this point in the process, Practitioner A considered whether she should continue to support the athlete while she was waiting for her first appointment with the eating disorder specialist, giving consideration to the consequences of reduced support in the interim. Furthermore, she evaluated the situation pertaining to the eating disorder. If this was the one central issue affecting performance, then the specialist in eating disorders would initially be in a position to intervene but the athlete may require a subsequent referral to a clinical psychologist. This was discussed with the athlete and they agreed that this would be the best course of action. In order to ensure the athlete was not made to feel abandoned, or their trust breeched, Practitioner A agreed to continue to support her with her performance-related issues. It was made clear that until the appointment date for the specialist for disordered eating came through, and indeed then the follow up clinical psychologist consultation, the practitioner would continue to be the primary point of contact.

In this case, the athlete began working with the specialist in disordered eating within 2 weeks; an initial appointment with the clinical psychologist took *an additional* 8 weeks, despite the athlete's health being comprised. Once the athlete had the first meeting with the specialist in disordered eating, the practitioner felt that she was able to pass the role of support onto this professional, on the proviso that the athlete would update the practitioner when the date finally came through for the clinical psychologist. When the consultation date with the clinical psychologist did eventually arrive, the athlete indicated that she felt the specialist knew nothing about sport, including the idiosyncrasies of lightweight rowing which made it extremely challenging for the athlete to feel understood. At this point, the athlete had established a good rapport with the specialist in disordered eating. The athlete therefore decided that she did not want to pursue the support with the clinical psychologist. Overall, the athlete felt she was provided with appropriate support and was offered the option to return to mental skills support with the practitioner in the future, should she decide it was what she needed or warranted once she had her eating disorder under control.

This case study serves to offer other practitioners with ideas about how to support athletes when the referral might not be the best fit. Similarly, the next case outlines the difficulty in the referral process in an injured professional male rugby union player.

CASE STUDY 2: INJURED PROFESSIONAL RUGBY UNION PLAYER

The athlete at the center of this case study was a young professional rugby union player who had suffered a complete rupture of his right Achilles' tendon mid-season. The sport psychology consultant ("Practitioner B") was initially contacted by the athlete's rugby club, for the purposes of providing advice to their medical team (Chief Medical Officer, Club General

Practitioner, Chief Physiotherapist, Strength and Conditioning Coach and Lead Soft Tissue Therapist) regarding how to best communicate the diagnosis, prognosis and associated plans for rehabilitation to the injured individual. They explained that the player had, in their words, "over-identification" issues (e.g., Miller and Kerr, 2003). They felt that the injury and the associated recovery would present a great challenge to the athlete, hence requesting Practitioner B's support at this time. The medical team were recommending surgical repair of the tendon, which would, they said, involve around 6 months recovery. They were however, unable to provide certainty over the individual's future in the sport.

Practitioner B acknowledged that the medical team would be more familiar with the player, and as such would be able to best determine the most effective communication strategy. However, general advice on "breaking bad news" (e.g., Baile et al., 2000) was provided, which involves a six-step strategy for disclosing unfavorable information. With this strategy in mind, the practitioner advised the medical team to ensure that an open and honest dialog was maintained with the athlete at all times, whilst being mindful not to generate any false hope regarding a return to play at professional level. In addition, it was also recommended that the athlete be provided with as many opportunities as possible to exercise control over the situation (decision-making etc.) and the option of remaining as involved with the team as he wanted during his rehabilitation.

Regardless of the sensitive approach by the medical team, they reported that they felt the athlete had been unable to fully digest the news; they remained unconvinced that he fully understood the consequences of his injury. The medical team requested that Practitioner B meet with the player prior to his scheduled surgery to talk to him about his rehabilitation, and his future. The main objective, they explained, was to help the athlete come to terms with the severity of his injury and the impact it was likely to have on his future. Practitioner B did not know the athlete in question personally, but had a good working relationship with a number of the medical staff who she had worked with before in other sporting environments. A case conference was held where all details were discussed to ensure Practitioner B could gather background information before committing to the consultations.

The first encounter with the athlete was the day before his scheduled surgery. Practitioner B visited the rugby club, and found the athlete in the gym, engaged in upper-body resistance training. He explained that he was trying to maximize his chances of recovery and getting back into the squad. On further discussion, it was noted that he felt "scared," not just about the prospect of surgery, he explained, but more the lack of certainty from the medical and coaching staff regarding his rugby playing future. He claimed that he was determined to prove everyone wrong, and that he would be returning to play in "no time." The practitioner spent the consultation session with the athlete talking about the details of the surgery and the advice he had been given by his surgeon. Emphasis was placed on putting a goal setting strategy into place to focus his efforts on full recovery and rehabilitation in the forthcoming months.

During the second meeting, two weeks post-surgery, Practitioner B noted that the athlete's demeanor was "of concern." She reported that he appeared non-communicative and withdrawn, explaining how receiving physiotherapy at the club every day was "driving him mad" (especially, he explained, when he saw his team mates training and carrying on as normal). He confirmed that he was in a great deal of pain, and was finding it difficult to get comfortable, was bored, highly emotional, and "just not interested in anything." Having tried to review the individual's goals with him, and suggesting solutions such as: asking the physiotherapist to visit him at home until the training environment was less distressing for him, setting rehabilitation goals in conjunction with the medical team, arranging visits from his team mates to keep him busy and occupied. An agreement was made to return in 10 days or so to see how the athlete was progressing.

The third visit, 10 days later presented a contrasting experience. The individual was back at the club, and using the gym. As Practitioner B waited for him to come out of the fitness suite, the strength and conditioning coach approached and expressed his concern that the athlete was over-training, and not adhering to the rehabilitation programme that had been set. The athlete tried to convince Practitioner B that he had put his thoughts back in order, and explained he was "back on track." He continued to state that he was determined to prove everyone wrong and that he would be back playing in "record time." Given the open lines of communication agreed within the club setting, Practitioner B contacted the Chief Medical Officer to express the concerns over the individual's behavior and to gather further information from people who saw him on a day-to-day basis. This resulted in an agreement to hold a case conference the next day via conference call. During this discussion it became apparent that the player's recent behavior had been erratic, and his mood regularly and excessively fluctuating. When Practitioner B added this information to her own observations, she advised that a referral to a clinical psychologist should be considered, as there were signs and potential symptoms that required formal diagnosis and an appropriate intervention.

This suggestion was not met with enthusiasm by the club or the medical team. They recounted their previous experiences of clinical psychologists in a sporting environment, suggesting that they were often reluctant to visit the athlete and had little or no knowledge of the idiosyncrasies of the sporting environment, thereby impacting on their ability to be effective.

At the intake stage of the support, the medical team had indicated that Practitioner B's role would be sufficient to provide the support required and that their voice and opinion would be valued–yet the suggestion to involve a clinical psychologist was dismissed. Practitioner B therefore sought advice from peers (sport psychologists, sport psychology consultants, sports medicine specialists), looking for guidance and recommendations on how to continue to best support this athlete. Peers suggested some useful contacts that included clinical sport psychologists. Their details were gathered and cross checked with the HCPC. A short list of clinical psychologists and clinical sport psychologists was handed to the medical team with the recommendation that the athlete should be referred. The practitioner offered to attend the first consultations to help ease the transition from one practitioner to another.

The members of the medical team were not open to this recommendation, and insisted that Practitioner B continue to support the athlete. As Practitioner B felt uncomfortable leaving the individual without support, she continued to work with him to try to develop his self-awareness of his excessive rehabilitation efforts and how to best manage his non co-operation with the medical staff. During this time, the athlete expressed skepticism over the plans for referral and made clear that he did not want to engage in support from another individual.

The outcome of the consultations with the athlete proved unsuccessful in encouraging a change of behavior in the athlete, and ultimately, the excessive "rehabilitation" caused a re-rupture of his Achilles' tendon. Unfortunately, as predicted, the re-injury proved to be career-ending. On reflecting on this case, it is likely that the inability to refer the athlete to a clinical psychologist due to doubts over experience, and the ability to establish trust hindered the rehabilitation of the individual.

In summary, both cases presented highlight situations where a sport psychology consultant has encountered athletes presenting with CMDs that have been intertwined with a sport performance issue. Additionally, both cases illustrate barriers to seeking support from further specialists such as clinical psychologists. The first case summarized the time delay and potential lottery associated with engaging support via the NHS, and the second, the negative perception of external specialists held by athletes and their support personnel. In both cases, there was an underlying assumption that the sport psychology consultant was best placed to help both athletes with their CMDs. Using these cases as examples, it is suggested that the inability of sport psychology consultants in the U.K. to assist athletes with such common disorders requires further reflection. To further understand how this practice may be developed, the next section examines the practice of sport psychology in the U.K. against the backdrop of the guidance and regulation of sport psychologists and sport psychology consultants globally.

GLOBAL PERSPECTIVES ON SPORT PSYCHOLOGY TRAINING AND REGULATION

For advice and guidelines on how best to support athletes presenting a wide variety of problems such as CMDs, the natural place to start is with relevant professional bodies. Given the globalization of the profession, a universal view is needed to appreciate the context in which practitioners are trained and working in the field. Whilst globalization is a testament to the strength of the field, the practice of sport psychology differs from country to country and even between different states in the U.S.A.

Starting in the U.S.A., the primary professional body supporting applied sport psychologists is the Association of Applied Sport Psychology (AASP). AASP runs an online support system for continuous educational development including webinars and a platform for sharing resources (see http://www.appliedsportpsych.org/certified-consultants/ for further details). In addition, AASP resources include an annual conference, an established certified consultant's programme and opportunities for student and professional development. AASP is the only professional body to detail what is considered to be *outside of the scope* of the service provided by a certified consultant (sport psychology practitioner). This is communicated clearly in their Internship and Practicum Experience Database Manual (IPED; AASP, 2013), which states that the following activities are exempt: "diagnosis or treatment of psychopathology, treatment of substance abuse disorders (including alcoholism and other types of chemical dependencies), eating disorders, obesity, and any marital and family therapy." The IPED (AASP, 2013) provides useful guidance for practitioners in delineating their role by stating that if an appropriate referral is not made when consulting with a client with such issues, the practitioner's behavior may be deemed to be unethical.

Applied sport psychology training and education is continuously evolving in the face of more common instances of athletes seeking assistance for issues beyond the scope of performance psychology (Portenga et al., 2011). With opportunities available to seek additional training to "up skill" and advance understanding and knowledge in some of the aforementioned areas, we are faced with a further blurring of the lines regarding when a referral should take place (cf. Herzog and Hays, 2012). Indeed, Herzog and Hays (2012) make it clear that it is the individual practitioner's training that drives the nature of the support to the athlete, and the point at which a referral should be made (if at all). Although, the guidelines are clear, there may still be instances in which practitioners vary in terms of their competencies, nevertheless they need to be aware of when to make referrals given the nature of their expertise. Ultimately, it is the self-awareness and integrity of the practitioner to know their limits and competency level based on their training that is relied upon.

The European Federation of Sport Psychology (FEPSAC) has issued a position statement on ethics (Fepsac, 2011) and an accompanying ethical checklist (Little et al., 2011), the detail of which puts the onus on the practitioner to judge whether they are practicing within their qualifications, expertise and experience. If they conclude that they are unable to assist their client with a specific problem, a referral is recommended. The mechanics of the referral process however, remain somewhat elusive. Australia uses a slightly different approach. In a recent article by Wensley (2013) the Australian Institute of Sport (AIS) raises the question of whether it is appropriate for a sport psychologist to help an athlete with a mental health problem. Wensley (2013) states that in Australia, sport psychologists are trained to work with people with the most common mental health problems, including depression, and anxiety. However, she suggests that they may choose to refer the athlete if the conclusion was that they would be better served by a mental health specialist. Regardless of this slight difference of approach, no guidelines for referral practices were evident.

In the U.K., BASES, and the Division of Sport and Exercise Psychology (DSEP) of the BPS work together to promote "excellence in research, teaching and practical applications in sport and exercise psychology" (British Association of Sport and Exercise Sciences (BASES), 2014). Both organizations

"share the common goals of ensuring that individuals, teams and organizations receive best practice in the provision of psychological services in sport and exercise settings" (British Association of Sport and Exercise Sciences (BASES), 2014). Certainly, the BASES Code of Conduct (British Association of Sport and Exercise Sciences (BASES), 2009) helps members understand that they must work within their competency levels in terms of their "qualifications, experience and expertise" (p. 2) requiring that any matter that lies within other areas of specialism such as medically-related issues or those associated with the role of a physiotherapist should be "referred to an appropriate professional within such a field" (p. 2). The BPS Code of Ethics and Conduct (British Psychological Society, 2009) similarly states that psychologists are required to "refer clients to alternative sources of assistance as appropriate, facilitating the transfer and continuity of care through reasonable collaboration with other professionals" (p. 19). However, despite their cited objectives and the clear conduct requirements of each, both still appear to fall short on providing specific and easily accessible guidelines beyond recognizing the situations when a referral may be needed. To elaborate, those working in the field of applied sport psychology are bound by their respective accrediting bodies (e.g., British Psychological Society; BPS, or state licensing boards in the U.S.A.) which in summary require practitioners to work within the boundaries of their competence (British Psychological Society, 2009). However, the process of how to support the athlete during the referral process is rarely discussed and competency, as highlighted by Fletcher and Maher (2013), is a complex issue.

Having considered some of the challenges of ensuring that the practice of applied sport psychology continues to meet the needs of the client and concluding that there is a lack of specific guidelines, recommendations follow that may help guide practitioners when encountering athletes contending with CMDs during the course of consultation.

REFERRAL

Most requests for performance enhancement assistance for athletes are likely to be what they appear to be, and suitably qualified practitioners will be able to help. Sometimes, however, as illustrated above, athletes present with issues outside practitioners' realms of expertise, or concerns may emerge after practitioners and athletes have worked together for a period of time. Referral is suitable in these cases. The possibility of referral is relevant to both trainees and experienced practitioners. Given the wide range of mental disorders that exist, and the various ways in which athletes' lives can be disrupted, even seasoned practitioners may find that they are ill-equipped to assist on occasion.

Considering Whether to Refer

In considering whether referral is a suitable option, Tod and Andersen (2015) presented guiding questions to help practitioners decide. For example: How long has the issue existed? What is the severity of the issue? What role does the issue play in the person's life? Are there displays of unusual emotions or behaviors around the issue? How well are the athlete's existing coping strategies developed? Does the practitioner have the competencies, knowledge, skills, and experience to address the issue? Issues that are recent, not severe in their emotional implications, and do not have substantial overlap with other aspects of a person's life are less likely to require referral. Unusual emotional reactions that are out of character, or out of place, may also warrant consideration for referral. For example, an athlete who is facing a tough competition and who experiences mild to moderate anxiety and negative self-talk is not likely to require referral. A person for whom each athletic competition is an all-or-nothing battle for self-identity, whose emotional state is dependent on performance outcomes, and where strong anxiety, depressive states, or substance abuse may also be involved, is more likely to need a referral. In such cases, however, performance or sport psychology practitioners can still address performance-related issues.

Raising the Issue of Referral

There may be times when sport psychologists are uncertain how athletes will react to referral suggestions or may be unsure of the best way to raise this advice with a particular client. In these situations, seeking counsel from mentors, supervisors, or colleagues may help ease the burden and provide constructive direction. Practitioners could also engage in role plays to prepare themselves. As well as exploring ways that might facilitate referral, role plays can also give practitioners insights into how they might react to athlete resistance or exuberant enthusiasm. In addition to seeking advice from colleagues and practicing potential scenarios, documenting reasons for suggesting referral, the interaction, athletes' responses, and outcomes, as part of the practitioner's case notes, will form a foundation for future planning and decision making. It may also help protect practitioners from negative consequences if they can demonstrate they had made suitable attempts, and had observed ethical and legal requirements, to help clients access the assistance they needed.

Barriers to Referral

The stigma of seeking psychological assistance is alive and well, and well-documented, especially in the sporting domain (Clement et al., 2015). Indeed this stigma may be inadvertently propagated by overzealous sport psychologists, eager to promote concepts such as mental toughness. Additionally, as the second case study highlighted, athletes and their support staff may not act on practitioners' suggestions to seek help from another professional for any of several reasons (Van Raalte and Andersen, 2013). For example, in the absence of close relationships, athletes may not trust that the practitioners have their best interests at heart. Practitioners' recommendations might be interpreted as attempts to rid themselves of their clients. If handled insensitively, athletes might feel unsupported and believe their anxieties regarding referral have been ignored. One fear might be that the mental health practitioners will take away from athletes what made them high performers. Perceived threats to confidentiality may influence athletes' actions. They may fear that if word gets around they are seeing other practitioners, they might feel stripped of their dignity. Practitioners may not

prepare athletes adequately for the referral. Sport psychologists and sport psychology consultants need to inform athletes about what is involved, whom the other helpers include, why they might help, and the implications for the existing sport psychologist—athlete relationships. Practitioners can signal to athletes in their first sessions together that referral might be a suggestion raised in the future. Athletes poorly prepared may have unrealistic or inaccurate expectations about the new practitioner. In the absence of follow-up or facilitation, athletes or their support staff might not contact the recommended practitioners or persist after initial meetings.

Referring in

Often, referral procedures are not straightforward for many reasons, as illustrated in the case studies presented above. If trust has been built between sport psychologists and athletes, sending clients directly to someone else when issues beyond practitioners' competencies arises may not be optimal. "*Referring in*" may be the better choice (Van Raalte and Andersen, 2013). Bringing in a qualified professional and having the three parties discuss and plan support together may be less threatening to the athlete and at the same time, ease the individual into a relationship with the new helping professional. Referring in implies that practitioners have adequate networks that include various types of helping professionals whom they trust. These networks might include helping professionals such as clinical psychologists, counselors, psychiatrists, sport scientists, and nutritionists.

When Referral Is Unsuccessful

The match between the athlete and the helper may not be sufficient for benefits to accrue. It may have been a huge step for athletes to share sensitive material with sport psychology practitioners, who may be among the few trusted people they feel able to confide in. When faced with referrals that do not appear to be working well, sport psychologists can still keep in contact with athletes. Avoiding the perception that the sport psychology practitioner's continued help is conditional on the athlete meeting with the external helper will help maintain a close relationship. It is inadvisable and impractical to force athletes to meet with other professionals, except in situations where there is a threat of harm to self or others (where there are then ethical and legal obligations to uphold). Sport psychologists can continue to provide performance enhancement assistance and can initiate the referral process in the future if athletes change their minds.

PROFESSIONAL DEVELOPMENT ACTIVITIES

Education and Training

Given the evidence presented in the current manuscript, it is realistic that practitioners will come across athletes displaying the signs and symptoms of the CMDs that the general population also experience. Regarding the education of current and future trainees, professional bodies, such as the British Psychological Society and education providers could help students prepare for their careers and provide clients with high quality services by ensuring that information about CMDs and the skills needed to provide a minimum level of help in such cases are included in educational pathways. Currently, for example, the BPS training documentation (both stage 1 and 2) does not treat learning about specific CMD as core. In a recent systematic review, Bratland-Sanda and Sundgot-Borgen (2013) noted that the rates at which athletes experience eating disorders were considerably higher than compared to the general population. Therefore, there is a strong justification for such content to be made integral to training pathways.

The definition of the phrase above "provide a minimum level of help" will vary. All practicing sport psychologists and sport psychology consultants might be expected to be able to (a) identify the signs and symptoms of CMDs, (b) talk to clients about their observations, and (c) help athletes obtain the assistance they need to cope with or resolve their issues. Some practicing sport psychologists may have the training and experience needed to assist directly, whereas others may need to implement referral procedures. Given the difficulties and relationship strains that can arise during referral, sport psychology practitioners who have the skills to assist clients with CMDs, may be better placed to provide that support.

Develop Relevant Knowledge and Skills

Consultants can prepare themselves for helping clients with CMDs by engaging in learning activities allowing them to develop the necessary skills and knowledge to be able to help these athletes in some way. Such learning activities could include reading a variety of sources, including research, theory, diagnostic and treatment manuals, and biographical accounts of people living with issues such as depression, eating disorders, and anxiety, along with others associated with sport and exercise contexts. The American Psychiatric Association's (2013) Diagnostic and Statistical Manual-5 (DSM-V) is useful for gaining an overview of diagnosable mental health disorders. Reading the DSM-V, however, would be insufficient on its own to prepare practitioners to help clients. Such reading may be supplemented with supervision and training in current research, theory, and practice on helping people (see below). Practitioners will also benefit from realizing that clients who are not displaying signs and symptoms sufficient to warrant a formal diagnosis may have sub-clinical levels of disorders for which they need help. In addition, athletes may have mental health or emotional concerns that fall outside of diagnosable problems. Examples include identity issues, sexual orientation and abusive environments, sexual health issues, alcohol, drug and substance use, anger and aggression control, romantic and family involvement, and abuse of power in the sporting context (Tod and Andersen, 2015).

To supplement empirical and theoretical literature, biographical accounts and case studies of individuals experiencing mental ill-health may help practitioners appreciate what life is like for these individuals and the social contexts they may live within. In recent years, a number of high profile, and not so recognizable, athletes (and other performers) have published their stories, discussing their experiences with a range of issues including eating disorders, depression, substance abuse, and discrimination (e.g., Fussell, 1991; Bruno and Mitchell, 2006; Trescothick, 2009; de Rossi, 2011). Practitioners might

also consider recommending these often fascinating and moving accounts to their clients if they believe the individuals will benefit. Example benefits might include finding comfort in learning how other people have coped, that they are not unique, and that there can be reasons for hope. Also, clients might gain practical ideas and strategies for coping and resolving issues.

In addition to expanding their knowledge base, practitioners can develop the skills to interact with and help clients. Relationship building, communication, and counseling skills represent one set of abilities, and as examples of the common factors in service delivery, may be differentiated from the specific factors associated with interventions (Wampold and Budge, 2012). If referral is the suitable course of action, solid counseling skills will likely help practitioners assist clients to receive the desirable help they need. If practitioners are finding that they are referring clients for similar issues, for example, disordered eating, then they might consider developing the skills to help these individuals themselves (within the legal and ethical constraints allowed in their region of practice). Referral procedures are not always seamless, as illustrated in the current manuscript for systemic, logistical and interpersonal reasons. Performance-focused practitioners with the skills to help people with CMD and who can navigate the ethical and other issues that accompany a shift in service delivery focus may assist clients more than relying on referral procedures.

Gain Supervised Experience

Although, building knowledge and skills contributes, competence also results from actual experience in helping clients with specific issues. Such interactions provide practitioners with insights into the helping process that are difficult to learn from traditional classroom based teaching methods. For example, actually supporting a person experiencing depressed mood helps practitioner become aware of how they react to such individuals and how their own reactions might be helpful or not to their clients.

The tension that arises with developing experience is that there is always a "first client" with whom practitioners have to "cut their teeth." Such an observation is not limited to trainees, and even experienced practitioners may come across new issues for which they are not trained. In such instances client health and well-being have priority over practitioner professional development, and the challenge is for psychologists to find suitable and legal ways to develop their toolbox. Formal supervised experience represents an avenue that could be explored, with the selection of a suitable supervisor (i.e., somebody with the necessary qualifications, professional body approval, and experience with the issue).

Engage in Lifelong Professional Reconfiguration and Evolution

It is a cliché to suggest that practitioners need to engage in lifelong learning and continual professional development, and it may not best encapsulate the key points involved. Perhaps the phrase "practitioners need to engage in lifelong professional reconfiguration and evolution" might communicate the sentiments more clearly. Evolution involves the notion that species continually adapt to fit in their current niches and environments. In a sense, species reconfigure their attributes as a way to ensure survival. Parallels exist for applied sport psychologists and sport psychology consultants. Both society at large, and the sporting world in particular, are dynamic and in a constant state of flux. For example, environments change, new technologies are implemented, the ways people interact broadens, and athletes experience new issues or old issues in different ways. Over time, practitioners' skills and knowledge may become less effective or even outdated. Jennings and Skovholt (1999) suggested that a voracious desire to learn was an attribute of master therapists, and such a commitment to professional reconfiguration will assist in practitioners maintaining an adequate "fit" for the clients they hope to serve and environments in which they wish to operate.

CONCLUSION

In conclusion, elite athletes exist within an environment that may generate, or indeed exacerbate CMDs due the unique range of stressors involved. Yet, it is believed that the prevalence of CMDs in elite sport is under-reported due to a number of barriers that include stigma and a lack of awareness. However, there are increased reports of sport psychologists, sport psychology consultants and other practitioners in elite sport reporting athletes seeking support for CMDs, often at the same time as seeking performance enhancement assistance. Paradoxically, in certain circumstances, the sport psychologist or sport psychology consultant is not always the best individual to provide the support, given the blurred lines that exist in the practice of applied sport psychology. The management of the mental health needs of elite athletes often require referral to a clinical psychologist; however, this person may lack context-specific knowledge of the sporting environment which impacts negatively on their ability to provide effective intervention. In order that athletes with CMDs can continue to be appropriately supported, a number of recommendations for sport psychologists and sport psychology consultants are made. These include suggestions for effective referral procedures, the call for a review of the education and training of sport psychologists to put CMDs in sport at the core of professional training, the continual development of knowledge and skills related to CMDs (e.g., counseling and communication), and the recommendation that those working in the field of applied sport psychology engage in a process of lifelong professional reconfiguration and evolution for the purposes of ensuring that they are able to respond to the demands of their clients.

AUTHOR CONTRIBUTIONS

CMR co-ordinated the writing of this manuscript, compiled the introduction, second case study and the conclusion, edited the manuscript and acts as the corresponding author. AF added the first case study and the section on Global Perspectives. DT added the recommendations section.

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GENERAL COMMENTARY
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Commentary: Blurred lines: Performance Enhancement, Common Mental Disorders and Referral in the U.K. Athletic Population

Martin Eubank *

School of Sport and Exercise Science, Liverpool John Moores University, Liverpool, UK

Keywords: common mental disorders, sport psychologist, competence, philosophy, referral

A commentary on

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Edited by:
Tadhg Eoghan MacIntyre, University of Limerick, Ireland

Reviewed by:
Ross Roberts, Bangor University, UK

***Correspondence:**
Martin Eubank
m.r.eubank@ljmu.ac.uk

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Given the personal and sensitive nature of mental disorders, and the stigmas to disclosure that often exist in high performance sport, it was not surprising to learn from Roberts et al. (2016) that the Sport Psychologist, with whom the CMD athlete is likely to have a confidential, trusting, and empathic working relationship, is the person they are most likely to seek out for support. For me, the capacity of the Sport Psychologist to provide the support being sought depends on their competence to both consult with, *and* refer, athletes with CMD, and the extent to which their own practice philosophy and counseling based training informs their consultancy approach. These two issues form the focus of this commentary.

COMMON MENTAL DISORDERS AND PRACTITIONER COMPETENCE: ISSUES OF CONSULTATION AND REFERRAL

Roberts et al. (2016) provide effective case study examples of the blurred lines that exist within the referral process. For me, this implicates practitioner competence, which, as an ethical principle, includes the "ability to function optimally within the recognized limits of knowledge, skill, training, education, and experience" (British Psychological Society, 2009, p. 15). For CMD, consultancy competence across the psychotherapy, counseling, and mental skills training continuum is no bad thing! In being able to use the counseling "middle ground," the Sport Psychologist is fulfilling an essential support need for their client through their capacity to listen and be empathic in an unconditional and non-judgment way.

That said, this does not mean they are acting as competent Clinical Psychologists who can solve clinical problems. The difficulties associated with athletes being referred to "unknown"

clinical psychologists with whom they have no relationship is a difficult challenge to overcome, however good the clinician might be at their job. Recently, a "system approach" to supporting high performance athletes with CMD has received attention in the literature (Bickley et al., 2016; Rotheram et al., 2016). For me, this represents an interesting model of practice that is worthy of further consideration in the treatment of CMD in athletes. The approach involves an *integrated* clinical and sport psychology method, where the clinical psychologist works collaboratively alongside the sport psychologist, and the wider science and medicine team and coaches, to derive an agreed case formulation of the problem and the approach to be used, which is then implemented by the Sport Psychologist under close clinical supervision and governance. This close collaboration continues in the monitoring undertaken to evaluate the ongoing effectiveness of the intervention. While this may not be without its contention, the reality of performance sport can sometimes mean that full clinical psychology referral is simply not available, so the decision about how to proceed can often come down to whether clinically supervised support vs. no support is the best option. This collaborative systems approach emphasizes the importance of following the ethical decision-making process afforded by the code of ethics and conduct to effectively identify acceptable boundaries of competence, and also enables the existing strong and functional client–practitioner relationship to be used to facilitate the intervention. The approach would appear to offer a viable referral approach for CMD and other psychological disorders in sport, perhaps make the lines slightly less blurred.

COMMON MENTAL DISORDERS AND PRACTITIONER PHILOSOPHY: PERFORMANCE AND CARE IN EQUAL MEASURE

Practitioner philosophy is defined as "the consultant's beliefs and values concerning the nature of reality, the place of sport in human life, the basic nature of a human being, the nature of human behavior change, and also the consultant's beliefs and values concerning his or her potential role in, and the theoretical and practical means of, influencing their clients toward mutually set intervention goals" (Poczwardowski et al., 2004, p. 449). Eubank and Hudson (2013) observed that it is common for Sport Psychology trainees to be uncertain about the practitioner philosophy that underpins their applied work, and is often the aspect of professional practice that neophyte practitioners find most challenging to embrace, document and articulate (Eubank, 2016). Development of a congruent philosophy that underpins the quality of support service delivery requires an understanding of one's own beliefs and values and their translation to "self in practice" Having concern for the growth and development of people (athletes), including the vulnerable (someone with CMD), for example, represents a core belief and value common to most practitioner psychologists.

Roberts et al. (2016) identify a critical contextual reality that is worthy of further commentary. Practitioner Psychologists work in a context, not a vacuum. Thus, congruent philosophy is about self, self in practice, but also *self in the practice context*. High performance sport environments are laden with intense, uncertain and challenging realities built around a constant pre-occupation with achievement, outcome and success. The importance of "getting the culture before it gets you" (Eubank et al., 2014) is a key survival challenge. As Roberts et al. have argued, it is the nature of this environment that can, in some cases, fuel the onset of CMD, and also the unfortunate likelihood that some athletes will want to conceal them from view for fear of being perceived as less "mentally equipped" to make a positive contribution to performance driven objectives. This is unhealthy.

Support for CMD in sport arguably requires a "person first, athlete second" practitioner philosophy and a broad and holistic model of approach that accommodates athlete well-being. However, the high performance culture of sport means that the Sport Psychologist's own survival strategy for effective and sustained working practice, and their job, places an almost inevitable emphasis on performance enhancement (see Brady and Maynard, 2010). Sport Psychologists who philosophize their practice based on client welfare as the primary concern often encounter dissonant moments between the needs of the client as they perceive them, and the demands of the organization in which they operate. To help with this, an approach to sport psychology support that is personally congruent but also environmentally/culturally resonant is advocated, and there is value in using both focused/narrower interventions and broader counseling-based approaches to support "performance and care" agendas in high performance sport in equal measure (Eubank et al., 2014).

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The author confirms being the sole contributor of this work and approved it for publication.

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REVIEW
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Rational Emotive Behavior Therapy (REBT), Irrational and Rational Beliefs, and the Mental Health of Athletes

*Martin J. Turner**

Centre for Sport, Health and Exercise Research, Staffordshire University, Stoke-on-Trent, UK

In this article Rational Emotive Behavior Therapy (REBT) is proposed as a potentially important framework for the understanding and promotion of mental health in athletes. Cognitive-behavioral approaches predominate in the provision of sport psychology, and often form the backbone of psychological skills training for performance enhancement and maintenance. But far from being solely performance-focused, the cognitive-behavioral approach to sport psychology can restore, promote, and maintain mental health. This review article presents REBT (Ellis, 1957), the original cognitive behavioral therapy, as a valuable approach to addressing mental health issues in sport. REBT holds that it is not events that directly cause emotions and behaviors. Rather, it is one's beliefs about the events that lead to emotional and behavioral reactivity. Further, REBT distinguishes between rational and irrational beliefs, and suggests that in response to failure, maltreatment, and misfortune, people can react with either healthy or unhealthy emotional and behavioral responses. The extant research indicates that irrational beliefs lead to unhealthy negative emotions, a range of pathological conditions, and a host of maladaptive behaviors that undermine mental health. Therefore, REBT proposes a process for the reduction of irrational beliefs and the promotion of rational beliefs. The use of REBT in sport is seldom reported in literature, but research is growing. This review article proposes three important areas of investigation that will aid the understanding of irrational beliefs and the application of REBT within sport. These areas are: (1) the influence of irrational beliefs and REBT on the mental health of athletes, (2) the influence of irrational beliefs and REBT on athletic performance, (3) the origins and development of irrational beliefs in athletes. Each area is discussed in turn, offering a critical and progressive review of the literature as well as highlighting research deficits, and recommendations to address each of the three areas of investigation.

Keywords: irrational beliefs, rational beliefs, mental health, performance, sport psychology, REBT, emotions, behaviors

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Edited by:
Paul Joseph McCarthy, Glasgow Caledonian University, UK

Reviewed by:
Lee John Moore, University of Gloucestershire, UK
Jenny O., California State University, East Bay, USA

***Correspondence:**
Martin J. Turner
m.turner@staffs.ac.uk

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INTRODUCTION

The provision of sport psychology within sporting organizations and with athletes can be approached in many ways. At present, cognitive-behavioral approaches predominate, where imagery, self-talk, relaxation, concentration, and goal setting (known as 'The Canon') have been shown to be particularly effective in helping athletes to enhance and maintain athletic

performance (Andersen, 2009). But far from being solely performance-focused, the cognitive-behavioral approach to sport psychology can restore, promote, and maintain mental health. Indeed, many consider sport psychology to be much more than the provision of psychological skills training (PST), recognizing the role sport psychology could play in the mental health of athletes. Also, many recognize the importance of viewing athletes as humans first, and athletes second, thus reinforcing a humanistic approach to helping athletes with self-defeating emotions and behaviors, inside and outside of their sport. This is not to say that sport psychologists should 'treat' athletes for mental illness; this is ethically beyond many practitioners' professional competencies and occupational remit. However, providing that the practitioner is trained and competent in the use of counseling approaches, it is possible to work with athletes on deeply held attitudes and beliefs that positively influence not only sports performance, but also mental health.

One humanistic cognitive-behavioral approach that is receiving growing attention in sport literature is Rational Emotive Behavior Therapy (REBT; Ellis, 1957). REBT is considered to be the original cognitive-behavior therapy (CBT) by many scholars, and was developed by Dr. Albert Ellis in the 1950s and was driven in part by Ellis' desire to conceive of a more effective psychotherapy that addressed some of the shortcomings of psychoanalysis (Froggatt, 2005). Inspired primarily by the Stoic philosophers, REBT holds that it is not events that directly cause emotions and behaviors. Rather, it is one's beliefs about the events that lead to emotional and behavioral reactivity. This is a common cognitive-behavioral philosophy shared across various approaches. REBT places this central idea or philosophy into an ABC framework where the event is represented by the letter A (activating event or adversity), the beliefs are allocated the letter B, and finally emotions and behaviors are represented by C (consequences). Not only does this ABC framework hold up scientifically when considering the role of cognitive appraisal in the generation of emotion (David et al., 2002), it also facilitates therapy, as it is a non-complex and memorable way for clients to understand the antecedents to their emotions and behaviors. Most prominently, it enables clients to realize that it is not outside events (A) that cause their dysfunctional reactions (C), it is their irrational beliefs (B), and thus, they are in control of how they respond to adversity because they can have autonomy over their beliefs.

Theorists and practitioners (e.g., Ellis, 1994; David and McMahon, 2001) assert that rational and irrational beliefs are types of 'hot' cognition (Abelson and Rosenberg, 1958) or evaluative cognition (David et al., 2005b). Cold cognitions describe how an individual develops representations of situations, whereas hot cognitions refer to the evaluation of cold cognitions, or appraisals (David and McMahon, 2001; David et al., 2002). Rational and irrational beliefs are also considered to be 'deep' cognitions akin to schemas or core beliefs, which are difficult to consciously access. Rational and irrational beliefs, if they are indeed schemas, are complex structures that represent a person's constructed concepts of reality, and behavioral responses to that reality (David et al., 2005b). Therefore, emotions emerge as a result of cold cognitions that deem a situation to be motivationally relevant and motivationally incongruent, mediated by rational and irrational beliefs (hot cognitions). Put another way, the ability for A (activating event; cold cognition) to cause C (emotional and behavioral response) is dependent on B (rational and irrational beliefs; hot cognition). Hence, the ABC philosophy that informs REBTs theoretical and therapeutic approach serves to guide treatment and capture the mechanisms driving emotional responding.

Rational Emotive Behavior Therapy distinguishes itself from other cognitive-behavioral approaches by placing irrational and rational beliefs at its core. In REBT rational beliefs are defined as beliefs that are flexible, non-extreme, and logical (i.e., consistent with reality), and in contrast, irrational beliefs are rigid, extreme, and illogical (i.e., inconsistent with reality). Specifically, there are four types of rational and irrational beliefs. Rational beliefs comprise a primary belief (preferences) and three secondary beliefs (anti-awfulizing, high frustration tolerance; HFT, and self/other acceptance). In sport, preference beliefs could reflect a belief that "I want to be successful but that does not mean I have to be." An anti-awfulizing belief could be that "if I do not succeed it would be bad, but not awful." An example of HFT is "failure is difficult, but not unbearable." A self-acceptance belief could be "when I fail, it is bad, but does not mean that I am a complete failure," whereas other-acceptance could reflect a belief that "when coaches treat me poorly it is bad, but does not prove they are bad people." Irrational beliefs comprise a primary belief (demandingness) and three secondary beliefs (awfulizing, low frustration tolerance; LFT, and self/other depreciation). In sport, demandingness beliefs could reflect a belief that "I want to be successful and therefore I must." An awfulizing belief could be that "if I do not succeed it will be awful" An example of LFT is "it is unbearable to fail." A self-depreciation belief could be "when I fail, it means that I am a complete failure," whereas other-depreciation could reflect a belief that "when coaches treat me poorly, it proves they are bad people."

In REBT a binary model of distress is proposed whereby healthy negative emotions (HNEs) associated with adaptive behaviors stem from rational beliefs, whilst unhealthy negative emotions (UNEs) associated with maladaptive behaviors stem from irrational beliefs. UNEs are associated with very unpleasant physical symptoms (chronic and severe) and usually motivate behaviors that work against goal attainment. In contrast, HNEs facilitate goal accomplishment as they are associated with some unpleasant physical symptoms (acute and mild) and motivate behaviors that facilitate goal attainment. HNEs and UNEs are not necessarily distinguished by the intensity of the emotion, rather, they are qualitatively different. In other words, it is not that unhealthy anxiety is less intense than healthy anxiety, or that they are just two versions of the same emotions. It is more accurate to consider them to be different emotions altogether as they drive different behaviors (or action tendencies). This binary model of distress (David et al., 2005a) is in line with research indicating that negative emotions are not always dysfunctional, and can be adaptive (e.g., Kashdan and Biswas-Diener, 2014).

Unsurprisingly, the central aim of REBT is to reduce irrational beliefs in favor of rational beliefs, encouraging decreases in UNEs and increased in HNEs (Ellis and Dryden, 1997). This

is done using a systematic disputation (D) process, which entails the practitioner helping the client to challenge specific irrational beliefs (Dryden, 2009). The client is asked to consider whether there is any evidence for their belief, whether it is logical or consistent with reality, and whether the belief is pragmatic or helpful. Once the irrational belief has been disputed, a rational alternate belief is constructed, in line with theory and in collaboration between client and practitioner, a step labeled E (effective new belief). Depending on the motivation of the client, REBT can be completed briefly in as little as five sessions for clearly defined issues but more long-term REBT is recommended for more complex issues (Digiuseppe et al., 2014). However, longer REBT (in terms of minutes) is considered more effective, having greater impact on treatment outcomes (Lyons and Woods, 1991; Gonzalez et al., 2004). The precise processes of using REBT with athletes can be found in the extant literature (Ellis and Dryden, 1997; Turner and Barker, 2014), but the efficacy of the ABCDE process, and more broadly REBT, has been supported in hundreds of research articles (David et al., 2005b) in both clinical and non-clinical populations, youths and adults (David and Avellino, 2002), and by three meta-analyses (Lyons and Woods, 1991; Engels et al., 1993; Gonzalez et al., 2004). Practitioners wishing to ethically adopt REBT within their practice should acquire professional competencies by completing a recognized and official REBT course, and also maintain their knowledge and skills via peer support groups. Because there is a paucity of research reporting the use of REBT with athletes, meta-analyses conducted with non-athletes provides acceptable, but not strong, justification for the use of REBT with athlete populations. However, sport literature has started to report the use of REBT in athlete populations.

REBT AND IRRATIONAL BELIEFS IN SPORT

One of the advantages of practicing and studying sport psychology is the exposure to a broad range of psychological approaches, many of which that have their groundings in cognitive behavioral approaches. As already mentioned, 'The Canon' (Andersen, 2009) comprises cognitive-behavioral techniques that are effective in helping athletes approach and manage training and performance situations by helping them control cognitions, emotions, and behaviors. As an REBT practitioner it is possible to use The Canon and REBT alongside one another, with REBT also advocating techniques such as imagery within its framework. However, the author finds that REBT is particularly useful for accessing, challenging, and changing more deeply held beliefs and philosophies than the techniques included within The Canon. For example, following REBT, athletes with rational beliefs still get anxious (healthy anxiety) about competing and The Canon provides useful strategies for reducing symptoms such as rumination and debilitative arousal. But some athletes require deeper-level work in order to counteract core irrational beliefs that drive unhealthy emotions and behaviors that may be more effectively treated through REBT.

It is also important to recognize that REBT advocates a humanistic philosophy that within sport, the author operationalizes as 'human first, athlete second.' REBT is humanistic and thus focuses on the person, not just the athlete, and also not just the performance. Therefore REBT is applicable for a vast range of athlete issues apart from performance issues, such as career transition, personal life issues, and eating disorders. The goal of REBT is to enhance and maintain emotional and behavioral functionality, which then helps to drive long-term goal achievement. In the context of sport, where the result is often the most important factor and a quick fix is tempting, athlete mental health is sometimes forgotten. It is important to recognize that REBT is also a preventative approach that can bolster rational beliefs and mental health, and is not just about providing a solution to irrational beliefs and mental ill-health. REBT advocates a change in the athlete's philosophy of life, so that the individual can face many sport and life situations with rational beliefs and associated functional cognitions, emotions, and behaviors. This also helps athletes to self-manage emotions once they have been suitably trained to use REBT independently and competently. Sport, and many other performance contexts, can be too reactive to problems, which can cause sport psychology provision to be seen as remedial, rather than a core part of athlete support. Nonetheless, the growth of sport psychology has helped practitioners integrate well-established and also novel approaches into their practice, which in the case of REBT is reflected in the recent attention it has received in sport psychology literature.

Rational Emotive Behavior Therapy can be delivered in time-constricted and access-restricted situations, typical of some sporting environments. Therefore the modes of delivery typical in REBT such as group therapy, education, and one-to-one counseling, fit well within the provision of sport psychology. Perhaps many sport psychology practitioners use REBT within their practice, but current literature has sparse examples of REBT being used with athletes. The writing concerning the use of REBT in sport has been focused on case-study reflections (e.g., Marlow, 2009) and single-case designs (e.g., Turner and Barker, 2013). For example, Bernard (1985) provides a very detailed description of his work applying a rational-emotive training program with Australian Rules Football players. Delivered in a group setting, the program included REBT education and also broader themes such as concentration training and goal setting. Bernard (1985) reports that the athletes were better able to control their thoughts to directly influence performance. However, no performance markers were attained and no control-group was present as this work was not a research study, deeming the extent to which the program influenced actual performance impossible to ascertain. A similar approach was taken by Marlow (2009) who applied REBT with a youth ten-pin bowler, again within a broad program of psychological skills, reporting positive performance effects alongside adaptive behavioral changes.

Away from reflective case-study approaches, there have been a handful of studies that focus on changes in relevant dependent variables through the application of REBT. Elko and Ostrow (1991) applied REBT with six gymnasts and found reduced anxiety in five and enhanced performance in

three of the participants. The lack of performance gain in three of the gymnasts is feasibly attributed to circumstantial events, but may indicate that the promotion of rational beliefs does not necessarily improve athletic performance. In another study, five lecture-based REBT sessions were provided to youth soft-tennis players, with results indicating that cognitive-anxiety was significantly reduced (Yamauchi and Murakoshi, 2001). However, this study is written in Japanese, has not been translated, and therefore the author has been unable to discern the precise details of the study. One study examined the efficacy of REBT for managing trait and state anxiety direction, and ten-pin bowling performance, compared to an imagery and relaxation intervention, and a placebo intervention (Larner et al., 2007). As is typical in REBT, the intervention focused on changing participants' interpretations of competition circumstances, cognitions, behaviors, and feelings by disputation of underlying beliefs. The relaxation and imagery intervention comprised rehearsal of alternate physiological and mental states during competition, and the placebo intervention emphasized general attention and reflective counseling. The REBT intervention reduced irrational thinking significantly more than the comparison interventions, which is to be expected. However, REBT also significantly moderated negative directional interpretations of trait and state anxiety symptoms, and improved performance to a greater extent than the comparison interventions. Another study focused on the specific irrational belief of LFT (Si and Lee, 2008) and applied REBT and mental skills training with an Olympic table tennis athlete. Using coach and teammate evaluation and video analysis, results showed a reduction in behaviors related to LFT, and performance enhancement in competitions.

More recent research has emerged that has adopted single-case designs to assess the effectiveness of REBT with athletes. In a study by Turner and Barker (2013), four elite youth cricketers received three one-to-one REBT counseling sessions regarding their performance anxiety. Results showed a significant reduction in irrational beliefs and cognitive anxiety when REBT was applied, but no objective performance markers were collected and therefore the impact of REBT on performance was not evidenced. Two further studies (Turner et al., 2014, 2015) showed that REBT education sessions were able to significantly reduce irrational beliefs in elite soccer athletes. However, when REBT education was applied in a single session, reductions in irrational beliefs were short-term, returning to baseline levels at a follow-up timepoint (Turner et al., 2014). Whereas REBT education applied in three sessions yielded longer-term reductions in irrational beliefs, lending support to the idea that REBT is not a quick fix. Again, although in both studies subjectively athletes felt that the REBT helped them improve emotional control and performance, no objective markers of performance were sought. More recently (Cunningham and Turner, 2016), REBT was used with three semi-professional Mixed Martial Arts athletes on a one-to-one basis, to reduce irrational beliefs, in particular self-depreciation, and increase unconditional self-acceptance. Results showed that two of the three athletes reported decreases in self-depreciation, and all three showed increases in unconditional self-acceptance (USA). Also, in a detailed case-study paper REBT was applied with a country-level archer across seven sessions (Wood et al., 2016), demonstrating decreases in irrational beliefs, and increases in rational beliefs, self-efficacy, perceived control, and objective competitive performance scores.

MOVING THE AREA FORWARD

As is evident in the short review of literature concerning REBT in sport, the research is scant, thus preventing the formulation of strong conclusions as to REBT's efficacy within sport. Further, the research that exists has focused on the application of REBT with athletes in the field, and not on testing and validating the theoretical proponents of REBT in sport settings, or with athletes. The number of empirical research papers and practitioner reflections are growing in the sport and REBT literature, but most articles focus on how the application of REBT reduces irrational beliefs in athletes, with the use of social validation data to explore broader changes at an emotional and behavioral level. With the research in sport in its infancy, there are a number of areas in which future research should be directed. In this article the author presents three key areas in which further research should be invested in order to advance the understanding of irrational and rational beliefs and REBT in sport.

First, the influence of irrational and rational beliefs and REBT on the mental health of athletes should be more fully investigated. Although extant sport research has reported shifts in irrational and rational beliefs and emotional outcomes (e.g., anxiety; Turner and Barker, 2013), research is yet to examine the effects of irrational beliefs and rational beliefs on broader mental health outcomes in athletes. Second, given that sport is a performance-driven industry, the influence of irrational and rational beliefs and REBT on performance should be more fully empirically tested. While the extant research provides growing support for the applicability of REBT for sport performance (e.g., Wood et al., 2016), performance outcomes have not robustly been investigated and therefore the impact of REBT on performance is currently unknown. Further, the potential mechanisms for sport performance effects stemming from irrational and rational beliefs have not been suitably investigated. Third, the development of irrational beliefs in athletes should be investigated to provide a clear picture of how and when irrational beliefs emerge in athletes. This can open the door for early-years development of rational beliefs in order to avoid mental health issues stemming from irrational beliefs as the athlete progresses in their career. This article addresses each of these three areas in detail and in turn.

The Influence of Irrational Beliefs and Rational Beliefs on Mental Health

Rational Emotive Behavior Therapy did not stem from performance literature, and like many other cognitive-behavioral approaches, REBT has been adopted by sport and exercise psychologists for use in performance settings. The origins of REBT are within clinical psychotherapeutic settings, where the chief goal is mental health. Therefore the preponderance of extant research examines mental health outcomes, and indicates that

irrational beliefs lead to, and are associated with, a vast range of emotional and behavioral outcomes that undermine mental health. In this section of the current article, the author provides a review of the literature examining irrational beliefs as a risk factor for mental illness, and rational beliefs as a protective factor for mental illness. Given the dearth of research investigating irrational and rational beliefs and the mental health of athletes, the aim here is to detail the ways in which irrational and rational beliefs are associated with a broad range mental health issues that clearly could affect an athlete throughout their careers. A greater understanding of how irrational and rational beliefs contribute to mental illness is sought, with a view to proposing how future research could begin to understand this issue in sport. Although athletes have not been at the center of this research, many of the outcomes associated with and stemming from irrational beliefs could clearly hinder short-term and long-term athletic achievement, and impact upon the mental health of athletes. To present REBT as a potentially effective approach to promoting athlete mental health, it is first important to consider the wider evidence linking irrational and rational beliefs to mental health.

General Irrational Beliefs

A vast amount of research has been dedicated to exploring the associates of irrational beliefs in general, and the associates of the four core irrational beliefs. Bringing this large literature base together, it is possible to appreciate the expansive influence of irrational beliefs on a range of unhealthy emotional and behavioral outcomes. The theoretical structure of rational and irrational beliefs within REBT is appealing due to its symmetry and relative simplicity. But apart from their aesthetic structural appeal, rational and irrational beliefs are valuable constructs because they determine numerous cognitive, affective, and behavioral outcomes, important for mental health. Research has concentrated more on irrational beliefs than rational beliefs, perhaps reflecting a problem-focused bias, rather than a benefit-focused, in the literature concerning REBT. A review by Browne et al. (2010) highlights many unhealthy associates of irrational beliefs, such as anger, guilt and shame, and psychopathological conditions including depression, anxiety, and suicidal thoughts. Across the research that demonstrates relationships between irrational beliefs and dysfunctional emotions, the strength of the associations varies across studies (e.g., MacInnes, 2004; Bridges and Harnish, 2010a). Also, associations between increased irrational beliefs and a consequent increase in emotional or inferential dysfunction are often small (MacInnes, 2004). In MacInnes' (2004) review of the literature he concluded that data "does not clearly indicate that there is a causal relationship". However, it maybe that the hypothesis that irrational beliefs cause dysfunctional emotions might be true, but that the 18 studies that met the analysis criteria provide weak evidence.

In a recent meta-analysis (Visla et al., 2016), the relationships between irrational beliefs and dysfunctional emotions were examined. Eighty-three studies were included in the analyses, with a total of 16,110 participants in total across 100 different samples. The studies published between 1972 and 2014 comprised student ($N = 34$), clinical ($N = 22$), and non-clinical ($N = 78$) populations. Results revealed significant small to moderate effect sizes of general distress ($r = 0.36$), depression ($r = 0.33$), anxiety ($r = 0.41$), anger ($r = 0.25$), and guilt ($r = 0.29$). Interestingly, the association between irrational beliefs and depression was higher when a stressful event was present ($r = 0.67$, $p < 0.001$) than when not ($r = 0.30$, $p < 0.001$). Also, there was a stronger relationship between irrational beliefs and general distress when the stressful event was experimentally induced ($r = 0.55$, $p < 0.001$) as opposed to being a real stressor ($r = 0.32$, $p < 0.001$). Overall, the authors comment that the study evidenced a moderate but robust relationship between irrational beliefs and psychological distress, corroborating and extending past research (e.g., MacInnes, 2004).

Many studies show that irrational beliefs are positively associated with depression and depressive symptoms (e.g., Nelson, 1977; Ciarrochi et al., 2005), and that irrational beliefs are able to distinguish depressed from non-depressed groups (e.g., Marcotte, 1996; McDermut et al., 1997; Taghavi et al., 2006). An early study (Nelson, 1977) revealed that the strongest relationships with depression emerged for irrational beliefs that reflected a need to excel in all endeavors, that it is terrible when things are not the way one would like them to be, obsessive worry about future misfortunes, and the impossibility of overcoming the influences of past history. These four beliefs are of course salient in sport, where excellence is desirable, frequent barriers emerge that can impact success, and athletes are often judged on previous success (or failure).

The extant literature also indicates that irrational beliefs are positively related to various forms of anxiety such as trait, state, speech, social, evaluation, test anxiety in clinical and non-clinical samples (Himle et al., 1982; Deffenbacher et al., 1986), and general, phobic, and obsessive compulsives (Thyer et al., 1983). At a physiological level irrational beliefs have been associated with greater galvanic skin response (Master and Gershman, 1983), and systolic blood pressure (Harris et al., 2006), indicative of greater autonomic physiological arousal. Harris et al. (2006, p. 5) suggest that "mental rigidity" leads to autonomic rigidity reflected in systolic blood pressure increases. Examining more complex physiological parameters, Papageorgiou et al. (2006) found that irrational beliefs were positively related to C-reactive protein, interleukin-6, tumor necrosis factor-α, and white blood cell counts in healthy adults ($N = 853$), when controlling for age, sex, years of school, body mass index, physical activity status, depression levels, and dietary habits. This study suggests that irrational beliefs maybe a risk factor for cardiovascular diseases. Indeed, irrational beliefs have been shown to affect physical health, with irrational beliefs positively related to eating disorders (Möller and Bothma, 2001) such as bulimia (Phillips et al., 1997), more severe asthma symptoms (Silverglade et al., 1994), and a higher frequency of chronic illnesses (Lichtenberg et al., 1992). Indeed, irrational beliefs are also positively related to type-A coronary-prone behavior, where individuals are highly motivated and competitive, but feel near constant time pressure, and have high hostility and anger (Friedman, 1977). This has been shown to be a risk factor for cardiovascular diseases.

Demandingness

Demandingness in REBT is the primary irrational belief and research (see Szentagotai and Jones, 2010, for a review) indicates that demandingness is positively related to a vast array of dysfunctional emotional and behavioral outcomes. Specifically, and non-exhaustively, demandingness is associated with disordered eating (Harrington, 2005a; Pearson and Gleaves, 2006), reduced anger control (Addis and Bernard, 2002), relationship problems, social avoidance and isolation (Watson et al., 1998), decreased performance in social situations (e.g., speaking; Nicastro et al., 1999), procrastination (Beswick et al., 1988; Bridges and Roig, 1997), alcohol abuse (Hewitt and Flett, 1991), interpersonal issues (Haring et al., 2003), suicide (Blatt, 1995), and reduced task performance (Frost and Marten, 1990). It is reasonable to suggest that none of these outcomes are conducive to short or long-term athletic goal achievement.

Awfulizing

Awfulizing in REBT is a secondary irrational belief and has been positively related to a submissive interpersonal style (Goldberg, 1990), social isolation (Watson et al., 1998), unhealthy anger expression and suppression, and externalized behavioral disorders (Silverman and DiGiuseppe, 2001). An area highly relevant to the mental health and performance of athletes is the research surrounding pain catastrophizing (a term often used instead of awfulizing), which leads to greater pain (e.g., post-knee surgery; Pavlin et al., 2005), more distress, greater disability, poorer quality of life in response to injury, and is generally negatively related to all pain outcomes investigated such as intensity, distress, and functioning, whereas decreased catastrophizing leads to decreased pain, disability, and depressive symptoms (see Schnur et al., 2010, for a review). It is thought that the anxiety provoked by awfulizing increases perceptions of pain through inflated expectations of high pain, and can lead to negative mental states activated in anticipation and during painful experiences (Sullivan et al., 2001). Also, catastrophizing mediates the relationship between depression and pain such that higher catastrophizing promotes depressive responses to pain (Gatchel et al., 1995; Geisser and Roth, 1998). The link between irrational beliefs and injury outcomes associated with pain is highly salient to athletes, given that the vast majority (if not all) of athletes will experience injury during their careers to a greater or lesser severity and frequency.

Low frustration tolerance (LFT)

Low frustration tolerance is a secondary irrational belief, and research indicates that it is positively associated with aggressive expression of anger (Martin and Dahlen, 2004), reduced anger control (Moller and Van der Merwe, 1997), poor social adjustment (Watson et al., 1998), addictive behaviors (Ko et al., 2008), anxiety, depression, procrastination, and dysfunctional affect (Harrington, 2005b, 2006). The link between LFT and procrastination has received much research attention, with Ellis and Knaus (1977, p. 19) regarding LFT as "the main and the most direct cause of procrastination." Evidence indicates that individuals with discomfort intolerance are more likely to procrastinate on boring, difficult, or demanding tasks (Milgram et al., 1988), all of which are potential demand characteristics of athletic training and competition. Individuals that find it difficult to tolerate difficulty and who experience procrastination are less likely to fulfill their achievement potential (Wilde, 2012).

Depreciation

Depreciation is a secondary irrational beliefs, and research has elucidated positive associations with defensiveness to negative feedback (Chamberlain and Haaga, 2001), aggressiveness (Beck, 1999), unhealthy anger expression (Martin and Dahlen, 2004), children's depressive, fear (internalized) aggressive, and anti-social (externalized) symptoms (Silverman and DiGiuseppe, 2001), and has been associated with those who are easily threatened by criticism (Ellis and Dryden, 1997). Literature suggests that depreciation beliefs are a strong predictor of depression (Solomon et al., 2003), anxiety (David et al., 2002), and posttraumatic stress responses (Hyland et al., 2014). Depreciation reflects the notion that on the basis of one occurrence, the individual generalizes and values the self in line with the result. For example, an athlete might conclude that because they have failed in a tennis match, then they are a complete failure. In REBT it is argued that self-rating in any way is erroneous (Ellis, 1994), because there are no objective bases for arriving at global evaluations of one's self (Sava et al., 2011). REBT is unique in that it encourages the valuation of behaviors, and the unconditional acceptance of people and the self as a whole.

General Rational Beliefs

Research concerning rational beliefs is less voluminous compared to research investigating irrational beliefs. Indeed, unlike research concerning irrational beliefs, the four core rational beliefs have not been examined to the same extent. This indicates a problem-orientated focus within the literature, which may reflect a more general negativity bias (Kanouse and Hanson, 1972), which refers to the tendency for things of a more negative nature (e.g., unpleasant thoughts, emotions, or social interactions; harmful/traumatic events) to have a greater effect on one's psychological state and processes than do neutral or positive things (Lewicka et al., 1992; Baumeister et al., 2001; Rozin and Royzman, 2001). There is no reason to suppose that this tendency has not permeated the academic research concerning REBT. This issue notwithstanding, research concerning rational beliefs (see Caserta et al., 2010) indicates that higher rational beliefs are associated with greater ability to manage stress of negative life events (Ziegler and Leslie, 2003; David et al., 2005b), anxiety (Himle et al., 1982), job stress (Tan, 2004), bereavement (Boelen et al., 2004), and adjustment (Lee et al., 2004; Ireland et al., 2005). It has also been found that the use of rational self-statements during pressured tasks leads to less self-reported anxiety (Rosin and Nelson, 1983) and emotional distress (Cramer and Kupshik, 1993) than irrational self-statements, which may have implications for athletes in terms of how they structure and frame their self-talk.

Unconditional Self Acceptance (USA)

Unconditional self acceptance is a specific rational belief that reflects unconditional regard for oneself despite undesirable

behaviors and adverse events (e.g., rejection, failure). So where irrational self-depreciation beliefs involve assigning low self-value and self-worth on the basis of an event, USA involves accepting oneself regardless of the adversity (Hill et al., 2008). Davies (2008a) found that USA was most strongly negatively related to self-depreciation, need for achievement, and need for approval. Further, participants primed with irrational self-statements showed reduced USA, and those primed with rational self-statements showed increased USA (Davies, 2008b). These studies show that USA is a rational belief that contrasts with irrational beliefs. USA is negatively related to depression and anxiety (Chamberlain and Haaga, 2001; Scott, 2007), and low USA can lead to self-blame and self-criticism (cf. Hill et al., 2008) and may increase the propensity for narcissism, downward social comparison (a person looks to another individual or group that they consider to be worse off than themselves in order to feel better), and self-centeredness (Neff, 2003).

Research also shows that USA is negatively related to self-oriented, other-oriented, and socially prescribed perfectionism (Flett et al., 2003). Further, Flett et al. (2003) found that USA mediated the association between socially prescribed perfectionism and depression, and other-oriented perfectionism only affected depression through its association with low USA. This is important because perfectionism has been found to lead to a range of dysfunctional emotions (Flett et al., 2003), and similarly in athletes has been associated with psychological distress, motivational deficits, negative thoughts, anxiety, and low confidence (see Flett and Hewitt, 2005, for a review). Furthermore, Flett et al. (2003) found strong links between self-oriented perfectionism and self-worth beliefs. The authors note that adolescents with high levels of self-oriented perfectionism acknowledged that their self-worth is based on how they are evaluated by themselves and by other people and whether approval and recognition are forthcoming from others. This is salient in sport where self and other evaluation is part and parcel of the context within which athletes are performing. Indeed, perfectionists often have a contingent sense of self-worth (e.g., DiBartolo et al., 2004) often equating making mistakes with their sense of self-worth (Bernard et al., 2006). It is difficult to imagine any athlete able to navigate the complex performance environment without making mistakes or facing set backs that may impinge on their sense of self-worth.

Critical Summary

The extant research shows that irrational and rational beliefs are related to a vast array of outcomes relevant to mental health. Although the research has not considered athletes, clearly the mental health outcomes can affect athletes within and outside of their sport participation. Only one study has directly examined the relationship between irrational beliefs and mental health outcomes, which revealed that irrational beliefs predicted increases in physical and emotional exhaustion (a dimension of burnout) in Gaelic football athletes over an 8-week period (Turner and Moore, 2015). This finding is inline with past research outside of sport linking irrational beliefs to greater burnout (e.g., Balevre et al., 2012). But clearly more longitudinal, large-scale, studies are required in order to investigate fully the relationships between irrational beliefs and dysfunctional responses, especially focusing on athletes. The lack of research assessing outcomes associated with rational beliefs needs to be addressed for any meaningful conclusions to be draw as to the benefits of rational beliefs, as opposed to the benefits of low irrational beliefs. This is an important distinction because irrational and rational beliefs are relatively orthogonal, and low irrational beliefs do not necessarily mean high rational beliefs (i.e., they do not correlate highly; Ellis et al., 2010). Therefore a relatively separate and equitable research literature is required for both irrational beliefs and rational beliefs, which is currently not present.

Although there is a positive association between irrational beliefs and clinical and non-clinical mental health outcomes (e.g., McLennan, 1987; Prud'homme and Barron, 1992; Macavei, 2005), past research has been hindered by the way in which irrational beliefs have been assessed. There are various psychometric measures of irrational beliefs, many of which have fundamental limitations (see Bridges and Harnish, 2010b, for a review) thus casting doubts over the findings from previous research. In response to a critical review of irrational beliefs assessments (Terjesen et al., 2009) the development of new measures has strengthened the assessment of irrational beliefs, with one inventory specifically developed for use in performance settings such as sport (irrational performance beliefs inventory, iPBI; Turner et al., 2016). The iPBI has also shown that higher irrational beliefs are positively related to trait depression, trait anger, and trait anxiety.

The Influence of Irrational Beliefs and REBT on Athletic Performance

As evidenced in the extant research, it is unfavorable to hold irrational beliefs due to the associated maladaptive emotional and behavioral consequences that impede mental health. So it is tempting and indeed reasonable to assume that within a performance setting such as sport, irrational beliefs would be deleterious for goal attainment. However, there is little evidence that irrational beliefs interfere with athletic performance or that rational beliefs facilitate athletic performance (e.g., Turner, 2014). In addition, there is little evidence that irrational beliefs lead to the same emotional and behavioral outcomes in athletes as they do in non-athletes. It is sensible to hypothesize that irrational beliefs are as much of an issue in athletes as they are in non-athletes, as irrational beliefs are evident in almost all societal and cultural domains (Ellis, 1976), but sport research to date is yet to determine this.

The research conducted in sport does show that REBT is an effective intervention for reducing irrational beliefs and performance anxiety (Elko and Ostrow, 1991; Yamauchi and Murakoshi, 2001; Larner et al., 2007; Turner and Barker, 2013), and one case-study demonstrates the improved competitive performance of an archery athlete (Wood et al., 2016). This research employs applied research methods offering support for the use of REBT with athletes via a traditional one-to-one counseling approach. However, little research has included objective performance markers to assess the effects of REBT

on athletic attainment in the short-term or long-term. That is, it is not known whether REBT enhances skill execution or kinematic aspects of sport performance, or aspects that allow long-term goals to be attained (e.g., motivation, emotion regulation). Anecdotally practitioners have reported observing gains in the performance of the athletes they have applied REBT with (Bernard, 1985; Marlow, 2009; Turner and Barker, 2014; Turner et al., 2014), but this does not constitute objective or even empirical evidence for the performance facilitating effects of REBT or rational beliefs.

Because of the dearth of REBT research in sport, it is necessary to look to research that assesses irrational beliefs, REBT, and performance in other domains. In the meta-analysis by Gonzalez et al. (2004), REBT was shown to have a moderate positive effect on adolescent academic (Grade Point Average) performance (mean Z^r score of 0.49). The research included in the meta-analysis that used GPA as a performance marker have the advantage of including an objective indication of performance. However, it is not possible to pinpoint what it was about the REBT delivered that increased performance. Some research suggests that irrational beliefs are inversely related to reading ability, with speculation that rational beliefs may be related to verbal intelligence (Prola, 1988). It could also be argued that positive changes in behaviors, such class cutting (Block, 1978) and increased effort (Kachman and Mazer, 1990), could contribute to GPA, but there are a myriad of extraneous factors that contribute to assessment performance for school students. Therefore it is difficult from the above research to extract translatable findings to sport, as the mechanisms between reductions in irrational beliefs and performance were not investigated.

Research that more directly assess performance in relation to irrational and rational beliefs adopts laboratory experimental approaches. For example, participants on approach to a mirror-tracing task given irrational self-talk statements (e.g., "If I don't perform perfectly well next time it will prove I'm stupid,") recorded the most errors in the task, and performed slower than the rational self-talk group (e.g., "Mistakes don't mean I'm stupid"; Schill et al., 1978, p. 4). The irrational self-talk group evidenced the worst performance efficiency in the task. In a similar study of mirror tracing performance (Bonadies and Bass, 1984) it was found that participants given rational self-talk statements were significantly more accurate than those given irrational self-talk statements, and a control group. The irrational self-talk group and control group were as inaccurate as each other, suggesting that rational self-talk is beneficial for performance, rather than irrational self-talk being damaging for performance. From these laboratory studies, it could be suggested that movement efficiency in laboratory-based tasks can be harmed by adopting irrational self-talk. However, self-talk is considered to be effective for cognitive control but is not necessarily reflective of deeply held beliefs (Bunker et al., 1993).

With the meta-analysis (Gonzalez et al., 2004) and the laboratory studies (Schill et al., 1978; Bonadies and Bass, 1984) considered, there is little research evidence that irrational beliefs could harm athletic performance. The notion that REBT can help athletic performance comes from anecdotal and case-study sources, supported by REBT theory and research purporting that rational beliefs lead to functional and adaptive emotions and behaviors that facilitate goal attainment. Viewed through a humanistic and hedonic lens, it could be argued that athletes who feel better will perform better. For example, mood states are able to predict athletic performance, whereby athletes with lower depression, anger, and tension are more likely to perform well (e.g., Beedie et al., 2000). In addition, recent work in the field of REBT (Dryden, 2007; Neenan, 2009) and resilience (Fletcher and Sarkar, 2013) intimates that there exists some symmetry between REBT and the concept of resilience that may help to better understand and develop resilience.

Resilience can be considered to be a process of adapting well in the face of adversity, recognizing that emotional distress is very much a part of becoming resilient (see Sarkar et al., 2015), and that coming back from adversity is not necessarily an immediate occurrence (American Psychological Association, 2004; Dryden, 2007). There is a need in sport for techniques that promote resilience, particularly those that include the minimization of catastrophic thinking, the challenging of counterproductive beliefs, and the encouragement of cognitive restructuring (Fletcher and Sarkar, 2012). The minimization of catastrophic thinking and the challenging of counterproductive beliefs are both central to the aims and process of REBT, with cognitive restructuring particularly important for the endorsement of rational beliefs over irrational beliefs. Indeed, the capacity for rational beliefs to promote resilience has been met with the formulation of an Athlete Rational Resilience Credo (Turner, in press), which encourages successful adaptation to adversity in athletes, and based on the work of Dryden (2007 p. 219), presents "a set of beliefs, which expresses a particular opinion and influences the way you live." The links between irrational and rational beliefs and resilience, and the use of REBT to promote resilience, are yet to be fully explored but offer potentially fruitful areas of future research that could help to elucidate the links between irrational and rational beliefs, and sport performance.

The Potential Facilitating Effects of Irrational Beliefs

Despite the notion that irrational beliefs are harmful for performance, many athletes and coaches the author works with are adamant that irrational beliefs can help athletic performance, such that they are reluctant to shed their irrational beliefs for rational beliefs. To be candid, there is no hard evidence suggesting that irrational beliefs harm athletic performance, and of course there is insufficient evidence supporting the opposite notion that irrational beliefs help athletic performance. In the Schill et al. (1978) study, some individuals allocated to the irrational self-talk group did perform well, in contrast to the overall findings, a finding that should not be ignored. Indeed, there may be a self-reinforcing thrill achieved when people think irrationally, and distortion and exaggeration can be exciting and may elicit the attention or sympathy of others (Digiuseppe et al., 2014). Thus it may be that people experience short-term advantages by thinking irrationally. Once one thinks oneself to be worthless, one is legitimized to not put effort into achieving ones goals (Backx, 2012). In the absence of more evidence relating irrational beliefs to performance, it is perhaps understandable why coaches and athletes are vigilant when it

comes to challenging their own and their athletes' beliefs. While the evidence overwhelmingly suggests that irrational beliefs are deleterious to mental health, it cannot be discounted that irrational beliefs may be acutely helpful for motor performance. Perhaps a 'must win' belief provides an extra impetus to exert more effort on a given task, or provides a focus on what is to be done to get the edge over an opponent within a competition, for example. Indeed, some athletes adopt negative self-talk as a useful strategy for performance as it may contain motivating properties (Goodhart, 1986). It might be helpful to draw on motivation theory to understand this apparent paradox, such as the self-determination theory (Deci and Ryan, 1985, 1991; Ryan and Deci, 2000, 2002).

In self-determination theory individuals are considered to be intentional organisms motivated to achieve differing objectives. Hence, Deci and Ryan (1985) posited three types of motivation that capture the different reasons for individual engagement in achievement situations; intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation, various extrinsic motivations (external regulation, introjected regulation, and identified regulation), and amotivation reflect a self-determination continuum. Excellent papers can be read on the intricacies of the self-determination continuum (e.g., Standage et al., 2005), however, for the purposes of the current article, it is sufficient to understand that intrinsic motivation refers to engagement in an activity for its own sake (pleasure, interest, and satisfaction from activity itself), and as an individual's motives approach extrinsic motivation on the continuum, the more that engagement in the activity is directed by separable outcomes such as rewards or punishments.

Of particular interest due to its potential relationships with irrational beliefs, is introjected regulation, which reflects moderately low self-regulation. Introjected regulation is characterized by an individual internalizing external regulations (Ryan and Deci, 2002), where the direction for action is controlled by self-imposed sanctions such as to avoid shame and guilt, or attain ego enhancement such as pride. That is, introjected regulation represents regulation by contingent self-esteem (Deci and Ryan, 1995, 2000). Standage et al. (2005 p. 413) give an example that resonates with REBT, stating that "an example of introjected regulation would be a student that participates in an after school physical activity program, not because she/he wants to, but because the student feels that she/he should, because that is what 'good students' do." This reflects both demandingness beliefs ("should") and global evaluations ("good students"). Indeed, the perception that one should or ought to engage in an activity is considered a hallmark of introjected regulation (e.g., Gillison et al., 2009).

The potential relationship between irrational beliefs and introjected regulation is important because it may begin to elucidate how irrational beliefs could have both positive and negative effects on athletic performance. Introjected regulation is an external regulation, and as people internalize regulations and assimilate them to the self, they experience greater autonomy in action (Deci and Ryan, 2000). More autonomous extrinsic motivation has been associated with more engagement (Connell and Wellborn, 1991), better performance (Miserandino, 1996), lower dropout (Vallerand and Bissonnette, 1992), higher quality learning (Grolnick and Ryan, 1987), and better teacher ratings (Hayamizu, 1997), among other outcomes (see Deci and Ryan, 2000, for a review). In one study conducted with students (Ryan and Connell, 1989), higher external regulation was associated with less interest, less value, and less effort toward achievement, and higher tendencies to disown responsibility for negative outcomes. Specifically, introjected regulation was positively related to expending more effort, but it was also related to feeling more anxiety and coping more poorly with failures. Therefore, irrational beliefs reflecting introjected regulation may inspire effort due to internal pressure ("I have to"), but may have implications that undermine performance in the longer-term.

Echoing the above, Harrington (2005b) suggests that in some circumstances irrational beliefs about high standards may increase functional behavior, however, he also recognizes that this may lead to psychological problems in other areas due to increased workload and stress. So although irrational beliefs may inspire effort, there are numerous risk factors that could emerge as a result. Are we as practitioners comfortable with the idea that athletes and coaches may promote irrational beliefs for short-term performance, when we know that long-term mental health may be compromised? There is enough evidence that links irrational beliefs to harmful emotional and behavioral consequences to drive those involved in sport to endeavor to reduce irrational beliefs in athletes, and find alternate methods of motivating optimal performance.

Double-Think

Perhaps irrational performance beliefs are more complex than being either rational or irrational. Some athletes the author has worked with are capable of using irrational thoughts for acute performance situations, while harboring robust rational beliefs as part of their philosophy of success and failure. Self-talk in the moment does not necessarily reflect core beliefs. In other words, it is possible for athletes to partake in what George Orwell called "double think" in his book 1984, which is described as ". . .the power of holding two contradictory beliefs in one's mind simultaneously, and accepting both of them." (Orwell, 1949, p. 32). Orwell goes on to describe doublethink in the following way:

"To tell deliberate lies while genuinely believing in them, to forget any fact that has become inconvenient, and then when it becomes necessary again, to draw it back from oblivion for just so long as it is needed. . .." (Orwell, 1949, p. 32).

Holding contradictory ideas, such as irrational and rational beliefs, is also akin to the concept of cognitive dissonance (Festinger, 1957), which may result in discomfort due to simultaneous endorsement of two contradicting beliefs. Supposedly, people are motivated to reduce this dissonance, and therefore holding both irrational and rational beliefs about the same situation may be difficult (Festinger, 1957). For example, a marathon runner in the final mile may use the self-talk "I want to get my personal best and therefore I have to, and it would be awful if I did not" which may inspire a final burst of enthusiasm toward the home straight. However, the runner may harbor a core belief that recognizes that "I want to get

my personal best, but that does not mean I have to, and it would be bad but not awful if I did not" that directly opposes the self-talk, but this core belief is not useful or salient in that context. When there is dissonance such as the above example an individual can conveniently ignore the contradiction because in the moment the irrational self-talk is achieving the desired results of increased performance. For example, a smoker knows that smoking is deadly, but can justify smoking because it feels good and helps them to relax in the moment. So to reduce the dissonance between irrational and rational beliefs, athletes can view irrational self-talk as helpful in the moment, thus reducing the conflict between the contradictions. Novak Djokovic, professional tennis player with 12 Grand Slam singles titles (at the time of writing), gives a nice example of this, where he says that "Tennis is my life, obviously; I need to focus, I need to win. But it's not the only thing. I'm not going to play forever" (Wilbon, 2012). Here, Djokovic expresses the rigid and extreme need to succeed, but also expresses a flexible and non-extreme belief that tennis is not the only thing. This ability to use irrational self-talk while holding rational core beliefs relies on the athletes meta-cognitive ability to introspect on their thought processes (Metcalfe and Shimamura, 1994), and be able to understand that different beliefs are appropriate for different circumstances. Athletes unable to relinquish their irrational self-talk when they step off the court may find it difficult to endorse rational beliefs, and therefore may be at risk from the many mental health outcomes highlighted in this article.

Critical Summary

The question of whether irrational beliefs influence athletic performance or not, is a complex but valuable one, for which little research exists. There are reasons to believe that irrational beliefs could actually help performance particularly in the short-term if athletes are able to recognize the differences between their self-talk and their core beliefs, but that long-term sport performance is unlikely to benefit from holding irrational beliefs in part due to the deleterious implications on mental health. If irrational beliefs are in some way helpful in the short-term, or can facilitate acute skilled performance, we must ponder the potential costs of such beliefs long-term. Enough evidence exists regarding mental health that should dissuade the promotion of irrational beliefs. Thus even if irrational beliefs can in some situations help performance, it is questionable whether irrational beliefs should ever be encouraged. These conjectures are based on anecdotal evidence, theory and inferences made from, at times, disparate research, and it has to be stressed that little data currently exists that could empirically support, or refute, these conjectures. It is hoped that the ideas above promote further investigation by researchers and practitioners.

The Origins and Development of Irrational and Rational Beliefs in Athletes

The current review has presented evidence that attests to strong links between irrational beliefs and poorer mental health. It is argued that the links between irrational and rational beliefs and mental health outcomes exist because of the associated functional (healthy) and dysfunctional (unhealthy) emotional and behavioral consequences that are driven by the beliefs. Because irrational beliefs lead to a range of UNEs that undermine mental health, it is important to understand how irrational beliefs are developed and propagated, so that interventions and strategies can be developed to dissuade the development of irrational beliefs, and promote rational beliefs, before formal REBT is required.

Nature vs. Nurture

Like many psychological constructs, there is a debate as to whether irrational beliefs are driven by nature (we are born irrational) or by nurture (we learn irrationality). Ellis (1976) intimated, and Ruth (1992) propagated, that there is a biological basis or innate tendency for rational and irrational beliefs, such that it is in our nature to develop both rational and irrational beliefs. Ellis wrote, "humans have a strong tendency to needlessly and severely disturb themselves, and that, to make matters much worse, they also are powerfully predisposed to unconsciously and habitually prolong their mental dysfunctioning and to fight like hell against giving it up" (Ellis, 1987, p. 365). Ellis (1987) suggests that humans are predisposed to develop such beliefs, thus explaining why they are difficult to change, and why they persist despite cultural teachings and self-awareness. Ellis' core argument was that all humans at some point believe, think, and act in ways that are self-destructive, reflecting the illogicality of holding such beliefs, thoughts, and behaviors (Sharf, 1996). This is evident across all known social and cultural groups. He argues that all societal and cultural institutions promote demandingness, awfulizing, low-frustration tolerance, and depreciation to greater or lesser extents.

Ellis recognizes that societal and cultural irrationalities are driven by the teachings of significant others, and makes the point that we ourselves have a propensity to willingly receive and internalize these irrationalities and continue to perpetuate them for the rest of our lives. Irrational beliefs are exacerbated by those around us whom we look to for guidance on how to live our lives (Sharf, 1996), but irrational beliefs are so ubiquitous that they cannot possibly be entirely learned. Indeed, even when society dissuades certain self-destructive behaviors, humans are resistant to rationality and constantly think and act in ways that are contrary to self-propagation and the development of the human race. We give up many erroneous beliefs as we develop and mature, but irrational beliefs maintain.

In sum, Ellis and others suggest that we are predisposed to irrational beliefs, but that society has a part to play in teaching us these beliefs. Depending on these biological and social factors, individuals can vary in their vulnerability to psychological disturbance (Sharf, 1996). Ultimately, society drives irrationality, and we as humans develop irrational beliefs as a function of our biological tendency to do so. So assuming that athletes are normal human beings (which of course they are), we have to look to the culture of sport to start to explain sport-related irrational beliefs in athletes (the irrational beliefs of the vast number of individuals involved in sport who are not athletes will be ignored for the purposes of this paper). It is difficult to understand or estimate the prevalence of irrational beliefs in athletes due to the dearth in relevant literature. Typically, prevalence research

randomly selects a sample from the population in question (e.g., athletes) and provides an estimation of the problem for the population (Boyle, 1998). This approach has not been taken so far within the REBT literature concerning sport. As previously reviewed, most of the extant literature is applied in nature and is more concerned with measuring the effects of REBT on small numbers of athletes. However, there is a need to understand the extent to which athletes hold irrational and rational beliefs, and whether this differs from more prominently studied populations (e.g., students, clinical samples). At present, it is not known whether athletes are more or less likely to endorse irrational and rational beliefs compared to non-athlete populations. Therefore, it is very difficult to grasp the extent of the problem.

The Language of Sport

Although data do not exist that reveal the prevalence of irrational and rational beliefs in athletes, when sport is viewed through the lens of the media, irrational beliefs are evident in the language used in the daily sporting narrative. The way that sport is portrayed in the media would have us believe that the very nature of sport is irrational, with barely a week going by without irrational language being used to inappropriately describe the on and off field exploits of athletes and coaches. To use a recent example, Louis van Gaal (Manchester United Football Club manger) was asked prior to the 2015 Boxing Day match against Stoke City Football Club if it is a "must-win" and van Gaal said "Yes, I think so because when you have lost three times in a row to you need to win." He said "We have to focus on that match and we have to win that match." Manchester United lost that match 2–0, which apparently was a "must-win" (Sheen, 2015). In contrast, Jurgen Klopp often uses more rational language, and after failing to win in his first three matches in charge of Liverpool Football Club, he said:

"This is not the end of the world. We conceded a goal near the end, and it felt like the end of the world, but it is not the end of the world. . .I hope I'm not the only person in the stadium who thought: 'This is not the end of the world.' We can work on this. . .Of course, it is not the best moment for us, because we wasted a lot of energy. Southampton haven't lost away from home, so we had to work hard. . .You score the goal and you want to win, but it didn't happen for us today. Football is not a fairytale. Sometimes we can write stories like this but it doesn't always happen" (Agence France-Presse, 2015).

Therefore, if the prevalence of irrational and rational beliefs can in some part be reflected in the utterances of athletes and coaches, then a deeper analysis of this phenomenon is warranted. Of course, what athletes and coaches say to the media is not necessarily indicative of deeply held core beliefs, and caution should always be paid to the interpretation of media sound bites. But it is recognized that common cultural stereotypes in our language, our stories, our songs, play a part in developing rational and irrational beliefs (Digiuseppe et al., 2014). It could be argued that sport is especially endorsing of irrationality, where irrationality is openly propagated and often boasted about. Indeed, the irrational notion of "terrible performances" and "must win games" is common parlance in many sports, and even used as a badge of honor to demonstrate how much an individual cares about their performance. The language used to report sport may play a role in not only reflecting irrational beliefs, but may also play a role in developing irrational beliefs.

Athletes, just like any other human being, populate a complex social world. To navigate this social world of coaches, teammates, support staff, opponents, supporters (and non-supporters), the media, and of course friends and family, the reciprocal communication of information is important. An athlete takes instruction, advice, guidance, opinions, and criticism on a daily basis, but also may deliver similar information to others on a typical day. This is important because it suggests that people are influenced by language used in communication with others and oneself, and therefore when imprecise language is used (such as the verbal expression of rigid, extreme, and illogical beliefs) this can augment imprecise thinking (Dryden, 2015). This is in line with General Semantics Theory (Korzybski, 1933), and suggests that the language used to communicate with athletes is a powerful source of information guiding thought processes and subsequent emotional and behavioral responding. Therefore, even if key stakeholders of an athlete's mental health do not really believe the irrational beliefs they portray in their use of language, the communication of such information contributes to the beliefs of athletes.

The examination of language within sport settings may be a fruitful area for future research, partly because it offers the advantages of representing rigid irrational beliefs in the symbolic form of language where the belief is more easily examined and manipulated (Dryden, 2015) compared to deeper level beliefs (e.g., schemas; David et al., 2002). If irrational beliefs are developed through cultural learning, key stakeholders in the development of team and organizational cultures that surround athletes should be investigated. This investigation should focus on the language used by coaches, managers, support staff, parents, and athletes, in training and performance settings, and whether this language contains content symbolic of irrational beliefs. Also, shifts in athlete beliefs during and after the manipulation of this language should be explored to understand the impact of irrational and rational language on beliefs. That is, controlled experimental and field studies should be undertaken that directly manipulate rational and irrational language to understand the extent to which this language triggers the development of rational and irrational beliefs, and associated emotional and behavioral maladaptation.

Critical Summary

If it is apparent through empirical research that athlete irrational beliefs are driven by socialization, then it is possible to start to combat irrational beliefs in athletes by equipping key stakeholders with information and education concerning the dissuasion of irrational language, and the promotion of rational language. This may involve systematically engaging with coaches, parents, support staff, and performance directors, to help challenge the cascade of irrational language that athletes are exposed to all too frequently. Of course, the most direct way to challenge irrational beliefs in athletes to work directly with those athletes. However, cultural changes within organizations

can have a more long-lasting and broader effect (Katzenbach et al., 2012) on a larger number of athletes that may go some way to reducing the need for individual REBT with athletes. If we are to meaningfully reduce the development of irrational beliefs in athletes, we must first understand how they emerge and what factors drive their development. Then targeted interventions can be formulated and applied within sporting organizations with athletes and key stakeholders in athlete mental health.

KEY QUESTIONS FOR FUTURE REBT RESEARCH IN SPORT

In this section, the themes highlighted throughout this article are brought forward and key questions for future research are proposed. These questions should guide the future investigation of REBT in sport to enable stronger conclusions to be drawn about the value of REBT theory and practice as applied to the mental health and performance of athletes. The key questions reflect what is currently known about irrational beliefs and REBT from research outside of sport, and bring forth the most salient areas for future research in sport.

Do Irrational Beliefs and Rational Beliefs Influence the Mental Health of Athletes?

The extant research demonstrates that, in non-clinical and clinical populations, irrational beliefs are positively related to mental illness (and symptoms of mental ill health), whereas rational beliefs are positively related to mental health. However, it is not yet known whether these well-supported assertions hold true in sport settings, in athletes. This is surely the chief research question to emerge from this article and should be of paramount concern to researchers investigating REBT in sport. Researchers should also begin to investigate whether the four core irrational beliefs separately predict sporting emotions and behaviors in training and competitive contexts. For example, an understanding of irrational beliefs, and particularly awfulizing (catastrophizing) in athletes may help to manage pain more effectively through rehabilitation programs. In particular, longitudinal research is needed to understand to what extent irrational and rational beliefs predict changes in mental health outcomes in the long-term. There is a huge array of mental health outcomes that could be assessed, and research should focus on objective markers such as physiological reactivity and behavioral indicators (e.g., injury, physical illness). Also, moving beyond correlational research, future studies should seek to distinguish between athletes with lesser and greater mental health, and apply REBT to specifically address mental health outcomes.

Do Irrational Beliefs and Rational Beliefs Influence Athletic Performance?

Current knowledge about the relationship between irrational and rational beliefs and athletic performance stems from disparate research, anecdotal reflections, and self-reported athlete perceptions. The current review debates a potentially complex picture of how irrational beliefs may relate to performance that has the potential to generate many future research studies. For example, can irrational beliefs be beneficial for performance in the short-term compared to the long-term? Also, can athletes engage in cognitive dissonance that allows them to utilize irrational beliefs for acute performance purposes, but endorsing rational beliefs as a more general life philosophy? Further, the motivational properties of irrational and rational beliefs for sport performance need to be better understood. The present review offers some theoretically plausible ideas that marry self-determination theory constructs with irrational beliefs, but research should examine these using meditational and longitudinal methods to understand how irrational beliefs predict changes in motivation regulation. Also, the notion of resilience in sport is becoming an important construct in research, and REBT addresses some of the main recommendations for resilience training. Therefore, research exploring the use of REBT to enhance the resilience of athletes should be undertaken, with a view to understanding the contribution of REBT to long-term athletic achievement.

How Are Irrational Beliefs Developed in Athletes?

This article suggests that the development of irrational beliefs in athletes is likely to be driven by athlete socialization into competitive environments, while as human beings athletes have an innate tendency to develop irrational and rational beliefs. In fact, it is argued in this review that sport is especially promoting of irrational beliefs especially through language, and therefore, the culture of sport, both from an individual sports organization and a broad athletic community perspective, should be investigated. Therefore primarily researchers should conduct investigations that first seek to confirm the nature of irrational beliefs (e.g., are irrational and rational beliefs schemas?), and then seek to understand how irrational beliefs are developed. This research needs to occur in the general population as well as within sport samples, as there may be differences in how irrational and rational beliefs are perpetuated in sport compared to other endeavors (performance and non-performance). Understanding how irrational beliefs are developed in athletes will guide the psychosocial development of athletes, and inform the application of REBT in sport to address mental health outcomes throughout an athlete's career. This important question may be aided by researchers and practitioners with expertise in developmental psychology, and the more general formation of beliefs, and therefore would no doubt be a fruitful area for multidisciplinary research.

CONCLUSION

The purpose of this article was to present three keys areas that would allow further understanding of irrational beliefs and REBT within sport with a particular focus on mental health. Due to REBT's focus on mental health, this article examined the evidence linking irrational and rational beliefs with mental health outcomes. As part of this examination, athletic performance, emotional responding, and the development of irrational beliefs,

were considered. REBT is proposed as an important framework for use with athletes. Through understanding the links between irrational and rational beliefs, and mental health, this article offered a number of research questions that should be addressed by researchers. In addition, the application of REBT should be promoted to neophyte practitioners, and the applied work of practitioners using REBT should be more frequently reported in primary research and case-study outlets, so that a shared understanding of how REBT can be applied in sport is garnered. Overall, it is hoped that this article fuels the interests of researchers, students, and practitioners, so that the value of REBT for the promotion of mental heath in sport is recognized and endorsed more widely.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

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MINI REVIEW
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From Mental Health to Mental Wealth in Athletes: Looking Back and Moving Forward

Mark Uphill, Dan Sly and Jon Swain*

Canterbury Christ Church University, Canterbury, UK

Considerations of athletes' mental health are typically framed in the language of mental illness (Hughes and Leavey, 2012), a situation that contributes to stigmatization, denial, and the prevention of effective care. In this article, we provide a critical, narrative review of the extant literature on athlete mental health. Specifically, we begin by providing a brief synopsis of the extant literature on athletes' mental health, illustrating both what we know about (i) the prevalence of mental health issues in sport and (ii) variables contributing to help-seeking behaviors in athletes. Against, this backdrop, we outline Keyes' (2002) two-continuum model of mental health as a theoretical framework that has considerable promise in understanding, talking-about, and intervening to enhance, athletes' mental health. This model posits two related, but distinct dimensions: one continuum indicates the presence or absence of mental health, the other the presence or absence of mental illness. From this perspective, a number of possibilities emerge. For instance, athletes could simultaneously have both positive mental health and experience of mental illness. Alternatively, athletes could be free from mental illness, but in Keyes' terms be "languishing" (i.e., experiencing low levels of mental health). Implications for interventions based on the two-continuum model are discussed, particularly drawing on assets-based approaches to enhance flourishing (Theokas et al., 2005). We conclude the review by considering limitations in our understanding of how to promote flourishing and suggest avenues for further research.

Keywords: flourishing, mental health, athlete, assets, mental illnesses

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****Correspondence:***
Mark Uphill
mark.uphill@canterbury.ac.uk

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INTRODUCTION

Whether it is through media portrayals (Oldroyd, 2010), athlete autobiographies (Beard, 2012), mental health campaigns (Performance Matters), education (Thompson and Sherman, 2007), or academic research (Rao and Hong, 2016; Wolanin et al., 2016), there is an increased visibility of the mental health challenges experienced by athletes generally and elite sportspersons specifically (see Swann et al., 2015 for issues associated with the definition of "elite"). We use the term "athletes" in this paper to embrace the full spectrum of competitive sportspersons, and are more specific in our terminology where this is necessitated.

Against the increased prominence of the mental health challenges associated with elite sport in particular (Gulliver et al., 2015), is much unchartered territory in which (i) conceptions of mental health are widely contested (Rogers and Pilgrim, 2005), (ii) interventions to promote mental health should have a solid evidence-base (Jané-Llopis and Anderson, 2005), and (iii) there should be a better match between the priorities perceived by stakeholders (e.g., athletes, coaches, and policy makers) and those of the research community (Jané-Llopis and Anderson, 2005).

Just as there are different maps of the physical landscape, so the perspectives that are held regarding mental health can vary. Importantly, the way in which we conceive of mental health is not value-free (Cromby et al., 2013) – rather our conceptions are important practically, empirically, and politically. In this paper, we draw upon the two-continuum model of mental health (Keyes, 2002, 2005, 2007) as a framework that arguably has promise in understanding, talking about, and intervening to enhance, athletes' mental health. In particular, we outline a growing body of empirical support for the model, and discuss the implications of understanding athletes' mental health from this perspective.

We begin, however, by providing a summary of the extant literature on athletes' mental health. Drawing upon descriptions of caricatures (Sparkes, 1992; Uphill and Dray, 2009), our intention is to highlight the key features of this literature, yet concomitantly obscure some of the subtleties and nuances that exist. The intention is not to cartoon the research or ideas of others, rather we use these central features to contextualize and strengthen our selection of this model.

A CARICATURE OF THE LITERATURE

Recent decades have witnessed a growth in research examining the spectrum of athletes' mental health from mental illness (Gulliver et al., 2015), through to well-being (Lundqvist and Sandin, 2014). Nevertheless, this literature is characterized by differing ideas of what mental health "looks like" (cf. Rowley et al., 1995; Schwenk, 2000). Notwithstanding the challenges of arriving at a consensual definition, there are two themes associated with athletes' mental health that are receiving research attention: (i) the prevalence of mental illness in elite athletes and (ii) barriers and facilitators of help-seeking among athletes more broadly.

With regard to the former, a cross-sectional survey of Australian elite athletes Gulliver et al. (2015), found that approximately 1 in 2 athletes (46%) were experiencing symptoms of at least one of the 'mental health problems' assessed, and the prevalence of problems was similar to that of community and athlete populations (e.g., Schaal et al., 2011). Although this study makes a valuable contribution to the literature, it is nonetheless symptomatic of the challenges confronting this endeavor. First, conclusions about the prevalence of mental ill-health are in part, shaped by the definitions and measures that are used. To illustrate as a point of contrast, Sundgot-Borgen and Torstveit (2004) suggested that the prevalence of eating disorders among Norwegian athletes, particularly for those athletes competing in sports that emphasize a lean body mass, was higher than in the general population.

Second, how mental health is assessed by researchers and practitioners may have different emphases. Research practices typically measure mental illness by virtue of a clinical or categorical score on a questionnaire or clinical interview (e.g., Gulliver et al., 2015), whereas in the UK at least, the practice-landscape draws upon constructions of mental health via a process of formulation (Kinderman and Tai, 2009) to navigate a terrain that draws upon clients' experiences (Cromby et al., 2013) in promoting mental health.

With regards to help-seeking among athletes, although evidence suggests that elite athletes may be similar to the "general population" in terms of the prevalence of mental health difficulties, this is tempered with the recognition that stigma may be higher among athletes compared to non-athlete peers (Kaier et al., 2015). Stigma, coupled with a culture that emphasizes toughness and the minimisation of perceived weakness (Reardon and Factor, 2010) may contribute, in part, to under-recognition of mental illness in the athletic population.

Encouraging appropriate help-seeking by athletes then, is an important preventive and treatment strategy, yet athletes often do not seek professional help (Gulliver et al., 2012). A potential barrier to help-seeking among elite athletes is the [perceived] risk of admitting psychological difficulties that may result in exclusion from the team, being unable to compete, loss of livelihood, and athletic identity (Linder et al., 1989; Gulliver et al., 2012).

Acculturation of athletes may also influence help-seeking. For instance, Tan et al. (2014) suggest that the pursuit of thinness may be viewed positively within a sporting culture due to the advantages it holds to athletic success. The manner in which symptoms are labeled either by practitioners or athletes themselves may influence the degree of help-seeking. For example, athletes who may otherwise be described as experiencing depression could be labeled as 'burnt-out' due to similar presentations (Reardon and Factor, 2010). Similarly, athletes may have difficulty in distinguishing the fatigue and tiredness associated with training from depression (Schwenk et al., 2007). Additional barriers towards help-seeking include a lack of mental health literacy, and negative experiences of previous help-seeking (Gulliver et al., 2012). In contrast, facilitators of help-seeking include education and self-awareness, social support, and encouragement, positive relationships with practitioners and their integration into sporting life (Gulliver et al., 2012).

Third, we argue that there are comparatively few studies that have been directed towards the enhancement of athletes' mental health. Some have attempted to reduce the stigmatization and likelihood of referral among athletes (e.g., Van Raalte et al., 2015), yet the evidence-base underpinning the promotion of mental health among athletes is poor.

Summary

The caricature depicted above, is illustrative of a landscape for which much of the map remains to be drawn. In addition, the cartographer appears not to have a compass to help navigate the terrain. In short, there is little consensus about how best to conceptualize and assess athletes' mental health, with little systematic progress about how best to promote athletes' mental health. In the section below, Keyes' (2002) two continuum model of mental health is proffered as a framework that may facilitate map-making (or what Forscher, 1963 described as edifice building) in the area of athletes' mental health.

Keyes' (2002) TWO CONTINUUM MODEL

According to The World Health Organization [WHO] (2005, p. 2) mental health is not merely the absence of disease, it is "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community". This understanding of mental health as more than the absence of mental illness is embraced within Keyes' (2002) model in which mental health is characterized as a complete state. Specifically, Keyes developed the concept of a two continuum model; rather than see mental health and mental illness as residing at two ends of a single continuum, Keyes suggested that mental illness and mental health, are two distinct but related dimensions existing on two separate continua (see also Tudor, 1996). The first continuum relates to the absence and presence of mental illness, whilst the second pertains to the absence or presence of mental health. From this perspective, a number of possibilities emerge. For instance, athletes could simultaneously have both positive mental health and experience mental illness. Alternatively, athletes could be free from mental illness, but in Keyes' terms be "languishing" (i.e., experiencing low levels of mental health).

There is a growing body of research supporting elements of this model (see Provencher and Keyes, 2011; Keyes, 2014 for reviews). Although space precludes a thorough consideration of this literature, a number of observations are pertinent. First, using latent measures of mental illness and mental health a two factor, rather than a single factor model, supported Keyes' proposition that mental illness and mental health reside on two separate (albeit correlated) continua (Keyes', 2002, 2005). In this research, major depressive order, panic, generalized anxiety disorder and alcohol dependence were diagnosed using the DSM– III-R (American Psychiatric Association, 1987). Using a similar approach, Keyes' (2002) diagnosed mental health as a constellation of symptoms whereby, (i) flourishing was described as having high levels on at least one measure of hedonic well-being, and high levels on at least six measures of positive functioning, (ii) individuals who reported low levels of at least one measures of hedonic well-being and low levels in six measures of positive functioning were described as languishing, and (iii) moderately mentally healthy individuals did not fit the criteria described in (i) or (ii).

Secondly, research suggests less than perfect mental health is associated with increased impairment and disability (Keyes, 2002, 2005). Third, mental illness, when combined with languishing (i.e., low levels of mental health) is associated with greater impairment than when it occurs alongside moderate mental health or flourishing (Keyes and Michalec, 2010). Finally, Provencher and Keyes (2011) have conducted a systematic review of mental health literature, concluding that the adoption of a complete state model, facilitates restoration and optimisation following periods of ill health.

In short, there is accumulating evidence to suggest that 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 (see also Greenspoon and Saklofske, 2001; Suldo and Shaffer, 2008). Implications arising from this data suggest that interventions may be directed not only towards ameliorating mental illness, but actively promoting mental health. Indeed, and given the association between the two continua, the promotion of mental health is thought to reduce the propensity for developing mental illness. It is also evident that the two-continuum model is beginning to inform policy and practice (e.g., Friedli and Parsonage, 2009). In particular, strategies that are specifically directed towards promoting mental health (rather than reducing the incidence of mental illness), have adopted an assets-based approach to intervention (e.g., Foot, 2012).

A [mental] health asset, can be defined as,

> "any factor (or resource), which enhances the ability of individuals, groups, communities, populations, social systems and/or institutions to maintain and sustain health and well-being and to help to reduce health inequities. These assets can operate at the level of the individual, group, community, and/or population as protective (or promoting) factors to buffer against life's stresses" (Morgan and Ziglio, 2007, p. 18).

According to Friedli and Parsonage (2009) asset-based practice aim to (i) strengthen and promote variables that support good health and wellbeing, (ii) protect against poor health, and (iii) foster communities and networks that sustain health. Broadly speaking, assets-based approaches typically involve re-framing current thinking towards assets-based ideas, mapping of assets, understanding how assets can be connected and used, and a co-production of outcomes by professionals and individuals, such as athletes (Friedli and Parsonage, 2009). As Foot (2012) reviews, there is a growing body of empirical evidence supporting assets-based approaches to health promotion broadly, and mental health specifically. Despite much conceptual overlap between assets-based, and strengths-based approaches, the former is arguably broader in its focus (embracing both individual and community strengths), whereas the latter has tended to focus more on individual-level strengths and interventions (Boiler et al., 2013). To date, an assets-based approach has not been extended to the mental health of athletes.

Notwithstanding these encouraging developments, the two-continuum model advocated by Keyes (see Keyes, 2012, 2014 for reviews) is characterized by some limitations. In the following section we address those limitations and consider the implications of Keyes' model for the promotion of mental health in athletes

IMPLICATIONS AND LIMITATIONS OF KEYES' MODEL FOR PROMOTION OF MENTAL HEALTH IN ATHLETES

Conceptualizing Athletes' Mental Health

Thus far, we have deliberately sidestepped defining athletes' mental health. Yet we would be remiss if we were not to consider the definition of mental health as it relates to Keyes' model, and the implications for athletes. Considering Keyes' model, it

is apparent that the language of mental illness is stigmatizing for athletes, and that the diagnosis of mental illnesses have been seriously challenged (Rogers and Pilgrim, 2005). Moreover, just as there are challenges associated with diagnosing mental illness, so too are there challenges with the assessment of mental health (Friedli, 2009). Thus, the traditional language associated with Keyes' model represents one limitation to it's' applicability to athletes.

Perhaps the real value of the Keyes' model then is not so much in the labels attached to the two-continua, but rather the perspective that it affords (Walker, 2006). Others have replaced mental illness or psychopathology with distress (Cromby et al., 2013), and for us, adopting a discourse that recognizes that athletes' experiences that may fall along a continuum from "hardly distressing" to "extremely distressing" may help alleviate some of the stigma that may be associated with talking about mental illness. Similarly, recognizing that athletes may experience low levels of mental well-being at one end of the continuum and mental *wealth*, or flourishing at the other end, seems to us indicative of a situation in which we *all* have mental health needs (Friedli, 2009) and is less alienating and threatening than the dominant discourse. Thus *mental health* provides a conceptual space that encapsulates the broad spectrum of both distressing and flourishing experiences, but recognizes that the strategies designed to ameliorate distressing symptoms may not necessarily be the same as those designed to enhance flourishing.

Assessment of Mental Health

Enhancement of mental health is to some degree predicated on ideas about how we understand and assess mental health. In Keyes' terms, where self-reports of 'mental health' are coupled with self-reports of 'mental illness' different groups have been proposed. While the terminology, thresholds and measures implemented to describe differing groups have varied (cf., Suldo and Shaffer, 2008; Eklund et al., 2011) recognizing both continua in how we come to understand and improve athletes' mental health is arguably valuable. That is, "well-adjusted" (high mental health, low mental illness), "symptomatic but content" (high mental health, high mental illness) "ambivalent" (low mental health, low mental illness) or "vulnerable" (low mental health, high mental illness), individuals may benefit from different interventions. From this vantage point, "traditionally" the needs of asymptomatic individuals who are in Keyes' terms languishing may be overlooked (Eklund et al., 2011). Ambivalent individuals (i.e., who may be asymptomatic, yet experience low mental health) may be at risk for developing future mental illness (Keyes, 2012). A further limitation, not so much of the model, but of the measures used to examine its applicability across different contexts, is that appropriate instruments to facilitate such an assessment have yet to be developed in sport. A conceptualisation and assessment of mental health in athletes, grounded in Keyes' two-continuum model, but drawing on *athletes' experiences*, perhaps represents a pragmatic alliance between theory and practice and would be in accord with mental health users who have described themselves as *experts by experience* (Cromby et al., 2013).

Interventions

Keyes' (2012, 2014) model implies that the promotion of athletes' mental health requires two complementary strategies: one directed toward the reduction and prevention of mental distress, the second towards the development and protection of flourishing. Assets-based approaches that draw on and develop individuals' and organizations' strengths may have some utility in the latter regard (Theokas et al., 2005). From an individual perspective when assets are assessed and developed, clients may be more likely to experience the intervention as empowering and motivating (Tedeschi and Kilmer, 2005). From an organizational perspective, focussing on organizational assets facilitated cultural change towards managing individuals' mental health (Clossey et al., 2011). One important debate regarding mental health promotion concerns the balance between interventions that may strengthen the resilience of individuals, and those that impact wider determinants of mental health (Friedli, 2009). Much remains to be learned about the effectiveness, efficacy, and cost effectiveness of different mental health promotion strategies among athletes.

CONCLUSION

In outlining the two continuum model of mental health, we have provided a conceptual space that addresses the full spectrum of athletes' mental health, and in turn can impact our understanding of the antecedents and consequences of mental health for athletes. Moreover, the limitations and implications of Keyes' model identified provides an impetus for further research in this area.

The concept of "mental health" from a linguistic perspective is that of an abstraction defined by clusters of "symptoms" – when we speak as if someone *has* a diagnosis or *has* a "mental illness" we are [unwittingly perhaps] creating a reality (Walker, 2006). And while the mental illness and mental health approach to clustering symptoms used by Keyes represents one perspective, arguably this need not be the only one. And thus what we offer here, is a perspective – a perspective in which our own ["professionals"] place in influencing understanding of athletes' mental health is apparent. According to Anderson (1997, p. 71),

> "...the culturally designated professional voice, usually speaks and decides for marginal populations...whether therapy is indicated and, if so, which therapy and toward what purpose. Sometimes unwittingly, sometimes knowingly, therapists subjugate or sacrifice a client to the influences of this broader context...".

In sum, we all have one condition, the *human condition* marked by occasional, fluctuating, sometimes chronic, struggles with our thoughts, feelings, impulses, and habits, coupled with occasional, sometimes long-term sense of purpose, meaningfulness and well-being. Words are tools, not truths, and Keyes' "tool" (compass?) may help us navigate our understanding of, and intervening to enhance, athletes' mental health.

AUTHOR CONTRIBUTIONS

This article is derived from DS's doctoral studies for which MU and JS are co-supervisors. We jointly conceived of the article and its focus. MU and DS initially drafted an outline of the article, upon which JS provided feedback, and suggested some alterations in focus and content. MU and DS each amended sections of the manuscript, before MU edited a penultimate draft of the manuscript. DS and JS both read this manuscript and approve of its contents.

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Is Elite Sport (Really) Bad for You? Can We Answer the Question?

Florence Lebrun and Dave Collins*

Institute of Coaching and Performance, School of Sport and Wellbeing, University of Central Lancashire, Preston, UK

Elite athletes are not immune to mental health issues. Yet, quality research on mental health in elites has so far been limited. Thus, while research on mental health emphasises the prevalence and nature of disorders in the general population, its extent in elite performers remains unclear. Indeed, the prevalence of mental conditions cannot be accurately calculated in elite athletes due to a lack of diagnostic criteria and screening tools specifically adapted to this unique population. Researchers and practitioners are, therefore, confronted with biases reflecting the use of clinical norms and instruments initially developed for the general population. Furthermore, without considering the athlete persona as well as the sport culture in which elites play, there is a risk of under- or over-estimating the prevalence of mental health issues in high-performance environments. Due to the unique characteristics surrounding an elite athlete's life, we therefore suggest a change of perspective: moving from the usual normal-versus-pathological to a functional-versus-dysfunctional approach. Implications for future research and practice are discussed, most notably examining practitioners' expertise in diagnosing and treating elite performers.

Keywords: clinical diagnosis, (dys)functional, elite performers, genesis, mental health

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Marc Jones,
Staffordshire University, UK

Reviewed by:
Chris Harwood,
Loughborough University, UK
David Andrew Shearer,
University of South Wales, UK

****Correspondence:***
Florence Lebrun
flebrun@uclan.ac.uk

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INTRODUCTION

Concerns about mental health have been growing for years (World Health Organization [WHO], 2016) and reached the sports world where research on elite performers has recently experienced a sudden development. Contrary to previous common assumption, elite athletes also suffer from mental disorders, such as depression, anxiety, eating disorders, to name a few (Markser, 2011; Hughes and Leavey, 2012; Gouttebarge et al., 2015a,b). A frequent question, however, is whether elite athletes—often perceived by the public as *super*-humans—are more at risk of mental health issues than the general population? Research evidence on this topic is, so far, inconclusive and debatable. On one hand, studies have suggested that the prevalence of mental health issues in sport is comparable to the general population (Markser, 2011; Schaal et al., 2011; Gulliver et al., 2015; Rice et al., 2016). On the other, research has argued that elite athletes might be more at-risk to develop certain mental health issues (Roberts et al., 2016) such as eating disorders (Byrne and McLean, 2002; Sudi et al., 2004; Bär and Markser, 2013; Thompson and Sherman, 2014), depression (Hughes and Leavey, 2012), and common mental disorders (i.e., distress, anxiety, depression, substance abuse; Gouttebarge et al., 2015a,b). There is, therefore, a rationale for further investigation into the mental health of *elite* level athletes.

Unfortunately, however, there is an overall lack of quality research investigating mental health in elite sport (Rice et al., 2016; Sebbens et al., 2016). This dearth results, at least in part, from a lack of consensus regarding the diagnosis of mental disorders in elites as well as from a lack of

psychometric measures specifically adapted to this peculiar population. In the absence of such a specific focus (Reardon and Factor, 2010; Markser, 2011; Bär and Markser, 2013; Rice et al., 2016), the prevalence and nature of mental health issues faced cannot yet be precisely estimated (Doherty et al., 2016; Roberts et al., 2016). Therefore, the assumption that the prevalence of mental health disorders is comparable in elite athletes than in the general population (Markser, 2011; Schaal et al., 2011; Gulliver et al., 2015) seems hasty.

Compared to Mr. and Ms. Everybody, elite athletes have to face additional sport-related stressors and physical demands throughout their entire sporting career (Hughes and Leavey, 2012; MacNamara and Collins, 2015). Therefore, since the general population may never have to deal with the types of pressure encountered in high performance environments, can the comparison between elite athletes and normal people be considered as fair? Given the differences in both nature and challenge, are we guilty of comparing apples and oranges? Also, whilst conditions such as common mental disorders (Gouttebarge et al., 2015a,b), anxiety disorders (Markser, 2011), depression (Hughes and Leavey, 2012; Armstrong et al., 2015; Doherty et al., 2016) and eating disorders (Byrne and McLean, 2002; Sudi et al., 2004; Bär and Markser, 2013; Thompson and Sherman, 2014) have been intensively studied, others have been overlooked in the context of high performance (e.g., psychotic disorders, bipolar disorders, phobia, ADHD, behavioural disorders; Reardon and Factor, 2010; Markser, 2011; Bär and Markser, 2013; Rice et al., 2016). Consequently, conclusions on the prevalence of mental health disorders in elite athletes in comparison with the general population (Markser, 2011; Schaal et al., 2011; Gulliver et al., 2015) may be biased and, and as previously mentioned, somewhat premature.

Reflecting these concerns, this paper aims to address three particular issues relating to mental health in elite sport that seem to have been so far overlooked: (i) differences in the genesis of conditions; (ii) the challenges of applying general population science to non-ordinary people such as elite athletes, and; (iii) the functionality or dysfunctionality of behaviours depending on the context in which they occur. Ensuing from those concerns, we discuss the implications for researchers and mental health professionals working in high-performance environments.

PERSON VERSUS ATHLETE: THE GENESIS OF MENTAL HEALTH ISSUES

It seems sensible to discriminate between issues based on their cause. In short, are the issues occurring because the individual is an athlete or for some other, perhaps biological reason that would have led to problems irrespective of their career choice (Martindale et al., 2014)? Injuries, competitive pressure, psychosocial stressors, performance issues, and getting older have all been shown to represent a risk for elite athletes to develop a mental disorder such as depression (Reardon and Factor, 2010; Hughes and Leavey, 2012; Rice et al., 2016). Periods of transition, especially retirement from sport, appear to be another at-risk period for psychological distress in elite athletes (Reardon and Factor, 2010; Hughes and Leavey, 2012). Nevertheless, Reardon and Factor (2010) have rightly pointed out that "athletes' depression might have nothing to do with their athletic pursuits or the athletic pursuits could be their way of coping with depression, or it even could be caused by athletic participation. These possibilities have not been studied *per se*" (p. 963). In short, both the genesis and underlying reasons for maintenance need to be considered when examining an elite athlete issue.

Adding to this complexity, the reasons behind the development of a mental disorder can be different from one person to another and therefore, from one athlete to another (Klinkowski et al., 2008). Factors such as the sport type and related demands (e.g., potential link between depression of clinical severity and frequent concussions; cf. Guskiewicz et al., 2007), skill level, age, gender, wage, media coverage, etc., need to be considered when comparing the prevalence of mental issues from one sport to another (Schaal et al., 2011; Arnold and Fletcher, 2012; Rice et al., 2016). Likewise, the performer's personal and familial medical history as well as the possibility of a chemical or hormonal imbalance in the brain (e.g., depression) should be investigated before jumping to any conclusion letting us believe that elite sport participation is causing the development of a mental disorder. Before making a diagnosis, the individual, the athlete persona, and the context (i.e., familial, sport, and social context) need to be carefully examined (cf. the Biopsychosocial approach – Collins et al., 2012). In short, following Reardon and Factor's (2010) idea, it is important to reflect on the whole picture in order to determine how many athletes experience mental health issues *because* of their sport, how many would have suffered from it *anyway* (if they had chosen another profession) and how many are '*protected*' from such issues so long as they stay competing?

WHAT DOES NORMAL MEAN WITH NON-NORMAL POPULATIONS?

Discriminating between 'normal' (healthy) and 'pathological' is not always clear when it comes to elite sports (Markser, 2011), perhaps because symptoms encountered by elite athletes might differ from the usual criteria, making mental disorders more difficult to detect (Armstrong et al., 2015; Doherty et al., 2016). Psychiatrists and psychologists are used to diagnosing psychopathological conditions but, to do so, they relate to diagnostic criteria and screening tools originally developed from and for the general population. Without criteria specific to elite performers, nor which consider the sport context in which athletes are progressing, it becomes easy to jump erroneously to the conclusion that a behaviour or an attitude is pathological when the behaviour or attitude in question might be useful and functional in that particular context. Because of an increasing concern regarding mental health problems and their consequences if not appropriately handled, there may be a tendency to "cry wolf" too soon when it comes to elite and, especially, mediatised athletes.

Erroneous diagnoses are often due to a lack of understanding regarding the nuances of an individual's culture leading to consider as pathological normal variations of his/her behaviour (American Psychiatric Association [APA], 2013). As an example, using anthropometric measures like the Body Mass Index (BMI) or the DSM-V (Diagnostic and Statistical Manual of Mental Disorders, fifth edition) criteria might not be the best indicators when it comes to detect eating-disorder patterns in elites. Athletes are commonly subject to intense physical training, diet restrictions, lower bodyweights, and/or fat percentages than the general population, often independent of any eating disorder or symptoms (Reardon and Factor, 2010; Bär and Markser, 2013). If a lean body is an advantage for performers in many sports (i.e., gymnastics, ski jumping, and long-distance running; Sudi et al., 2004; Thompson and Sherman, 2014), increased body mass is beneficial in others (i.e., open-water long distance swimming, sumo wrestling, linemen in American football; Berglund et al., 2011). So, although weight gain might raise concerns within the general population, adipositas athletica is considered as functional and indispensable in sports where an increased body fat protects, for example, against hypothermia and improves performance (e.g., increased strength, endurance; Berglund et al., 2011).

Of course, because of this focus on weight and body image, eating disorders have been one of the most studied mental health issues in high level performers (Byrne and McLean, 2002; Sudi et al., 2004; Klinkowski et al., 2008; Markser, 2011; Bär and Markser, 2013; Thompson and Sherman, 2014). Yet, discriminating between eating disorders, disordered eating, and context-normal nutrition in such environments remains quite challenging. Eating behaviours might be too quickly seen as symptomatic of an eating disorder instead of as an informed attempt to improve performance (Thompson and Sherman, 2014). Eating disorders or disordered eating are complex and should not be simply viewed as resulting mainly and exclusively from sport participation. Athletes confronted with those kind of issues might have developed them even without performing at a high level or without doing any sport (Thompson and Sherman, 2014). Moreover, in some cases sport participation might actually serve to *prevent* the development of such disorders and become a protective factor by increasing an athlete's satisfaction with body image (Giel et al., 2016) and self-esteem (Klinkowski et al., 2008). Health professionals must, therefore, be careful. Presence or severity may be misestimated; partly because the sport culture in which elite athletes progress influences the way they live, express and react to mental health issues (Doherty et al., 2016). Alternatively, some athletes might suffer from such disorders, others simply present anorexia-like behaviours or physique while being healthier—psychologically speaking—than people suffering from eating disorders (Klinkowski et al., 2008; Berglund et al., 2011). As a result, both diagnosis and treatment planning become more challenging (Markser, 2011).

In fact, eating disorders are only one of many conditions where normal criteria may be erroneously applied to non-normal people. Differences between elite athletes and the general population can be highlighted by drawing a parallel with medical conditions. A left ventricular hypertrophy is a cardiovascular malformation. Yet, in swimmers, rowers or cyclists, for example, this heart remodelling becomes a functional physiological adaptation due to intense exercise training (Muir et al., 1999; Perseghin et al., 2007). Of course, above a certain threshold, albeit different to the general population warning level, this condition is also considered as pathological for athletes (Muir et al., 1999). This analogy exemplifies a perhaps neglected point, however: namely, that elite athletes are *not* normal so different criteria must be applied. So, while in physiology, a condition called "athlete's heart" has already been highlighted, we advocate the same distinction regarding "athlete's psychological state". Thus, returning to our depression example mentioned earlier, should we be surprised when an individual who has dedicated his/her persona to achievement in a certain field is depressed when he/she fails? Much more relevant is to consider the duration (related to the last game or a chronic state), genesis (from sport, life or both), controllability (clinical or non-clinical, impact on the person), and impact of the condition. Comparison to other highly ego-involved individuals (in music, dance or business, for example) would also seem sensible.

FUNCTIONAL VERSUS DYSFUNCTIONAL BEHAVIOUR – IT DEPENDS ON CONTEXT

Expanding this contention, the term "normal" as used with Mr. and Ms. Everybody seems inadequate when talking about elite athletes. Practitioners and, sometimes, researchers have the upsetting habit of seeing everything in black and white (normal *versus* pathological) and often forget that shades of grey exist. Such blurred lines depend on the individual but also on the context. As suggested by Williams (2012), research often neglects the unique characteristics necessary for elite athletes' lives and fails to understand the decisions they take in a constant effort to stay on top. Behaviours, functional when it comes to elite performers (e.g., weight-restricting behaviours, an apparent lack of work–life balance, excessive training, self-centred ruthlessness), can sometimes be considered as abnormal and look like symptoms associated with mental disorders when compared to the general population (Reardon and Factor, 2010). Difficulty distinguishing between OCD, pre-performance routine and superstitious belief in elite contexts is an example of this thin and blurred line (Swann et al., 2015).

Being an elite athlete "it's not just a job, it's a lifestyle, it's a way of life being an athlete" (Pickering, 2016 – four-time swimming world champion). As such, we suggest replacing the terms "normal" and "pathological" (as used to describe the average population) with the terms "functional" versus "dysfunctional" in high-performance contexts. While they might be seen negatively in everyday life (MacNamara and Collins, 2015), some of those so-called abnormal behaviours and/or attitudes might simply be functional in a high-performance

context. A behaviour will, therefore, be seen as functional when beneficial to an athlete's performance and personal development, and dysfunctional when his/her performance and/or well-being are threatened. Of course, it should also be acknowledged that elite athletes must function as both performer and 'normal' individual. As such, the scope of any behaviour, as well as its potential for dysfunctional impact, must be considered.

Reflecting this complexity, caution is required when using this new perspective. *Some* "functional" behaviours can, given the context, become "dysfunctional" (MacNamara and Collins, 2015). Perfectionism and passion, for example, are often considered as positive psychological characteristics in performers but may also adversely affect an athlete's performance, development and wellbeing when deployed in excess or inappropriately (i.e., over-commitment, obsessive passion; (Hill et al., 2015; MacNamara and Collins, 2015). Just as a lack of certain behaviours might become a problem at some point. Here again, the context in which those behaviours occur needs to be carefully considered. A positive psychological characteristic may become detrimental when extended to the wrong context (e.g., performance environment versus everyday life context). Furthermore, we need to recognise that normative behaviour (what is usually expected in a certain societal group) may encourage actions which are dysfunctional in other contexts. For example, mental toughness in rugby players or aggression in martial artists. Finally, we need to acknowledge that sport expectations may inhibit more general development (e.g., identity foreclosure; Murphy et al., 1996) and perhaps lead to mental health issues in later life.

IMPLICATIONS FOR RESEARCH AND APPLIED PRACTICE

Our paper highlights several important issues for consideration: Is it appropriate to apply normal population-based diagnostic criteria and screening tools to elite performers? What does normal mean when dealing with a non-normal, non-average population (cf. American Psychiatric Association [APA], 2013)? Is general psychiatric knowledge adequate to effectively diagnose and treat elite athletes (Markser, 2011)? Usual clinical criteria do not apply to non-average people, so clinical screening tools developed for the normal population may not be appropriate for use on elite performers as the performance dimension and its challenges are not considered. Anorexia athletica, adipositas athletica, overtraining syndrome (OTS) and burn-out are some of the few clinical diagnosis that have been created or adapted specifically for athletes, with the intention of taking specific sport-related criteria into account while making a diagnosis (Raedeke and Smith, 2001; Sudi et al., 2004; Berglund et al., 2011). In fact, many conditions and contexts suggest the need for sport-based clinical criteria and screening tools. Meeusen et al. (2006, p. 4) have, for example, suggested that "athletes and the field of sports medicine in general would benefit greatly if a specific, sensitive simple diagnostic test existed for the diagnosis of OTS". This suggestion is also true for many of the other mental health issues which athletes may encounter, especially when the conditions have a genesis in sport involvement. Burnout has given birth to extensive research in sport (Raedeke and Smith, 2001; Eklund and Defreese, 2015) but, in order to properly investigate this phenomenon, researchers have had to adapt Maslach's original definition to the sport-specific context: primary symptoms regarding athlete burnout being slightly and subtly different from the ones commonly mentioned in the general population (Raedeke and Smith, 2001). Such diagnostic adaptations further highlight the need to take the sport context and its specificities into consideration while defining the criteria leading to a clinical diagnosis within elite performers.

Reflecting these issues, health professionals must avoid over-diagnosing and falling into the pathologisation trap. In order to make an accurate diagnosis, they must take all the parameters into account (i.e., the symptoms, the context, longevity of the symptoms, their intensity, etc.). Of course, in some cases, athletes' behaviours or attitudes might be pathological (Thompson and Sherman, 2014) but also the accepted norm in that sport. There is, therefore, an urgent need for qualified and trained practitioners with both clinical *and* sport expertise to deal with the diagnostic and therapeutic challenges relative to mental health in high performance environments.

Furthermore, future research should focus on adapting clinical criteria developed originally from data on the general population to the sport context *and* to specifically develop and validate more sensitive and context-specific screening tools adapted to this unique population (Raedeke and Smith, 2001; Gouttebarge et al., 2015a). Further quality research on mental health in high performance environments will also allow us to proactively support elite and developing athletes on their way to the top, whilst acknowledging and catering for the potentially negative influence of another highly driven but involved individual; namely, the coach. As stated earlier, this reflection is not only valid in sport but also in other performance settings such as music or other performing arts (i.e., dance, drama; Pecen et al., 2016).

CONCLUSION

Normal rules do not apply to non-normal people and elite athletes are, by definition, not "normal" in the sense of average. Within this brief review, we have highlighted some issues and challenges resulting from applying general population-based science to non-average people like elite performers. As a consequence, we have tried to move the debate from a normal-versus-pathological point of view to a functional-versus-dysfunctional and person-centred perspective that considers the context in which athletes are progressing.

Of course, if the prevalence of mental health disorders in elite sport should not be maximised, it should not be minimised either. Currently, the prevalence of mental disorders remains unclear and more research is needed in order to evaluate the extent of this issue in elite performers. Both clinical and psycho-behavioural differences between elite athletes and the general

community need to be addressed in order to adequately diagnose, treat and prevent the development of mental health issues (Bär and Markser, 2013). This is an important topic but, perhaps, with greater complexity than currently acknowledged. Further research will be needed to respond to the question of our title: "Is elite sport (really) bad for you?". A causal relationship explaining the occurrence of mental disorders in elite athletes needs to be formally established (Martindale et al., 2014) before to be able to respond to this intricate question.

AUTHOR CONTRIBUTIONS

Both authors were involved in the conception and design of the work. FL prepared a draft of the manuscript. DC provided critical revisions to the final submitted version. FL and DC gave approval for it to be published. Finally, all authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Environmental Influences on Elite Sport Athletes Well Being: From Gold, Silver, and Bronze to Blue Green and Gold

Aoife A. Donnelly[1], Tadhg E. MacIntyre[2], Nollaig O'Sullivan[2], Giles Warrington[2], Andrew J. Harrison[2], Eric R. Igou[3], Marc Jones[4], Chris Gidlow[4], Noel Brick[5], Ian Lahart[6], Ross Cloak[6] and Andrew M. Lane[6]*

[1] School of Food Science and Environmental Health, Dublin Institute of Technology, Dublin, Ireland, [2] Health Research Institute – Department of Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland, [3] Health Research Institute, Department of Psychology, University of Limerick, Limerick, Ireland, [4] Centre for Sport, Health and Exercise Research, Faculty of Health Sciences, Staffordshire University, Stoke-on-Trent, UK, [5] School of Psychology, Ulster University, Londonderry, UK, [6] Research Centre for Sport, Exercise and Performance, Institute of Sport, Faculty of Exercise, Health and Wellbeing, University of Wolverhampton, Walsall, UK

This paper considers the environmental impact on well-being and performance in elite athletes during Olympic competition. The benefits of exercising in natural environments are recognized, but less is known about the effects on performance and health in elite athletes. Although some Olympic events take place in natural environments, the majority occur in the host city, usually a large densely populated area where low exposure to natural environments is compounded by exposure to high levels of air, water, and noise pollution in the ambient environment. By combining methods and expertise from diverse but inter-related disciplines including environmental psychology, exercise physiology, biomechanics, environmental science, and epidemiology, a transdisciplinary approach will facilitate a greater understanding of the effects of the environment on Olympic athletes.

Keywords: well being, Olympic Games, mental health, elite athletes, air pollution, environmental health, physical activity

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****Correspondence:***
Aoife A. Donnelly
aoife.donnelly@dit.ie

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INTRODUCTION

Olympic Games, including Rio 2016, induce acute stressors on athletes comprising both competitive (Schinke et al., 2012; Nicholls and Levy, 2016) and organizational factors (Fletcher et al., 2012). Although many variables have been explored, including athlete resilience and adaptation (Fletcher and Sarkar, 2012) the environment in which sport occurs has not been subject to the same level of scrutiny. This is surprising, given that Olympic Games are typically hosted by a large densely populated city where low exposure to natural environments is compounded by exposure to high levels of air, water, and noise pollution in the ambient environment. This perspective article considers some of the environmental challenges and benefits for athletes.

Environmental Concerns at Past Olympics

Consideration of environmental challenges for athletes is not a new issue as in 1968, at the XIX Olympiad in Mexico, studies examined the effect of the high altitude (>2,250 m) running

performance (Jokl et al., 1969). Four decades later at the 2008 Beijing Olympics, this deleterious view of the environment still pervaded. The 2008 games were dominated by controversies over anthropogenic contributions to the environment and, in particular, air pollution. Beijing then ranked second among the World's most polluted cities according to Lippi et al. (2008).

In 2004, the Beijing Olympic organizing committee set a target that concentrations of pollutants should meet WHO guidelines for the Olympic Games period. A range of mitigating measures were employed during the competition period of the Summer Games including an "odd–even ban" which meant that private vehicles could only be used on either odd or even days. Post-Olympic Games studies have provided support for the mitigation measures as Schleicher et al. (2012) reported that air pollution in Beijing decreased significantly during the enforcement period.

The Greenness of Rio de Janeiro

The sport venues for Rio 2016 Olympics have been subject to scrutiny because of the risks to competitors from environmental hazards. For instance, the degraded water quality of 384 km^2 Guanabara Bay (Olympic Sailing venue) has led to heavy eutrophication and the emergence of pathogenic micro-organisms (Fistarol et al., 2015). Tackling pollution here is not "only of ecological, social-cultural and aesthetic relevance, but is also a public health issue" (Fistarol et al., 2015, p. 14). Degraded air quality is also an issue. For instance, Sousa et al. (2012a) measured air quality in Rio between 2000 and 2005 and found that PM_{10} (particles < 10 μm diameter) concentrations were in excess of double the EU annual mean limit value of 40 $\mu g/m^3$ on occasion. The authors attributed these high levels of PM_{10} primarily to traffic emissions. Subsequently, Sousa et al. (2012b) showed that ambient air pollution levels in the city were linked to hospital emission rates in children and elderly populations for respiratory issues. These findings are supported by Gioda et al. (2016) reported that total suspended particle (TSP) levels exceeded the annual mean Brazilian limit value of 80 $\mu g/m^3$ every year between 1968 and 2013. PM_{10} levels were also found to be in breach of the annual mean Brazilian limit value of 50 $\mu g/m^3$ and significantly above the WHO guidelines levels. While certain areas showed some reduction in PM_{10}, increases were also observed over the time period. For instance, PM_{10} levels at the Cidade de Deus station where the Olympic park is situated, were found to average > 90 $\mu g/m^3$ between 1998 and 2013.

Air pollution is interlinked with other environmental, social, and political and economic systems and is the primary environmental cause of premature death in the EU (European Commission, 2013). The most problematic pollutants have consistently been oxides of nitrogen (NO_x), PM_{10}, $PM_{2.5}$, and ozone (O_3), while polyaromatic hydrocarbons (PAHs) have been recently identified as pollutants of concern (European Environment Agency [EEA], 2013). A recent view stated that the previous causal link between $PM_{2.5}$ and adverse health impact has been strengthened by recent evidence (WHO, 2013). Short and long-term exposure to $PM_{2.5}$ were noted to result in adverse health impacts, even where exposure was below the current recommended WHO annual limit of 10 $\mu g/m^3$. There is significant evidence from toxicological and clinical studies that short duration exposure to combustion derived particles leads to immediate physiological changes (supported by epidemiological observations). Furthermore, this review also highlights emerging links between NO_2 exposure and mortality/morbidity (WHO, 2013) highlighting the need for continued measures to reduce air pollution.

Are We Going in the Right Direction?

The 2020 Olympic games will take place in Tokyo, a megacity which Gurjar et al. (2008) gave a multi-pollutant index (MPI) of −0.27 in their study of air pollution levels in megacities (negative MPI values tend toward a good air quality classification, while positive values tend toward poor air quality). For comparison, Rio was given an MPI of 0.11, Beijing 2.01 (and second worst) while the megacity with the most favorable MPI was Osaka-Kobe (−0.37). A follow on study (Gurjar et al., 2010) showed that the excess number of deaths in megacities was closely linked to TSP levels. Tokyo has a low excess mortality rate (EMR; <500/yr). Beijing in contrast, has an EMR of 11,500/yr, while Rio has an EMR of 2,000/yr. London also has its own air quality issues which have been very topical in recent times as EU limit values are frequently breached in several of regions. Stedman (2004) highlighted the importance of considering air quality levels and climate as a whole and estimated that during a heat-wave in the UK when temperatures peaked at 38.5°C, there were between 423 and 769 excess deaths in England and Wales due to elevated levels of ozone and PM_{10}. One would question therefore, in what environment an elite athlete would prefer to perform and whether they can be sure that they are not putting themselves at a higher risk than the rest of the population by exerting themselves to their maximum ability in their drive for sporting success. Tokyo has the highest population of any city in the world at almost 43 million inhabitants and has a population density of 4,400 people per km^2 yet maintains a favorable MPI compared to other megacities. Sustaining such population density levels and retaining some degree of greenness/natural environment is a challenge faced by many cities but doing so may result in significant effects on well-being and elite athletic performance.

BENEFITS OF EXPOSURE TO THE GREEN AND BLUE ENVIRONMENTS

There is consistent evidence of a positive relationship between natural environment exposure and health (e.g., Attention Restoration Theory; Kaplan and Kaplan, 1989; Stress Reduction Theory; Ulrich et al., 1991). Specifically, there is potential for natural environments to reduce stress, aid recovery from stressful events, improve cognitive function and provide beneficial changes in cardiovascular indicators of stress (Bowler et al., 2010; Hartig et al., 2014). The concept of green exercise is of particular relevance to Olympic athletes, as exercising in natural versus built environments has been linked with additional benefits for performance and indicators of well-being.

Early studies have reported enhanced performance and satisfaction in cross-country versus track running (Pennebaker and Lightner, 1980), and lower perceived 'effort' in trained athletes running on an outdoor track (Ceci and Hassman, 1991) or university campus (Harte and Eifert, 1995), compared with treadmill running. A systematic review also found that physical activity in natural environments was associated with decreased feelings of tension, confusion, anger, and depression, while exhibiting greater feelings of revitalisation (Thompson Coon et al., 2011). Similarly, positive effects on mood, for walking or running in natural environments were reported by Bowler et al. (2010). Outdoor experiences are also rated as more restorative (Hug et al., 2009) and more effective in improving mood and vitality (Ryan et al., 2010). In comparison, indoor activity was associated with increased frustration, anxiety, anger, and sadness (Teas et al., 2007). De Wolfe et al. (2011) investigated performance of 128 collegiate track and field athletes across four locations rated for greenness. They reported that greenness was a predictor of performance ($r^2 = 0.61$, $p < 0.001$) with more of the athletes' best performances occurring at the site with the highest greenness rating. In sum, there is consistent evidence that exercising in clean, natural environments is associated with positive changes in self-reported psychological state. Given the results of such studies, considering the relationships between athlete's performance and health in Olympic cities has particular relevance.

Pierson et al. (1986) noted that air pollution can be an important factor in the success of Olympic athletes, drawing reference to several studies that show that the combination of exercise with exposure to SO_2 or O_3 can cause a marked bronchoconstriction and reduced ventilatory flow. This follows from an early study by Wayne et al. (1967) that found a correlation between team athletic performance of high school cross-country track runners and oxidant exposure levels in the preceding hour. It can be challenging to disentangle confounding environmental effects on performance and El Helou et al. (2012) found that higher ozone levels were associated with poorer performance in six city marathons but noted that the effect may be due to associations between ozone levels and ambient temperature.

The negative effects of PM on human health are, however, now widely established and Rundell (2012) notes that the prevalence of exercise induced bronchoconstriction, asthma, and low resting lung function for athletes who train and compete in high PM environments is far in excess of that for both non-athletes and athletes who train in lower PM environments. Indeed (Kippelen et al., 2012) recommends that athletes who must train on or near roads (such as cyclists, endurance runners) do so early in the morning to benefit from the diurnal trough that typically occurs in pollutant concentrations.

One of the less commonly studied ways in which natural environments might benefit health and athletic performance is through mitigation of risk from environmental pollutants. Trees have been shown to reduce the level of air pollutants in urban areas (Rowe, 2011), with one study suggesting that trees remove 711,000 tons of air pollutants from the US per year (Nowak et al., 2006). In the absence of available space for substantial tree planting in urban areas, roof spaces can provide a further opportunity to incorporate green vegetation into the urban environment. Yang et al. (2008) used a dry deposition model to show that a total of 1675 kg of air pollutants were removed by 19.8 hectares of green roofs in 1 year in Chicago. They suggest that the use of a green roofs is a good supplement to the use of urban trees. Such initiatives have the potential to improve environmental quality and boost population health, well-being and athletic performance.

We Are all in this Together

Air pollution control policies and technology have, in the past, included direct measures to reduce the concentration of air pollutants and also measures to reduce emissions rates and quantities. The direct control of air pollution concentrations in the urban environment has been the focus of some research in recent years. Passive controls have included road/noise barriers, green walls, changes in urban planning/geometry to control dispersion and settlement (McNabola, 2010), TiO_2 infused building materials, pedestrian ventilation systems, etc. (Mirzaei and Haghighat, 2010; Gallagher et al., 2015). Such controls tend to be quite localized in their effectiveness but it could certainly be suggested that the provision of greener routes for pedestrians and cyclists could benefit the environment as well as the psychological and physiological health of the population.

The control of emission rates can have large spatial implications for pollution concentration levels and examples include: the introduction of carbon-based vehicle tax systems which encourage the use of vehicles with smaller engine capacities and/or emissions intensities (Giblin and McNabola, 2009); the regulation of industrial point emissions through the licensing of emissions intensities (Styles et al., 2009); improvements in vehicle technology and alternative fuels (Manzie et al., 2007); congestion charging (Atkinson et al., 2009), low emissions zones (Boogaard et al., 2012), carbon taxation (Clancy et al., 2002), improvements in public transport incentives (González-Díaz and Montoro-Sánchez, 2011), and renewable fuel use (Granovskii et al., 2007). Bickerstaff and Walker (2001) concluded that community involvement approaches which encourage local people to identify the environmental issues that affect them and how they can be involved in designing and implementing policy and communication responses to the problems will lead to a greater sensitivity to local diversity.

Encouraging society at large to become more active and less polluting can, in the long term, lead to a cleaner, greener and happier society. De Hartog et al. (2010) concluded that the health benefits of a modal shift from driving to cycling were substantially larger than the risks and aside from quantifiable and measureable effects, societal benefits are even larger. Sustainable transport schemes such as the Irish Cycle to Work Scheme and the Dublin Bikes Rental Scheme (Dubin City Council, 2009) are good examples of incentives that have the capability to reduce traffic congestion and thus reduce emissions from the transport sector (Caulfield and Leahy, 2011) while at the same time increasing exercise capacity in the general population.

There is clearly a need for evidence-based research to promote the psychological health effects of a greener society and the

provision and use of green and blue spaces for physical activity (which can also equate to commuting). The Olympic Games provides a high profile opportunity to highlight the benefits that can be gained from utilizing and improving the natural environment in cities; not only for athletic performance, but for athlete health and that of the spectators, organizers, workers, and all those involved in the Olympic movement.

Avenues for Future Research

Future research needs to include relevant environmental monitoring to quantify the greenness of the competition landscape from an environmental health perspective. There exists great disparity in the natural influences which pervade various sports. Pool swimming for example may be considered to take place in an entirely artificial environment with little potential for green influences. In contrast marathon swimmers are subjected to the varying quality of the natural environment. Research needs to assess if and how, the quality of these environments can affect athlete health, well-being and ultimately performance. Such research will differentiate between sports that are ordinarily held in green/blue spaces (e.g., mountain bike venue, Deodoro Olympic Park) and those which take place in highly artificial or hybrid artificial/natural environments. Exploring the mental health benefits of natural environments, Pearson and Craig (2014) performed a review of the existing literature and call for future research to focus on substantiating the rather simplistic dichotomy of "nature" vs. "built" environments. Many studies have focused primarily on studying human interactions with only images of natural and urban environments but in this review the importance of considering the actual immersion of the nature intervention was noted. We suggest that the mental health benefits to athletes that can be gained from blue (Nichols, 2014) and green spaces (Kuo, 2015), an area of growing interest (Uphill et al., 2016), relates not only to the visual appearance of these spaces but also the environmental characteristics that we may not be able to see such as air quality, water quality, and biodiversity.

For athletes immersed in the Olympic environment, future research should explore the role of the environment in enhancing psychological well-being and whether exposure to green spaces facilitates athletes achieving peak performance and well-being during the competition period; and indeed, whether there a minimum environmental standard that must be present before positive benefits of the environment are observed. In exercisers, natural environments are proposed to reduce stress, help individuals recover quicker from stressful events, and improve cognitive function, all effects which would be expected to enhance performance. Yet research in elite populations is limited and could augment De Wolfe et al.'s (2011) college based study.

Individual preferences or nature relatedness may also be a mediator of the positive effects of exposure to natural environments (Nisbet et al., 2009). Although studies with athletic samples are lacking, tentative evidence has emerged for example from a physical activity study with sedentary individuals (Kinnafick and Thøgersen-Ntoumani, 2014). Implicit in this research would be a consideration of the urban density and pre-existing green spaces accessible to the population at large. The environmental quality of these green spaces must also be proportional to their positive health effects, and it must always be remembered that just because an area is green, it does not automatically imply environmental cleanliness. Future studies must take account of dose–response effects, the actual versus the perceived environmental quality and accessibility. Our preliminary hypothesis is that a green space with an environmental quality superior to an otherwise comparable green space could result in better physical and psychological health, and potentially better athletic performance. We propose a model where physical and psychological well-being (and better performance) are linked to green and blue environments and suggest that current developments in the Olympic context are often in sharp contrast with this model.

CONCLUSION

The effects of environmental pollution must now be considered a global concern among the scientific community for its impacts on human health, the environment and climate change. Environmental quality can potentially positively affect physiological health, mental health, and well-being in the elite athlete population. In green exercise, the synergistic benefit of engaging in physical activities while at the same time being directly exposed to nature, is worthy of further exploration.

Athletes competing at the Tokyo 2020 Olympics can potentially benefit from a more comprehensive understanding of the impact of activity in green and blue natural spaces on health and well-being. Green and blue may well become a feature of the pathway to achievement; not just on the individual level for mental health, nor simply on a societal level by increasing pro-environmental behavior, and also by a continued greening of the Olympic movement. Perhaps the IOC should provide more weight to the environmental ethos of hosting cities when making their selections and by doing so promote athlete health and well-being as a priority in the path to success. We propose a reframing of the environment in the Olympic context, a perspective that goes beyond toxicity, and instead accounts for the positive effect of the environment on health, well-being, and athletic performance.

AUTHOR CONTRIBUTIONS

AD and TM led the development of the manuscript from inception to final version. All other authors contributed to draft revisions and the final manuscript.

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GENERAL COMMENTARY
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Commentary: Environmental Influences on Elite Sport Athletes Well Being: From Gold, Silver, and Bronze to Blue, Green and Gold

Mike Rogerson *

Centre for Sports and Exercise Science, School of Biological Sciences, University of Essex, Colchester, UK

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Paul Joseph McCarthy, Glasgow Caledonian University, UK

Reviewed by:
David Sheffield, University of Derby, UK

***Correspondence:**
Mike Rogerson
mike.rogerson@essex.ac.uk

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INTRODUCTION

The article "Environmental Influences on Elite Sport Athletes Well Being: From Gold, Silver, and Bronze to Blue, Green and Gold" (EIEPAWB) pioneeringly addresses a range of environmental health aspects in relation to elite sports performance and athletes' general health and well-being. It highlights the importance of environment across both sides of an often-prominent split in the field of sports and exercise science: the respective domains of *sports performance*, and *exercise and health*. Specifically, the Olympics represent a relevant, yet little-explored arena, to be examined in terms of environmental affects. Addressing this may serve two purposes. Firstly, it may be of use to elite sporting performance. Secondly, Olympic sport offers a publicly known and valued vehicle for raising awareness of health impacts of greener environments. This commentary draws attention to some of the important points made by EIEPAWB, and offers further thoughts both on the application of environmental influences for elite sports performance, and on these three domains linked by the Olympics: environment, sports performance and health.

Environmental Affects For Sports Training and Performance

Environmental pollution and the aesthetically perceived environment can both impact on sports performance. The Olympic games represents the pinnacle of sports performance, with differences between gold medal performance and no medal performance being as slight as fractions of a second. Just as equipment, facilities and infrastructure are designed for optimal performance, athletes, host cities, sponsors and spectators alike should have interest in optimizing environmental variables toward enhancing training and performance.

Acute physiological responses to atmospheric environmental pollutants detrimentally impact sports performance. Given the orientation of athletes' training toward reaching physiological peak with precise timing, it is somewhat surprising that such detrimental physiological impacts are often readily accepted once residing within host cities that are high in specific and total suspended particles. Doses of exposure to nature and green exercise bring performance-relevant physiological, immunological, and psychological benefits. Therefore, beyond the use of other methods such as

altitude training and oxygen chambers for recovery and training gains, residing and training in greenspaces away from the host city immediately prior to and during competition could avoid detrimental impact of host city pollution.

EIEPAWB outlines theory and evidence that both exercising in, and simple exposure to nature environments can both function to improve affective state, and reduce stress and aid recovery from stressful events. Although environmental-arousal-performance dynamics are likely to vary between sports (Hanton et al., 2000), an interesting prospect here, is how these environmental influences on performance-related stress might function in conjunction with arousal theories of sports performance; deliberate strategies to reach optimal arousal levels for either training or performance may benefit from environmental considerations.

EIEPAWB also outlines evidence that greenspaces and perceived restorative aspects of environmental settings can function to reduce perceived exertion and directly improve athletic performance. Additionally to other relevant perceptual, psychological, physiological, and psychophysiological influences of exercise environments (Thompson Coon et al., 2011; Aspinall et al., 2015; Rogerson et al., 2016), a key component of training in greenspaces is that movement through these environments typically creates optic flow of large extent, whereas ergometer-based indoor exercise usually does not. Alongside other factors such as prior experience, optic flow functions as an important cue for an individual's cognitive "performance template" (Tucker and Noakes, 2009), which is used to assess fatigue and exertion in relation to performance expectations. Environmental settings offer a tool for manipulating or deceiving athletes' training and performance experiences. A simple example of this might be in an instance whereby an athlete reports feeling generally fatigued from their training program, but their perception is not substantiated by collected physiological data; via prescribed exercise intensity using a Rated Perceived Exertion Scale, a coach may use environmental settings to "dupe" an athlete into working physiologically harder than they perceive. When taking a holistic approach to athletes and their training, nature environments can also contribute positively to athletes' psychological state and well-being. Therefore, combining environmental manipulations with physiology and performance data may afford new possibilities for coaches to better design training sessions and programs for optimal physiological and psychological impact.

Public Interest in Olympic-Related Valuing of Greener Environments

Olympic sport offers a publicly known and valued vehicle by which to raise awareness of the health impacts of greener environments. Commercial sports product manufacturers target the Olympic games, because elite sport sponsorship and endorsement programmes link directly to product sales (DeGaris and West, 2012). When the general public observe athletes using and valuing specific products for training, performance or recovery gains, they accept their efficacy—often then purchasing products and altering behaviors.

There remains a paucity of evidence that hosting an Olympic games stimulates increased participation in physical or sporting activities, and little evidence to suggest other health benefits (Mahtani et al., 2013). Here, that greener environments can benefit athletes' health, well-being and performance, alludes that endorsement of this from the elite sports community could offer a vehicle for increasing greenspace visits and green exercise participation—thereby enhancing public health. To speculate, sports celebrities may be used as faces of public health campaigns to raise awareness of the health and well-being benefits of the aesthetic beauty and meaningfulness of activity afforded by greenspaces. Additionally, individuals who are interested in sports performance are likely to follow practices that they feel may enhance their own performance. Alongside the positive health impacts of visiting greenspaces or utilizing them for exercise, there are some barriers, such as access to greenspace, and health and safety risks ranging from tick and snake bites, to muggings in parks. These considerations place emphasis on local authorities to ensure that issues of this kind do not hinder any such Olympic-inspired public health drives.

CONCLUSIONS

There are a number of potential elite sporting applications that emanate from research findings discussed in EIEPAWB, relating to existing research in the domains of environment, health, well-being, exercise and performance. There is also a possible pathway linking the Olympics with population health—that is, the valuing of greener environments.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

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ORIGINAL RESEARCH
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Mental Health in Sport (MHS): Improving the Early Intervention Knowledge and Confidence of Elite Sport Staff

Joshua Sebbens[1,2]*, *Peter Hassmén*[1,3], *Dimity Crisp*[3] and *Kate Wensley*[2]

[1] Research Institute for Sport and Exercise, University of Canberra, Canberra, ACT, Australia, [2] Performance Psychology, Australian Institute of Sport, Canberra, ACT, Australia, [3] Centre for Applied Psychology, University of Canberra, Canberra, ACT, Australia

Mental illnesses are as prevalent among elite athletes as in the general population. Despite this, there is little research examining how to enhance mental health literacy or helping behaviors in elite sport environments. A Mental Health in Sport (MHS) workshop was therefore developed and its effects on mental health literacy and confidence studied in 166 coaches and support staff working with elite athletes and teams in Australia. Results indicated that participants increased their knowledge of the signs and symptoms of common mental illnesses and were more confident in helping someone who may be experiencing a mental health problem. We conclude that even a very brief intervention can be effective in improving the mental health literacy and confidence of key persons in elite sport environments, and may promote early intervention and timely referral of elite athletes with mental health concerns to appropriate professionals.

Keywords: athletes, elite sport, early intervention, mental health, mental illness, mental health literacy

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Tadhg Eoghan MacIntyre, University of Limerick, Ireland

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James Matthews, University College Dublin, Ireland
David Lavallee, University of Stirling, UK
Alison J. Rhodius, John F. Kennedy University, USA

***Correspondence:**
Joshua Sebbens
joshua.sebbens@ausport.gov.au

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INTRODUCTION

During any 1 year, approximately one in five Australians suffer from a common mental illness, and one in four youths aged 16–24 (Australian Bureau of Statistics, 2007). Although the mental health benefits of physical activity have been established (Daley, 2008; Stanton and Reaburn, 2014), elite athletes are not immune to developing a mental illness and are often at the peak of their competitive careers during these high-risk years (Allen and Hopkins, 2015). Moreover, elite athletes experience unique stressors that can have deleterious effects on mental health including sport-related stress (Noblet and Gifford, 2002), injuries (Smith, 1996; Appaneal et al., 2009), living away from home (Bruner et al., 2008), and burnout (Gustafsson et al., 2011). We use the term *mental health problem* in the present study to capture both mental illness (e.g., depression, anxiety) and symptoms of mental illness that may not be severe enough for a diagnosis (Kitchener et al., 2013).

Despite the stressors athletes face, there is a paucity of research on the mental health of elite athletes (Reardon and Factor, 2010; Hughes and Leavey, 2012). A study of elite athletes in Australia reported almost half were experiencing symptoms of a mental health problem, and the proportion meeting caseness cutoffs for mental illness were deemed comparable to community data (Gulliver et al., 2015). More broadly, Rice et al. (2016) conducted a systematic narrative review and also suggested the prevalence of mental illness in elite athletes was comparable to the general population.

The authors cautioned that relatively few studies in this area are methodologically rigorous or well reported and that more high-quality systematic and intervention research is required.

There are several barriers to elite athletes accessing help for mental health concerns. Competitive athletes may have less positive attitudes toward help-seeking for mental health problems than non-athletes (Watson, 2005), perhaps partially due to being perceived as a weakness (Bauman, 2016). This perceived stigma among elite athletes is a primary barrier, followed by a lack of awareness of mental health problems, and negative past experiences of seeking help (Gulliver et al., 2012a). Moreover, some sporting organizations may not recognize the prevalence and significance of mental health problems in elite athlete populations (Reardon and Factor, 2010). Access to timely and appropriate care is likely to be restricted if athletes do not feel that the culture of sporting organizations are supportive of these issues (Rice et al., 2016).

One strategy to overcome these barriers to accessing help is to improve the mental health literacy of persons working in elite sport. Mental health literacy has been defined as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (Jorm et al., 1997, p. 182). Coaches and support staff in elite sport are currently not required to undergo mental health training and may not possess adequate mental health literacy skills. These frontline staff, however, occupy positions well suited to promote mental health within sport systems due to their established and trusted relationships with athletes (Bapat et al., 2009).

A number of research studies have supported brief interventions as an effective means of improving mental health literacy at an individual level (e.g., Christensen et al., 2004; Deitz et al., 2009; Gulliver et al., 2012b; Dimoff et al., 2016). As well as literacy, an individual's confidence in their agentive capabilities, or self-efficacy, is considered a significant determinant of behavior (e.g., Bandura, 1993). A recent study showed that workplace leaders who received mental health literacy training became more knowledgeable and confident in the promotion of mental health, which in turn resulted in a greater willingness to support colleagues with a mental health problem (Dimoff et al., 2016). Mazzer and Rickwood (2015) found coaches and teachers of young persons were more likely to engage in early intervention behaviors when they perceived themselves as capable, and if they recognized the potential desired outcomes of such behaviors. Given these existing theoretical and empirical links, it is anticipated that knowledge and confidence are important factors that underlie elite coaches' and support staffs' engagement in early intervention behaviors for athlete mental health problems.

Perhaps the most common program currently used to improve mental health literacy and confidence is Mental Health First Aid (MHFA; Kitchener and Jorm, 2002). MHFA is a 2-day program designed to teach members of the public mental health first aid strategies to assist a person developing a mental health problem or in a mental health crisis. There is now a considerable evidence base to suggest MHFA can increase mental health knowledge, increase confidence to help someone with a mental health problem, and thereby increase helping behaviors (Kitchener and Jorm, 2006; Hadlaczky et al., 2014). MHFA is a community-based program that has been deemed efficacious in a variety of settings, including junior and regional sport settings (Bapat et al., 2009; Anderson and Pierce, 2012). The Australian Sports Commission has made access to athlete support a priority in their 10-year plan for elite sport in Australia (Australian Sport Commission, 2012). Improving the mental health literacy of those who spend the most time with athletes (e.g., coaches and support staff) explicitly addresses this priority, and may increase timely referral to appropriate professionals within the sport system.

There are, however, many challenges facing researchers when attempting to deliver and study these existing programs in elite sport. Coaches and support staff lead busy lives. Between training, traveling, and competing, it is increasingly difficult to solicit coaches and support staff to attend time-intensive mental health training programs. Furthermore, existing programs do not address the unique context of elite sport in the etiology and management of mental health problems. Consequently, there exists a need to develop a mental health literacy intervention that is both specific to elite sport and brief enough to encourage uptake by key persons within the system. No research, to our knowledge, has attempted to develop and rigorously evaluate such an intervention.

The purpose of the present study was therefore to evaluate a newly developed Mental Health in Sport (MHS) intervention: a brief applied mental health literacy workshop for coaches and support staff working in elite sport environments. We hypothesized that participants who completed this workshop would increase their mental health literacy as demonstrated by increased knowledge of the signs and symptoms of depression and anxiety, and increased confidence to help someone who may be experiencing a mental health problem.

MATERIALS AND METHODS

Participants

Participants ($n = 166$, 22–66 years old) included coaches and trainers, support staff and service providers (e.g., nutritionists, physiotherapists), and managers and administrators working in the Australian high performance sport network. Half of the participants were female ($n = 83$) and the mean age of participants was 37.8 years ($SD = 10.6$). The majority of the sample ($n = 146$, 88%) had a bachelor degree or higher form of tertiary education. Of the participants, 24.1% had some prior mental health training, 30.7% indicated they had personally suffered from a mental health problem at some point in their life, and 53.6% had a family member suffer from a mental health problem.

Intervention

MHS was created as a 4-h applied workshop designed to educate and up-skill people who work in high performance sport about mental health. The main aim of the workshop was to promote early intervention by equipping participants with the knowledge and confidence to help someone who may be experiencing a mental health problem. Specifically, participants

are taught the MHS action plan: *recognize, reach out, refer,* and *remain supportive.* Participants' knowledge was targeted in each of these steps through introducing information and skills in a presentation format. Participants' confidence to help someone experiencing a mental health problem was targeted through applying this knowledge to sport specific videos, case-studies, and role-plays. The MHS action plan was developed to summarize the steps involved in helping someone experiencing a mental health problem. MHS is similar to existing programs (e.g., MHFA) in the focus on early intervention through improving knowledge and confidence, and the use of an action plan framework. MHS differs from existing programs in its brevity, addition of sport specific data and case studies, and the use of role-plays to practice the skills learned. Only anxiety, depression and suicide intervention are covered, and not the effectiveness of various treatments.

In the *recognize* step prevalence rates of anxiety, depression, and suicide in the Australian general population and elite sport were covered, as well as both general and sport specific risk factors for developing a mental illness (e.g., injury, career transitions). The workshop highlighted the signs and symptoms of depression and anxiety, the warning signs that someone may be suicidal, and the impact on individuals, families, and communities. Depression and anxiety were targeted in the content due to high prevalence rates in elite sport (Gulliver et al., 2015; Rice et al., 2016), as is observed in the general population. Other mental illnesses were not addressed due to the time constraints of the workshop. The focus of this step was not on the diagnosis of mental illness, but rather to develop the knowledge and confidence to recognize when someone is struggling.

In the *reach out* step participants were taught how to start a conversation with someone who may be struggling with a mental health problem. The barriers to accessing help for athletes suffering a mental health problem were covered and how to reach out to express concern and offer help. Factors to consider before starting a conversation about mental health were highlighted and participants were instructed in the use of active listening skills to help someone open up and feel understood.

In the *refer* step participants were taught how to refer someone to a mental health professional and who the appropriate professionals are within the sport system. Participants were taught when to and when not to refer, and instances when referral may be necessary against a person's wishes. The reach out and refer steps involved active role-plays where participants practiced the steps of the action plan.

In the *remain supportive* step participants were taught the importance of following up with a person once a referral has been made for a mental health problem. This step was about what to consider after a referral to a professional has been made rather than about early intervention. Participants were taught ways to offer practical and emotional support and that their continued involvement with the person is important during the rehabilitation process.

The role perceptions of the participants were also targeted in the workshop to increase the likelihood of subsequent helping behaviors (Mazzer and Rickwood, 2015). We highlighted the importance of those closest to athletes being mental health advocates and the positive outcomes that may stem from early intervention such as potential performance improvements (Raglin, 2001) and the prevention of acute mental illness that may preclude athletes from training and competition.

The first and fourth authors (registered psychologists working in elite sport environments) co-facilitated the intervention to small groups of 16–32 participants per workshop. The delivery format of MHS across groups was consistent and included lectures, videos, facilitated discussions between participants and presenters, case-studies, and role-plays, and were presented within the context of elite sport. Participants were given an information pack which included business cards of the workshop facilitators, a flyer with a summary of key information from the workshop, a wallet card summarizing the MHS action plan, a suicide information sheet from SANE ("How to help when someone is suicidal," n.d.[1]), and resources about depression and anxiety from beyondblue ("Anxiety and depression[2]" n.d.; "Anxiety and depression in young people," n.d.)[3].

Design

A randomized controlled trial was not feasible due to workshops being facilitated at several locations around Australia. Thus, a quasi-experimental design was employed whereby workshops were divided into experimental and waitlist comparison groups. Eight workshops in total were administered to participants to assess the efficacy of the intervention. Participants in the first four workshops comprised the experimental group, and participants in the final four workshops comprised the waitlist comparison group.

Measures

Participants completed online questionnaires prior to attending a workshop (time 1), 2–4 weeks after the experimental group had received the intervention (time 2), and 2–4 weeks after the waitlist comparison group had received the intervention (time 3). The questionnaire contained measures of mental health literacy for depression and anxiety, and confidence to help someone who may be experiencing a mental health problem. Demographic information (i.e., gender, age, and education), mental health history, and prior mental health training were also obtained at time 1 testing.

Depression and Anxiety Literacy

Knowledge of the signs and symptoms of depression and anxiety were measured using 11 items from the Depression Literacy questionnaire (D-lit; Griffiths et al., 2004), and 11 items from the Anxiety Literacy questionnaire (A-lit; Gulliver et al., 2012b) respectively. Only 11 of the original 22 items for each measure

[1] How to Help When Someone is Suicidal: Factsheet & Guide. (n.d.). Retrieved June 30, 2015, from https://www.sane.org/mental-health-and-illness/facts-and-guides/sane-steps-how-to-help-when-someone-is-suicidal

[2] Anxiety and Depression: An Information Booklet. (n.d.). Retrieved June 30, 2015, from http://resources.beyondblue.org.au/prism/file?token=BL/0885

[3] Anxiety and Depression in Young People: What You Need to Know. (n.d.). Retrieved June 30, 2015, from http://resources.beyondblue.org.au/prism/file?token=BL/1060

were used as the remaining items capture knowledge of effective treatments that were not included in the MHS program. For each statement (e.g., "People with depression may feel guilty when they are not at fault") participants indicated "True," "False," or "I don't know." Responses were converted to a dichotomous score for each item such that incorrect answers or "I don't know" were scored 0 and correct answers were scored 1. Total scores for the D-lit and A-lit scales ranged from 0 to 11 each, with higher scores indicating greater knowledge. The terms *depression literacy* and *anxiety literacy* are used in the present study for efficiency to reflect knowledge of the signs and symptoms of depression and anxiety respectively. We acknowledge that this is a narrower definition of mental health literacy that includes knowledge of risk factors and evidence-based treatments (Jorm et al., 1997).

Confidence

Overall level of confidence in helping someone experiencing a mental health problem was assessed using 4 items developed for the purpose of the study. Participants were asked "How confident are you in: (a) *recognizing* someone with a mental health problem; (b) *reaching out* to someone with a mental health problem; (c) *referring* someone with a mental health problem to a professional; and (d) *supporting* someone with a mental health problem." Responses were given on a 5-point Likert scale from "not at all" (0), "a little bit" (1), "moderately" (2), "quite a bit" (3), to "very" (4). A principal components analysis with varimax rotation supported a single component extraction that accounted for 72.1% of the variance. Internal consistency among the items was high ($\alpha = 0.88$); as such mean scores were computed representing a total measure of confidence to help someone who may be experiencing a mental health problem. Scores ranged from 0 to 4, with higher scores indicating greater confidence.

Procedure

Ethics approval for the study was granted by the University of Canberra's Human Research Ethics Committee (HREC 15-95).

MHS was designed for people working in elite sport with athletes and teams given their existing relationships with, proximity to, and time spent with elite athletes. Therefore, purposive sampling was used to recruit participants. Twelve high performance sport organizations were contacted to ask if they were interested in receiving a MHS workshop for their staff. From these organizations, eight MHS workshops were scheduled in Brisbane, Canberra, Melbourne, and Perth, which included state institutes and academies of sport, national and state sporting organizations, and a sport university. This sample represented a broad spectrum of the high performance sport network in Australia, and included staff working with development pathway athletes through to Olympians and professional athletes. The workshops were then advertised to suitable staff from each organization via email. A total of 202 people expressed interest in attending one of the workshops.

Participants were emailed details of the research study and invited to complete the baseline survey prior to attending the workshop. One hundred sixty-six respondents consented to participate and completed baseline measurement (time 1). The four workshops comprising the experimental group were then delivered over an 8-day period. Two weeks later all participants were invited to complete the measures again (time 2). The four workshops comprising the waitlist comparison group were then delivered over another 8-day period. Finally, 2 weeks later all participants were invited to complete the measures a third time (time 3). Collectively, at time 1 no participants had received the intervention, at time 2 the experimental group had received the intervention, and at time 3 all groups had received the intervention. The timing of the workshops and measurements were structured to allow both between and within group evaluations of the intervention and to control for history and maturation effects. **Figure 1** illustrates the flow of participants through each phase of the study and the timing of the interventions and measurements. All workshop attendees, regardless of study participation, were offered a certificate of completion following each workshop.

Statistical Analyses

Data analysis was conducted using SPSS 21 (IBM SPSS Statistics, Version 21, 2012). Participants received 1 point for each correct item on the D-lit and A-lit, thus missing data for these measures (<3%) were treated as incorrect answers (Griffiths et al., 2004). There were no missing data for the confidence measure. Longitudinal modeling was used to investigate change over time within a multilevel framework. All models were fitted using an unstructured correlation matrix and by maximum likelihood estimation. Time was defined by fixed time-points representing the intervals of testing (time 1, time 2, time 3). The treatment of time as a categorical variable allowed for comparisons to be made between baseline and subsequent discrete testing points. As there were no significant differences between groups on any of the collected demographic and mental health history data, these variables were not controlled for in the models.

RESULTS

Baseline (time 1) sample descriptive statistics and dependent variable means by group and time are presented in **Table 1**. Measures of depression literacy, anxiety literacy, and confidence to help someone who may be struggling with a mental health problem were comparable across experimental and waitlist groups at baseline.

Change in Outcomes Over Time by Group

Parameter estimates for the intervention outcomes are presented in **Table 2**. Although, the magnitude of effects of group, time, and group by time interactions differed for each outcome variable, the pattern of significant effects were consistent. Overall increases in depression literacy, anxiety literacy, and confidence were observed from time 1 to time 3. No significant main effects were found for group on any of the outcome variables; however, significant group by time interactions were indicated for each outcome variable at time 2.

Post-hoc comparisons were conducted to further examine changes over time across the groups (see **Table 3**). Results

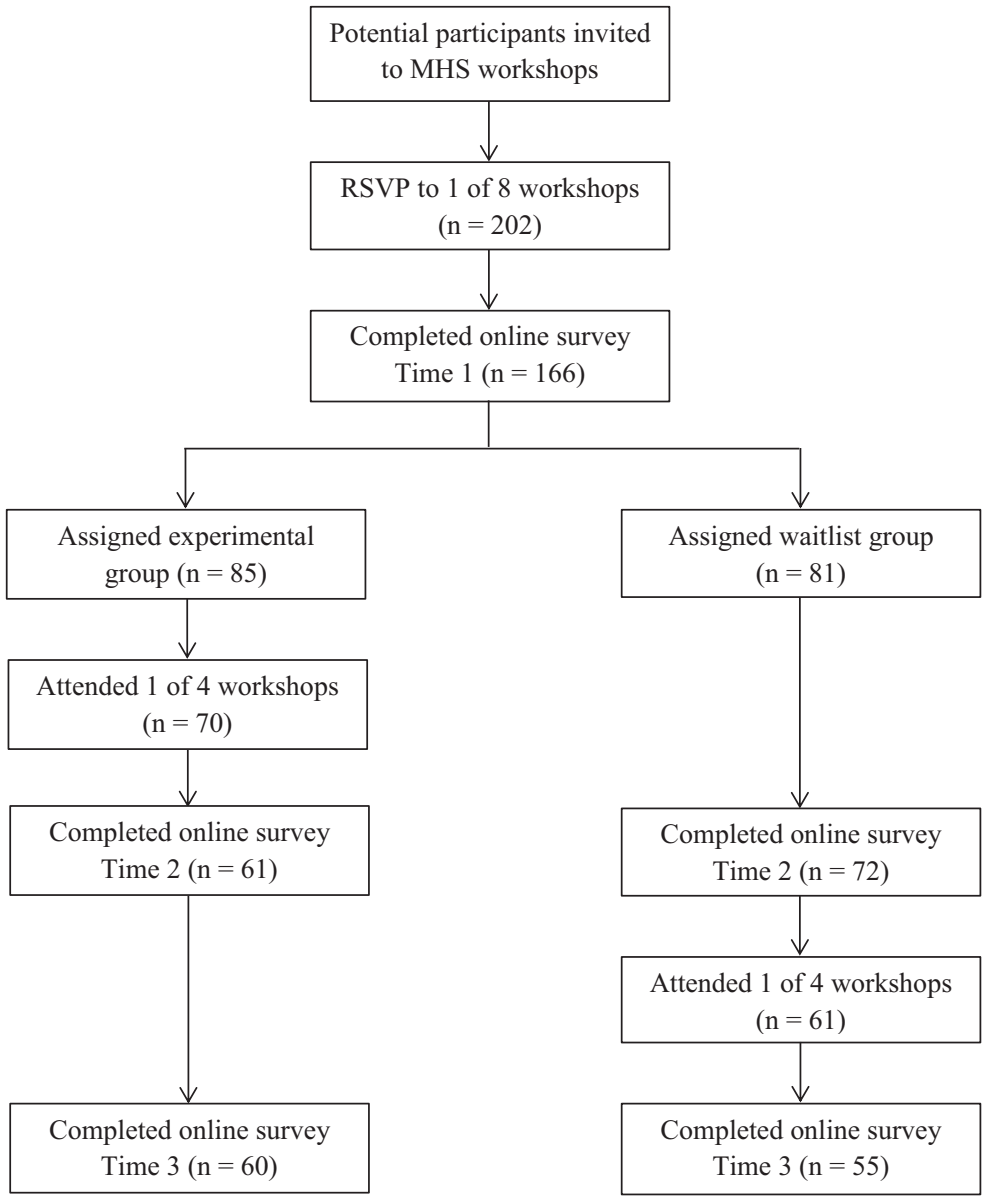

FIGURE 1 | Flow diagram for participant recruitment and timings of interventions and measurements.

indicated that within the experimental group there were significant increases in depression literacy, anxiety literacy, and confidence from time 1 to time 2, and time 1 to time 3, but no significant differences from time 2 to time 3. Within the waitlist group there were significant increases in depression literacy, anxiety literacy, and confidence from time 1 to time 3, and time 2 to time 3, but no significant differences from time 1 to time 2. Between groups, the experimental group had significantly greater depression literacy, anxiety literacy, and confidence at time 2 compared to the waitlist group. There were no significant differences between groups at time 1 or time 3. **Figures 2–4** reflect the group by time interaction for each outcome variable.

DISCUSSION

The present study evaluated MHS: a brief mental health literacy workshop designed to promote early intervention for mental health problems in elite sport environments. Using a sample of coaches and support staff working in elite sport, increases in participants' knowledge of the signs and symptoms of depression and anxiety, and confidence to help someone who may be struggling, were observed after attending a MHS workshop and were significantly greater than participants yet to attend. These between and within group effects support our hypotheses.

TABLE 1 | Sample descriptive statistics, by sample and intervention group.

	T1	T2	T3
N	166	133	115
Female, *n* (%)	83 (50.0)		
Age, *M* (S.D.)	37.8 (10.6)		
Bachelor degree or higher, *n* (%)	146 (88.0)		
GROUP, *n* (%)			
Experimental	85 (51.2)	61 (45.9)	60 (52.2)
Waitlist comparison	81 (48.8)	72 (54.1)	55 (47.8)
Depression Literacy, *M* (S.D.), range 0–11	7.94 (1.90)	8.27 (1.86)	8.83 (1.69)
Experimental	7.91 (1.82)	8.95 (1.40)	8.88 (1.62)
Waitlist comparison	7.98 (1.99)	7.69 (2.00)	8.78 (1.78)
Anxiety Literacy, *M* (S.D.), range 0–11	5.53 (2.49)	6.60 (2.47)	7.78 (2.09)
Experimental	5.67 (2.61)	7.70 (1.87)	8.00 (2.12)
Waitlist comparison	5.39 (2.37)	5.67 (2.55)	7.55 (2.05)
Confidence to help, *M* (S.D.), range 0–4	2.15 (0.93)	2.62 (0.88)	3.03 (0.60)
Experimental	2.09 (1.01)	3.11 (0.59)	3.03 (0.61)
Waitlist comparison	2.21 (0.84)	2.20 (0.87)	3.03 (0.60)

TABLE 2 | Parameter estimates for intervention outcomes.

	D-Lit *B* (SE)	A-Lit *B* (SE)	Confidence *B* (SE)
Intercept	7.98 (0.22)***	5.38 (0.26)***	2.21 (0.09)***
Experimental Group[a]	−0.07 (0.29)	0.29 (0.38)	−0.11 (0.14)
Time 2[b]	−0.22 (0.18)	0.34 (0.20)	0.05 (0.05)
Time 3[b]	0.84 (0.25)**	2.09 (0.31)***	0.87 (0.09)***
INTERVENTION BY TIME INTERACTIONS			
Experimental Group x Time 2[ab]	1.22 (0.28)***	1.28 (0.31)***	1.02 (0.11)***
Experimental Group x Time 3[ab]	0.15 (0.32)	−0.01 (0.42)	0.12 (0.13)

[a]*Reference group is Waitlist group.*
[b]*Reference time is Time 1.*
****P < 0.001.*
***P < 0.01.*

TABLE 3 | Pairwise comparisons of estimated marginal means for intervention outcomes.

	DLIT MD (SE)	ALIT MD (SE)	Confidence MD (SE)
BETWEEN GROUP CHANGES ACROSS TIME			
Waitlist group vs. experimental group			
Time 1	−0.07 (0.29)	0.29 (0.38)	−0.11 (0.14)
Time 2	1.15 (0.29)**	1.56 (0.38)**	0.91 (0.13)***
Time 3	0.08 (0.30)	0.28 (0.37)	0.00 (0.11)
WITHIN GROUP CHANGES ACROSS TIME			
Experimental group			
Time 1–Time 2	1.00 (0.21)***	1.61 (0.24)***	1.07 (0.10)***
Time 1–Time 3	0.99 (0.20)***	2.08 (0.29)***	0.99 (0.10)***
Time 2–Time 3	−0.01 (0.16)	0.46 (0.22)	−0.08 (0.06)
Waitlist group			
Time 1–Time 2	−0.22 (0.18)	0.34 (0.20)	0.05 (0.05)
Time 1–Time 3	0.84 (0.25)*	2.09 (0.31)***	0.87 (0.09)***
Time 2–Time 3	1.06 (0.26)**	1.75 (0.31)***	0.83 (0.09)***

Bonferroni significance:
****P < 0.001.*
***P < 0.01.*
**P < 0.05.*

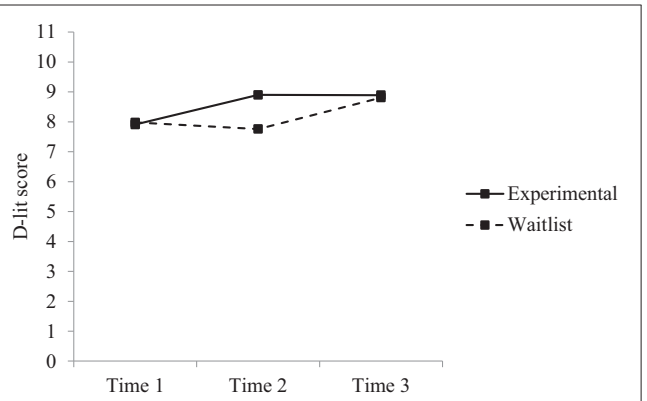

FIGURE 2 | Estimated marginal means for depression literacy: group × time interaction.

Depression and Anxiety Literacy

The results of the present study suggested that MHS was effective in improving participants' knowledge of the signs and symptoms of depression and anxiety. Prior to attending a workshop (time 1), participants' knowledge of mental illness signs and symptoms was relatively high, reported at 72.2% ($M = 7.94/11$) for depression, and a moderate 50.3% ($M = 5.53/11$) for anxiety across the sample. These data indicated that prior to attending a MHS workshop participants had greater knowledge of depression than they did of anxiety. Although anxiety disorders are more than twice as prevalent as affective disorders in the Australian population (Australian Bureau of Statistics, 2007), the greater knowledge of depression may be explained in part by historical large public campaigns such as beyondblue's *national depression initiative* (Jorm et al., 2005). Levels of depression and anxiety literacy significantly increased for the experimental group following the intervention with significant differences observed between the two groups (time 2). Moreover, these increases were sustained 6–8 weeks after the intervention (time 3). The waitlist group also experienced significant increases in depression and anxiety literacy following their receipt of the intervention (time 3). These increases in depression and anxiety literacy are consistent with previous research that used an internet-based mental health literacy intervention with elite athletes (Gulliver et al., 2012b).

The results further suggested that MHS had a greater effect on knowledge of anxiety than on knowledge of depression. Within the experimental group, anxiety literacy had improved by 18.9% (2.08/11), compared to 9% (0.99/11) for depression at time 3. Similarly, the waitlist group reported increases in anxiety literacy of 19% (2.09/11), and increases in depression literacy of 7.6% (0.84/11) at time 3. Despite the smaller effect on

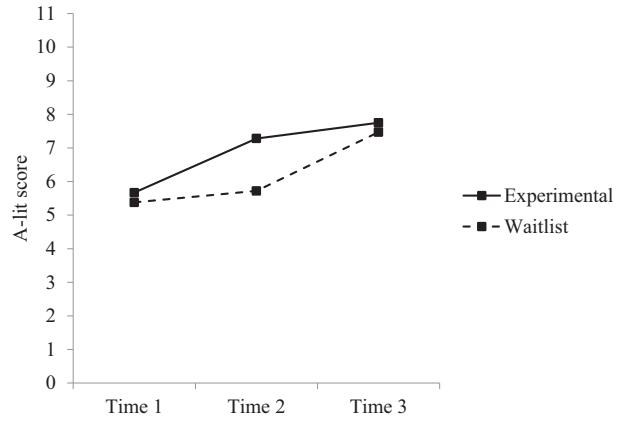

FIGURE 3 | Estimated marginal means for anxiety literacy: group × time interaction.

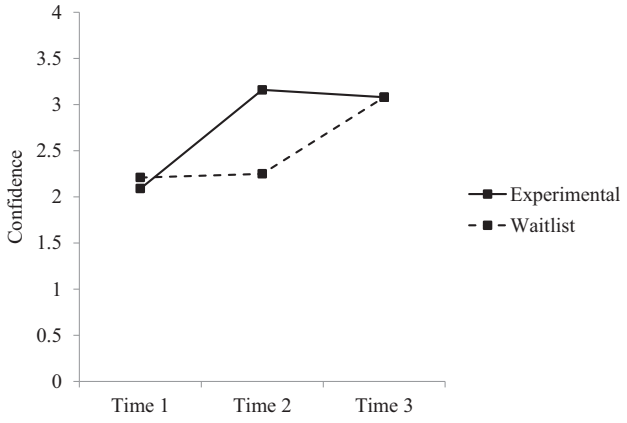

FIGURE 4 | Estimated marginal means for confidence: group × time interaction.

depression literacy, this increase was still statistically significant for both groups. The high level of depression literacy at baseline may have created a ceiling effect and restricted the potential increase to be gained from the brief intervention. In applied terms, identifying approximately one to two additional signs and symptoms of depression and anxiety respectively following the intervention may mean the difference between recognizing an emerging presentation of a mental health problem or not.

Confidence

The results of the present study supported that MHS was effective in improving participants' confidence to help someone who may be struggling with a mental health problem. Although, not measured herein, increased confidence in agentive capabilities has been linked to an increased likelihood of individuals' engaging in a particular behavior (Bandura, 1993; Vuori et al., 2012). Confidence significantly increased for the experimental group following the intervention with significant differences observed between the two groups (time 2). These increases were sustained 6–8 weeks after the intervention (time 3), which is in line with findings outside of sport (Dimoff et al., 2016). The waitlist group also experienced significant increases in confidence following their receipt of the intervention (time 3). Confidence was moderate ($M = 2.15/4$) across all participants at baseline testing (time 1), and improved to 3.03 out of 4 once all participants had received the intervention (time 3). To provide reference points, a score of 2 on this scale represented "moderately" confident, and a score of 3 represented "quite a bit" confident. This finding is also consistent with MHFA research in junior and regional sport settings (Bapat et al., 2009; Anderson and Pierce, 2012) as well as community settings (Hadlaczky et al., 2014).

Implications

The main aim of the workshop was to promote early intervention by equipping participants with knowledge and confidence to identify and respond to someone who may be experiencing a mental health problem. Previous research has demonstrated that increased knowledge and confidence following mental health literacy training have been accompanied by more helping behaviors (Kitchener and Jorm, 2006; Hadlaczky et al., 2014). Targeting knowledge and confidence are explicit strategies to increase the likelihood of early intervention, a key behavior-change in the prevention and management of mental illness.

There are several benefits to improving mental health literacy and confidence of coaches and support staff in elite sport environments. First, elite athletes are often within the age groups at greatest risk of developing a mental illness (Australian Bureau of Statistics, 2007; Allen and Hopkins, 2015) and experience a range of unique risk factors within high performance environments (Hughes and Leavey, 2012). Coaches and support staff have close proximity to and established relationships with athletes, therefore occupying positions well suited to be mental health advocates in the daily training environment. Second, 76% of participants in the present study had no prior mental health training. Targeting coaches and support staff is not only important because of the positions they occupy, but because of the current lack of mental health education among this population. Third, research suggests that athletes are reluctant to seek help for mental health problems (Watson, 2005; Gulliver et al., 2012a). MHS empowers coaches and support staff to use their relationships with athletes to intervene early and facilitate help-seeking behaviors. This may prove an effective adjunct strategy to increase instances of early intervention alongside other approaches (e.g., targeting athlete attitudes toward help-seeking directly: Gulliver et al., 2012b). If key persons who work with a high-risk group identify more signs and symptoms of common mental illnesses and also feel more confident to offer help, we believe this represents a significant and important return on investment for a brief intervention.

The knowledge and skills learned by participants in the MHS workshop may be transferrable to contexts outside elite sport. The benefits of MHS may extend beyond helping athletes to helping colleagues, friends, family, and persons in the community. Anecdotal evidence following MHS workshops suggested that some participants have used the skills learned

to make contact with friends and family members they were concerned about. Some participants indicated that they have recognized signs and symptoms in themselves and have been prompted to take action on their own mental health. Further research is needed to explore these additional potential benefits of the MHS workshop.

The present study also offers preliminary evidence that brief and context specific workshops may be a viable alternative to multi-day generic mental health literacy programs (e.g., MHFA; Kitchener and Jorm, 2002). Although, we would defer to MHFA as the gold standard in public mental health literacy training, the content and structure of this program may not be optimal in all environments. We have found it increasingly difficult to reach coaches and support staff using such programs in elite sport environments. Developing brief alternatives that encourage uptake by key persons and that incorporate research, experience, and case examples that are context specific is one strategy to increase the reach and relevance of mental health literacy training across different environments. Further research is needed to evaluate the efficacy of brief mental health literacy workshops over both the short and long-term.

Limitations and Future Directions

The results of the present study should be interpreted in light of several limitations. First, a randomized controlled trial was not feasible so a quasi-experimental design was adopted. There may be differences in unobserved and potentially confounding variables between groups due to lack of random assignment, despite the waitlist and experimental groups being comparable on observed variables at baseline testing. The chosen design, however, was deemed more robust than a single group pre-post intervention design. Second, MHS only focuses on the signs and symptoms of two mental illnesses (depression and anxiety) and a brief suicide intervention protocol. Knowledge of signs and symptoms of common mental illnesses is a necessarily narrower definition of mental health literacy than is used in programs that teach participants about a greater range of disorders and the effectiveness of different treatments (e.g., MHFA). The high scores for depression literacy at baseline may be explained, in part, due to this narrower definition. This focus, however, was necessary given the time constraints of a brief intervention, and was deemed the best strategy to improve engagement in mental health education and increase instances of early intervention. Finally, the present study did not assess actual behavior change following the workshop. Although greater mental health knowledge and confidence may be accompanied by an increase in helping behaviors (Bandura, 1993; Kitchener and Jorm, 2006; Hadlaczky et al., 2014; Dimoff et al., 2016) this association requires further investigation.

Future research should attempt to assess the longer-term impact of brief interventions on mental health literacy, levels of confidence, and behavior change. Longitudinal designs could track changes in referrals for mental health problems within elite sport environments, or qualitative methods could be employed to examine if and how participants use the skills learned in the workshop. Other outcome variables that may predict helping behaviors should also be explored, such as coaches' and support staff's role perceptions relating early intervention for mental health problems (Mazzer and Rickwood, 2015). Moreover, athletes' support systems involve not only coaches and support staff, but also their friends and families (Gulliver et al., 2012a). Future research may examine MHS as a workshop to offer other people who are in positions to recognize and respond to emerging mental health problems in athletes. Finally, evaluating MHS's effect on stigma may also be an interesting line of enquiry given such attitudes may currently undermine early intervention efforts in elite sport (Gulliver et al., 2012a).

To our knowledge this is the first study to develop and evaluate a brief mental health literacy workshop specific to elite sport environments. Improving coaches' and support staff's mental health knowledge and confidence to help others may improve early identification and timely referral of mental health problems in elite athletes. The present study supports MHS as an effective alternative to generic mental health literacy workshops for use in elite sport environments. Further research is required to examine the longer-term benefits and applicability of the workshop.

AUTHOR CONTRIBUTIONS

JS developed the study concept. KW developed the pilot version of the MHS workshop and JS and KW developed the final version. All authors contributed to the study design. Data collection was performed by JS and was analysed under the supervision of DC. JS drafted the manuscript. All authors contributed to the editing process.

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GENERAL COMMENTARY
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Commentary: Mental Health in Sport (MHS): Improving the Early Intervention Knowledge and Confidence of Elite Sport Staff

Amelia Gulliver *

The Centre for Mental Health Research, The Australian National University, Canberra, ACT, Australia

Keywords: athletes, elite sport, early intervention, mental health, mental illness, mental health literacy, stigma

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Edited by:
Tadhg Eoghan MacIntyre, University of Limerick, Ireland

Reviewed by:
Adam Gledhill, Leeds Beckett University, United Kingdom

***Correspondence:**
Amelia Gulliver
amelia.gulliver@anu.edu.au

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A commentary on

Mental Health in Sport (MHS): Improving the Early Intervention Knowledge and Confidence of Elite Sport Staff
by Sebbens, J., Hassmén, P., Crisp, D., and Wensley, K. (2016). Front. Psychol. 7:911. doi: 10.3389/fpsyg.2016.00911

CONTEXT

Elite athletes have comparable levels of mental health problems to the general community, yet many do not seek professional help. Previous research has focused on increasing help-seeking in athletes by targeting stigma and mental health literacy in the athletes themselves (Gulliver et al., 2012). Increased training and engagement of coaches may assist in facilitating athletes' access to professional mental health care (Gulliver et al., 2012). However, limited research has been conducted to date that aims to increase knowledge around mental health problems for coaches and support staff.

METHODS

A total of 166 elite sport staff members (aged 22–66 years, 50.0% female) including coaches, trainers, support staff, and service providers (nutritionists, physiotherapists) working in the Australian high performance network were recruited. The study used a quasi-experimental design with eight workshops divided into four experimental (85 participants) and four waitlist control (81 participants) groups. Outcome measures were the 11-item versions of the depression (D-Lit) and anxiety (A-Lit) literacy questionnaires (ranges 0–11), and a measure developed for the purposes of the study comprising four items assessing the participants' confidence in recognizing, reaching out to, referring to a professional, and finally supporting someone with a mental health problem. Data analysis methods were intention-to-treat using maximum likelihood estimation (MLE) methods.

FINDINGS

The depression and anxiety literacy of the coaches and support staff, as well as their confidence in helping someone with a mental health problem was significantly improved by 1–2 points at post-intervention. Confidence in assisting people with mental health problems improved on average from "moderately" to "quite a bit." Lack of randomization was noted as a key limitation by the authors. Given the pre-existing workshop locations, cluster randomization could perhaps have been considered.

COMMENTARY

The current study by Sebbens et al. is the first of its kind and demonstrated small but significant increases in depression and anxiety literacy in coaches and other support staff. Sebbens et al.'s study is important and necessary research that additionally contributes vital dialog in normalizing the existence and treatment of mental health problems in elite athletes.

One of the key issues identified in Sebbens et al.'s study was the low rate (one-quarter) of coaches and support staff who had completed formal training in mental health. Establishing basic mental health training to enable coaches to identify when an athlete may be at risk or experiencing symptoms of a mental health problem can assist in facilitating not only early intervention and treatment, but also increasing the likelihood of a faster recovery. This is of obvious importance to the athletes and coaches, as well as all other stakeholders; it is becoming increasingly more clear that athlete performance can be negatively impacted on by symptoms of mental disorders (Hill et al., 2015; Roberts et al., 2016).

The Sebbens et al. study indicated that coaches and other support staff may have had relatively high levels of depression literacy prior to the intervention. This could have been due to a self-selection bias, with those with higher literacy being more interested in participating. Nevertheless, mean confidence in assisting a person with a mental health problem at pre-intervention was only "moderate." Thus, simply having an understanding of what depression is may not translate into feeling confident in identifying depression, feeling comfortable talking to someone with depression, or helping a person with depression find appropriate care. The program described in the current paper targeted those specific issues in a sport-specific context, which is likely to be highly useful to those completing the intervention in practical future situations.

Whilst it is notable that confidence in assisting a person with a mental health problem was improved after a brief workshop—does higher confidence in helping lead to increased helping behavior? We know that attitudes do not necessarily translate into behavior (Han et al., 2006). One previous study indicated that confidence in the ability of sport psychologists to assist athletes with both emotional problems and performance was highly predictive of *intentions* to use sport psychology consultations (Zakrajsek and Zizzi, 2007). However, studies of behavior are lacking, often because they are by nature required to be long-term studies with long periods of follow-up to determine if behavior change has occurred.

An avenue that remains unexplored was whether coaches have negative (stigmatizing) attitudes toward mental health problems. One of the key findings in a previous study (Gulliver et al., 2012) was the concern athletes expressed about what their coaches might think of them if they sought help for a mental health problem. There remains very limited research available on coaches' attitudes toward mental disorders (McArdle et al., 2016). It is important to reduce stigma of help-seeking for mental health problems in the general community, and specifically for elite athletes, a group who may feel scrutinized by their coach, peers, as well as the public.

Finally, it is also of note that the intervention instructors were both registered psychologists working in an elite sport organization. Actively facilitating the relationships between coaches, the athletes, and the mental health staff available to them is of vital importance. Specifically, the integration of psychologists into the athlete's support network may be crucial for expediting the pathways to care (Gulliver et al., 2012). It may be of benefit to have the program delivered by the psychologists available to the coaches and athletes to facilitate open dialog and establish highly functional working relationships amongst both staff and athletes.

In summary, the main findings of this study serve to explore and extend research into facilitating access to mental health care for athletes. Increasing discourse around athletes and mental health is crucial to eliminating stigma and viewing mental health as just another part of the athlete's overall health. Given the low rates of formal training noted in this study, translating this research into routine practice within sports is a high priority.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

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OPINION
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Impact of Player Injuries on Teams' Mental States, and Subsequent Performances, at the Rugby World Cup 2015

Olivia A. Hurley *

Department of Technology and Technology, Faculty of Film, Art and Creative Technologies, Dun Laoghaire Institute of Art, Design and Technology, Dublin, Ireland

Keywords: rugby, challenges, injury, social contagion, team ethos, equality, technology, virtual reality

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Edited by:
Tadhg Eoghan MacIntyre, University of Limerick, Ireland

Reviewed by:
Mary Margaret Meade, Ulster University, UK
Caren Diehl, National Sports Institute of Malaysia, Malaysia
Cian Aherne, Health Service Executive, Ireland

***Correspondence:**
Olivia A. Hurley
olivia.hurley@iadt.ie

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Injuries are considered an inevitable by-product of participation in elite sport (Hurley et al., 2007), and over the past 30 years, psychologists have proposed a number of models to explain athletes' psychological reactions to their injuries. These models have included the grief model (Kübler-Ross, 1969; Rotella, 1988) and the cognitive appraisal models (Brewer, 1998; Wiese-Bjornstal et al., 1998). When examining the value of these models, researchers have identified a number of factors mediating athletes' responses to their injuries. Factors such as social support (Clement and Shannon, 2011) and perceived consequences of injuries for the athletes (Hurley et al., 2007) have been popular lines of investigation. A less popular avenue of research has been the impact of tournament-ending injuries on the mental states of remaining squad members called upon to perform without their injured colleagues. Given the lack of research in this area, it could be fruitful to discuss the potential impact of player attrition rates on their teams' mental states, and subsequent performances, using the Rugby World Cup 2015 (RWC 2015) as a case study. This case study is considered appropriate because many countries suffered serious injuries to some of their best players just before, or during, this RWC (Lewis, 2015). For example, the Irish team lost one of its most experienced players, Paul O'Connell, due to injury early in the tournament, as did South Africa, who was forced to play without captain, Jean De Villiers, from game three of the tournament. Similarly, the New Zealand "All Blacks" lost their experienced player, Tony Woodcock, due to injury before their quarter final match. Despite the loss of Woodcock, the New Zealand team was successful in defending its RWC title from 2011. Indeed in 2011, New Zealand played without four of its out-half players. Is it possible the New Zealand team did something different, compared to the other nations, to prepare successfully for both the RWC 2011 and 2015 tournaments? This paper will explore possible reasons why some of the other nations failed to perform to their potential at the RWC 2015.

This paper is organized as follows: First, the mental challenges team players may have faced following the loss of influential players through injury will be discussed. The potential for emotional contagion to have permeated throughout such teams, and its possible impact on those teams' subsequent performances will dominate this discussion (Moll et al., 2010). Second, some possible areas for future research will be suggested, focusing on the role support staff (including coaches, medical staff, and sport psychologists) working with such teams might play in helping their teams to thrive in such circumstances in the future.

POSSIBLE MENTAL CHALLENGES FOR TEAM PLAYERS AT THE RWC 2015, FOLLOWING THE LOSS OF INFLUENTIAL TEAM MEMBERS THROUGH INJURY

As mentioned earlier, many teams competing at RWC 2015 suffered the loss of influential players due to injury during the warm-up, pool, and knock-out stages of the tournament (Lewis, 2015). In rugby union, which is a collision sport, the potential for injury is high when compared to non-contact sports (Almedia et al., 2014). Tournament-ending injuries to such elite team players have the potential to cause disturbances not only in the injured players' emotional and behavioral states, but also in the remaining team members' mental states and on-pitch performances. Seeing a teammate suffer a tournament-ending injury could result in other team members experiencing an increased fear of injury themselves, and decreased levels of confidence in the team's overall ability to continue to perform at a high level in the competition. Indeed, the Head Coach of South Africa, Heyneke Meyers, commented that De Villiers was the "glue" of the South African team and that his influence would be missed (The Guardian, 2015). It is interesting then that empirical research measuring the impact of such player losses has not been the focus of researchers' attention to date, despite common sense dictating that such losses could contribute to changes in teams' collective thought processes at competitions such as the RWC (Cary, 2015). For example, doubts surrounding the ability of another player to successfully perform in the role of an injured colleague within a team could have occurred at the RWC 2015. This potential for negative social contagion to develop within teams who suffer high numbers of player losses due to injury is worthy of attention.

Social contagion refers to the spread of mood states, attitudes or behaviors from an initial person, called "the initiator," to another person, called "the recipient," without the recipient being necessarily aware of this effect of the initiator (Levy and Nail, 1993, p. 266). In general, studies of social contagion have focused on two main areas (i) emotional contagion—the spread of mood states throughout a population, and (ii) behavioral contagion—the spread of behaviors throughout a population. Some empirical studies of social contagion have been conducted in real-world, high-performance settings. For example, Wagstaff and Weston (2014) examined the impact of social contagion on teams making expeditions to the Antarctica. Interestingly, some of the negative contagion-performance effects reported by Wagstaff and Weston (2014) have also been reported in environments where direct contact between individuals has not taken place, such as through social media outlets (i.e., Facebook; see Kramer et al., 2014). These findings highlight that contagion effects in performance settings should not be underestimated.

Emotional contagion implies that emotions expressed by one individual in a group or team, may spread to other members of that collective group. Some factors thought to be important in determining the rate and extent of emotional contagion, according to Bartel and Saavedra (2000), include: (i) the degree of membership stability within the group, i.e., the turnover rate of members within the group, and the number of years members are part of that group (Squire, 1988), (ii) the task interdependence within the group, i.e., how much group members rely on one another to complete their tasks effectively (Georgopoulos, 1986), and (iii) the social interdependence within the group, i.e., the impact of other group members' actions on other individuals' abilities to accomplish their goals [such impacts may be positive (cooperative) or negative (competitive); Johnson and Johnson, 2008]. Some coaches and support staff of RWC 2015 teams would, perhaps, have benefited from having a greater understanding of the impact of such factors on their teams' performances.

Often, during the RWC 2015, spectators, commentators, and coaches discussed the potential impact of injuries on teams' performances (Hewett, 2015; The Guardian, 2015). On occasion, they questioned the ability of substitute players to effectively replace their injured teammates (Cary, 2015). The lack of research on the potential impact of team members' reduced confidence in a replacement player's ability exposes an area for investigation. Perhaps participants in such studies may be viewed as reluctant to voice their real concerns about fellow team members being capable of replacing their unavailable injured colleagues. This view may account for researchers avoiding this specific avenue of investigation. The good news is that while individuals may be affected negatively by those around them, they may also be affected in a positive way (Fransen et al., 2015). This point prompts the question of what can be done to enable team members maintain high levels of confidence in their own, and other teammates', ability to perform successfully in their roles, when placed in high pressure situations such as those presented at the RWC 2015 (something the New Zealand team appear to have successfully achieved, as is evident from their recent successes in the tournament).

THE SPECIFIC ROLE SUPPORT STAFF MAY PLAY IN HELPING TEAMS, INCLUDING REPLACEMENT PLAYERS, TO THRIVE IN HIGH PRESSURE COMPETITIONS, SUCH AS THE RWC

Team coaches, medical personnel, and sport psychologists may play an important role in helping team members to remain confident and thrive in situations where the loss of an influential player occurs, such as at the RWC. Rather than seeing the situation as a threat to success, players could be encouraged to see the situation as an accepted and positive challenge they are capable of overcoming (Hodge and Smith, 2014). One suggestion for support staff could be to spend more time, in advance of such tournaments, creating a team ethos centered on equality among all players and support staff. A number of recent studies have been devoted to the "teamwork" dimension of team cohesion (McEwan and Beauchamp, 2015; also see Moran, 2012, for a review of this topic). Perhaps, placing a greater emphasis on "team spirit" and player acceptance is warranted now in team environments, in order to positively impact on the character

and attitudes of team members. This appears to be something the New Zealand players have been successful in achieving in recent years, based on their results at the RWC 2011 and 2015. Coaches and support staff who actively promote and encourage an investment in personal relationships among all members of their team environment are more likely to develop a greater team awareness of the importance of interpersonal dynamics. Such an approach to team management could increase the sense of equality and acceptance within the team (Garn, 2016). It may also help to create an attitude of personal responsibility for performances and a greater acceptance of individual leadership duties by all players within a team (Kerr, 2013; Smith, 2015).

One novel way to enhance players' coping skills in times of unrest and stress due to player injury losses might involve the use of virtual reality technology, such as the Oculus Rift (Oculus, 2016). Virtual match-day scenarios could be designed to simulate match-day events, where key players are made "unavailable due to injury," and other players are required to "replace" them. Programs could be designed to prepare all available players, including replacement players, for the demands and atmosphere of such match-day possibilities. Players could be taught to engage in relaxation and concentration strategies (i.e., self-talk management, appropriate goal setting, breathing exercises, and progressive muscular relaxation techniques; Cotterill, 2015) while watching such match-day simulations, in order to train them to remain calm, focused, and positive in their mind-set when called upon to perform at important tournaments. These match simulations could be used by all players well in advance of important tournaments to help them mentally prepare for these possible real-life events (Pramuk, 2016). Researchers could also empirically investigate if such virtual preparation compared to, or along with, for example, mental imagery rehearsal of such scenarios, could establish greater player confidence and acceptance for all players' contributions within a squad of players. Similar virtual reality simulations have been used successfully with stroke patients (Hurley, 2016) and to prepare injured players for a return to play (Independent Pictures, 2013). Therefore, the use of such technology would not be unfamiliar to many elite players.

FINAL THOUGHTS

It is possible teams who, by their own standards, did not produce peak performances at the RWC 2015 suffered the negative effects of emotional, and behavioral, contagion due to player injuries. As discussed above, these outcomes may have occurred as a result of decreased levels of confidence in replacement team members' potential performances, although such assertions are in need of more support via empirical investigations. How such situations may be prevented from hampering teams' performances in future competitions should also be the focus of empirical research by psychologists working with these teams. Such research might help to provide a greater understanding of the unexpected decreases in some teams' performances at the RWC 2015 (Boss and Kleinert, 2015). Perhaps engaging in mental skills training using a virtual reality environment could inoculate players against the negative emotional and performance effects of social contagion. One should also consider that tournaments such as the RWC occur in 4-year cycles, therefore for such an intervention to be effective, the club environments of players should also incorporate a similar approach to players' preparations.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and approved it for publication.

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Corrigendum: Impact of Player Injuries on Teams' Mental States, and Subsequent Performances, at the Rugby World Cup 2015

Olivia A. Hurley *

Department of Technology and Psychology, Faculty of Film, Art and Creative Technologies, Dun Laoghaire Institute of Art, Design and Technology, Dublin, Ireland

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***Correspondence:**
Olivia A. Hurley
olivia.hurley@iadt.ie

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There was a mistake in the author's affiliation as published in the Opinion article. The correct affiliation is Department of Technology and Psychology and not Department of Technology and Technology as reported.

The author apologizes for the mistake. This error does not change the content or opinions put forward in the opinion article as published.

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