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Wellbeing and quality of life in elite sports: Towards evidence-based approaches for psychological health promotion and proactive support

Edited by
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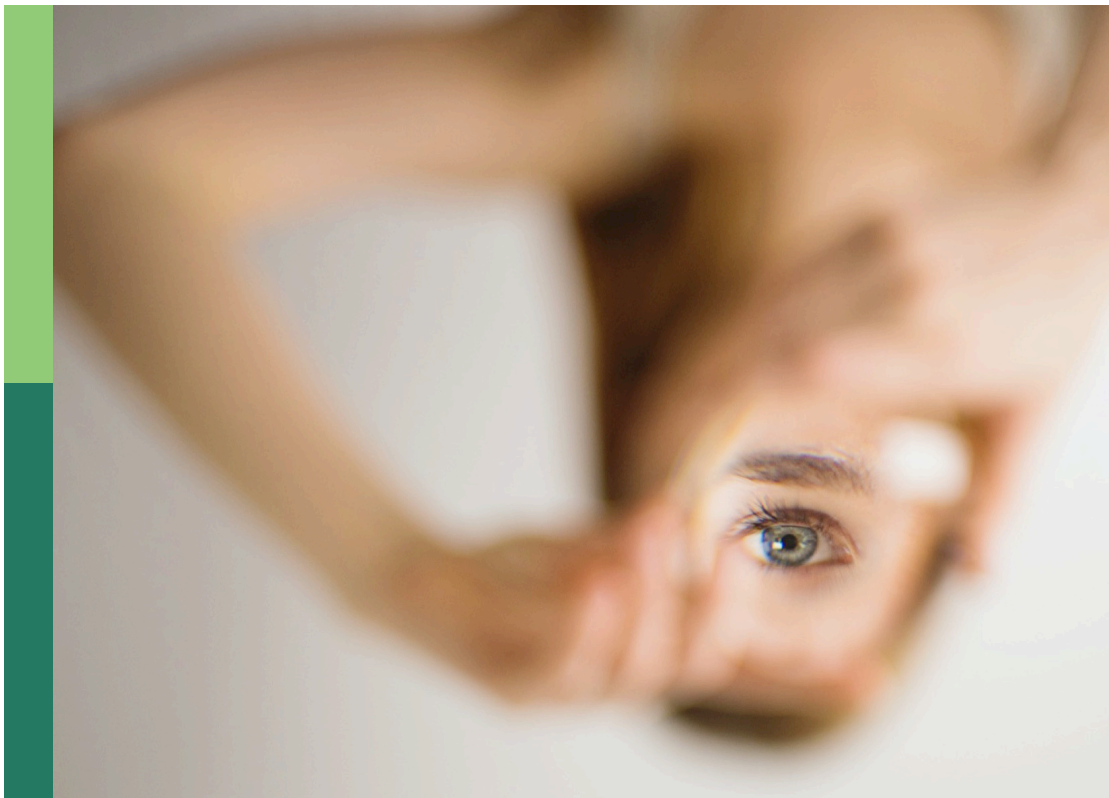

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Wellbeing and quality of life in elite sports: Towards evidence-based approaches for psychological health promotion and proactive support

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Editorial: Wellbeing and quality of life in elite sports: Towards evidence-based approaches for psychological health promotion and proactive support

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Editorial on the Research Topic
Wellbeing and quality of life in elite sports: Towards evidence-based approaches for psychological health promotion and proactive support

Introduction

Wellbeing and mental health are hot topics in sports with an increasing number of studies published each year and significant media attention. During the Tokyo 2020 Olympic Games (OG), Simone Biles, known as the greatest gymnast of all times, sent an important message to the world of sports: Elite athletes are humans sometimes facing crushing pressures. Under high media attention, Biles interrupted her participation in the women's gymnastics team final and canceled several individual OG finals to protect her mental health and ensure her physical safety. Biles tweeted: "I'm more than my accomplishments and gymnastics which I never truly believed before" (@simone_Biles, 2021, July 29).

Contemporary research reports several interrelated risk-factors for athlete mental health within elite sports-systems (Purcell et al., 2019). Risk-factors include, for example, organizational stressors, stigma related to mental health problems, normalization of unhealthy behaviors, injuries, career dissatisfaction, harassment and abuse, and toxic sports leadership or other dysfunctional relationships (e.g., Mountjoy et al., 2016; Reardon et al., 2019; Kuettel and Larsen, 2020). Increased commercialization and professionalization, together with stakeholders and media, place further demands and obligations on athletes (Timpka et al., 2008).

Most sport-specific risk factors for mental health in elite sports environments are known to be modifiable, and the collection of studies published in recent years points to the need for researchers to study support systems for mental health promotion and

prevention. Such efforts should focus on proactive support increasing athlete wellbeing and resiliency in response to both expected and naturally occurring stressors in the environment and support the development of targeted prevention and treatments when mental wellbeing or mental disorders are suspected (e.g., Purcell et al., 2019; Lundqvist et al., 2022).

This Research Topic includes an important collection of articles spanning authors from several continents with contributions targeting mental health from a variety of conceptual and theoretical perspectives. Several articles have a direct application for researchers and practitioners working with mental health support in various elite athlete populations and cultures.

This Research Topic includes:

- Conceptual considerations of mental health research
- Wellbeing promotion, mental health prevention and treatment
- Empirical studies targeting critical processes or career phases for athlete mental health.

Conceptual considerations of mental health research

Pointing to the complexity of separating symptoms associated with normal or expected mood variations in relation to sports performance and symptoms that signal mental illness or mental disorders, Lundqvist and Andersson provide an overview of theoretical perspectives commonly adopted in mental health research in sports. Theoretical perspectives on mental health, with strengths and limitations discussed, include wellbeing as a target construct, holistic models, single continuum and stage models, Keyes' dual-continuum model and the psychiatric/biomedical view.

Theoretical perspectives targeting career terminations are also discussed by Wendling and Sagas. The authors present an integrative framework of self-reformulation and discuss developmental changes and psychosocial processes essential for elite athletes' identity reformation during the transition out of elite sports when discovering a new meaningful identity in life after sports.

Wellbeing promotion, mental health prevention, and treatment

In this Research Topic five articles focus on support systems or frameworks for mental health support and provide excellent examples of approaches from four continents: Asia, Europe, North America, and Oceania.

In an article written by Purcell et al. contemporary research is summarized in an evidence-informed framework with a whole system approach. Promotion of healthy environments are encouraged together with recommendations on how mental wellbeing among both athletes and staff involved in elite sports environments can be obtained.

Van Slingerland and Durand-Bush present an evaluation of practitioners and service-users view of acceptability and appropriateness of a sport-centered and collaborative mental health service delivery model implemented within the Canadian Center for Mental Health and Sports.

The current state of Japanese athletes' wellbeing and level of knowledge about the topic, together with perceptions of support services is presented by Noguchi et al. in a pilot study. The results indicate needs of education programs, guidelines, detection system and information accessibility related to wellbeing and mental health in the Japanese elite sports system.

Hoare et al. provide a community case study proposing a Mental Fitness Model based on the PERMA model of wellbeing for implementation in Australian youth high performance settings. The model is suggested to support wellbeing and promote mental health needs of young high-level athletes.

Finally, Ekelund et al. raise concerns that evidence on the effectiveness of psychotherapeutic interventions on athletes are lacking, and discuss definitions and procedures used to determine prevalence rates of mental health problems and disorders.

Empirical studies of critical processes or career phases

Four empirical papers are included in this Research Topic. Bennie et al. interviewed 18 Australian Olympic athletes about their post-Olympic experiences after the Rio 2016 Olympic Games. Factors that positively influenced athlete wellbeing included that performance appraisal met expectations, planning of return to work or studies, and readily available support.

Wu et al. investigated associations between motivational processes, psychological distress, and burnout in a sample of 685 winter sports athletes. Results revealed a task-oriented motivational climate to be positively related to basic needs, and autonomous and controlled motivation to show a negative association with symptoms of psychological distress and burnout.

Attachment relationships to significant others were investigated by Davis et al. in different samples of athletes representing various sports and skill levels. The results supported the importance of secure attachment relationships with parents and coaches related to thriving among athletes.

Finally, Tubić et al. investigated the prevalence of psychological distress among elite and recreational sambo athletes. Results revealed elite sambo athletes to report significantly lower scores on self-rated

depression, anxiety, stress, and general distress than their recreational counterpart.

Mental health is a priority in elite sports. We are therefore proud to conclude that the 11 articles in this Research Topic collectively capture several novel and future-oriented perspectives contributing to the increasing knowledge base of mental health promotion and proactive support efforts within elite sports environments.

Author contributions

CL wrote the first draft of the Editorial. All authors read and revised the draft and approved the final version of the Editorial.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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CONCEPTUAL ANALYSIS
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Is There a Reformation Into Identity Achievement for Life After Elite Sport? A Journey of Identity Growth Paradox During Liminal Rites and Identity Moratorium

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Athletes' identity development upon retirement from elite sport was examined through a model of self-reformation that integrates and builds on the theoretical underpinnings of identity development and liminality, while advancing seven propositions and supporting conceptual conjectures using findings from research on athletes' transition out of sport. As some elite athletes lose a salient athletic identity upon retiring from sport, they experience an identity crisis and enter the transition rites feeling in between their former athletic identity and future identity post-sport life, during which a temporary identity moratorium status is needed for identity growth. Given the developmental challenges encountered in moratorium and psychosocial processes necessary to establish a new, fulfilling identity for life after elite sport, we identified key conditions, triggers, and processes that advance how a journey of identity growth paradox experienced during liminality serves as a catalyst toward identity achievement. Elite athletes must be encouraged to persevere in this challenging identity search and delay commitments for as long as it is necessary to achieve identity growth despite experiencing uncomfortable feelings of confusion, void, and ambiguity during the liminal phase. Reforming into an achieved identity for life after elite sport would corroborate the successful navigation of transition, as elite athletes evolved into a synthesized sense of self by cementing, through a negotiated adaptation pathway, constructed identity commitments that will provide new beginnings and meaningful directions to their life after elite sport.

Keywords: identity status paradigm, athletic career transition, identity work, identity growth, liminality

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INTRODUCTION

The transition to life after elite competitive sport significantly affects athletes' well-being upon retirement (Stephan et al., 2003; Holding et al., 2020). Indeed, spending thousands and thousands of hours practicing and competing, elite athletes' intense focus on sport throughout their lives have made it challenging for them to explore beyond sport (Brewer and Petitpas, 2017; Wendling and Sagas, 2020). Upon retiring from sport, elite athletes may not have many

alternatives to build on for structuring a new sense of self. Elite athletes may feel depressed and confused about what should be their next self in their life after sport (Lavallee et al., 2000; Wylleman, 2019). In their attempt to transition into a post-playing identity, former athletes may experience an identity crisis between who they were and who they will be (Kerr and Dacyshyn, 2000). This diametric has warranted the need to investigate the processes underlying identity growth and reformation within the shift from an elite-level playing sport career identity to the next identity they will pursue in life after sport. In their review of athletes' career transition out of sport studies, Park et al. (2013, p. 38) "found no clear evidence that certain strategies are more effective than others, except for searching for new careers or interests." The existing literature has advanced several conceptual models of athletes' transition to life after sport (e.g., Taylor and Ogilvie, 2001; Stambulova, 2003); however, theory building as it relates to an athlete's identity development upon retirement from elite sport has received only scant attention (viz., Kerr and Dacyshyn, 2000; Lyons et al., 2018). We intend to address this gap in the literature by proposing an integrated model of self-reformation, one that provides a nuanced and in-depth understanding of an athlete's identity development processes during the transition to life after elite sport.

Our integrative framework is grounded on the anthropological notion of liminality, which is defined as "the experience of being betwixt and between social roles and/or identities" (Ibarra and Obodaru, 2016, p. 53). Liminality has gained popularity in management and organizational sciences when examining the process of a work role change and ensuing role identity transitions (Beech, 2011; Conroy and O'Leary-Kelly, 2014; Hennekam and Bennett, 2016; Ibarra and Obodaru, 2016; Soderlund and Borg, 2017; Gordon et al., 2020). The increased use of this concept coincides with changing career development landscapes, that have increasingly become unstable and uncertain, giving rise to the frequent occurrence of liminal experiences encountered among contemporary workers (Ibarra and Obodaru, 2016). As it relates to the identity transition of an athlete to life after elite sport, we advance this liminality concept as an excellent lens to analyze the experience of being in between an elite-level athlete identity and the forthcoming post-sport identity.

Our model builds on this contention that the transition out of elite sport is a liminal process by also integrating and advancing propositions to describe the complex process of identity reformation during this transition. Based on the view of Soderlund and Borg (2017), identity development is of paramount importance during a liminal phase of transition. To this end, there is a dearth of theoretical integrations of pioneering work of Erikson (1959) around identity development and the Neo-Eriksonian scholarship with the literature on liminality and transition out of sport. Although Ibarra and Obodaru (2016) briefly noted the application of this identity development theory to describe the notion of identity growth during liminality, and Kerr and Dacyshyn (2000) discussed the implications of findings related to athletes' transition out of sport using work of Erikson (1963), there is a need to offer integrated perspectives of the nuance that plausibly exists in the identity reformation process during the transition to life after elite sport.

As suggested by Crocetti and Meeus (2015, p. 111), monitoring identity development in various stages of life, such as "when life transitions (marriage, parenthood, and retirement) stimulate the search of new identity structures" would provide important theoretical contributions to the identity literature. Our study advances a unique integrated approach that builds on the tremendously insightful and copious Neo-Eriksonian scholarship, along with the theoretical underpinnings of liminality, in order to better predict several plausible developmental challenges and psychosocial processes necessary for elite athletes to experience identity reformation during their life after sport transition. Thus, we propose an integrated model of self-reformation based on a number of heretofore unconnected but related literatures, including the developmental psychology literature on identity status, the anthropological and management literatures on the concept of liminality, while applying findings from the sport psychology research on athletes' transition out of sport. Drawing upon these conceptual integrations, we also aim to identify transition related conditions and triggers as well as identity work processes to advance how an identity growth paradox experienced during the transition to life after elite sport serves as a catalyst toward identity achievement. Given that the achievement status has been found to be the best functioning identity status, scoring the highest on a wide array of well-being indices (Kroger and Marcia, 2011; Schwartz et al., 2013), the application of this integrated model of self-reformation could be beneficial to researchers, practitioners, and elite athletes themselves in need to cope with challenging transitions as these proposed heuristic processes could contribute to enhancing elite athletes' well-being. After providing an overview of the key theoretical concepts of identity development and status, and liminality in the context of the transition to life after elite sport, we introduce our model of self-reformation that integrates these concepts, while advancing seven propositions to support the conceptual model depicted in **Figure 1**.

OVERVIEW OF THEORETICAL FRAMEWORK

Erikson's Identity Development Theory

As individuals are exposed to new life demands, and earlier identity commitments no longer fit their current life situation, they may fall into a period of disequilibrium caused by an identity crisis. Identity development from an Eriksonian perspective evolves from the absence of a clear, stable, and coherent understanding of who we are and what we seek to pursue in life (i.e., identity confusion) to the presence of such understanding (i.e., identity synthesis; Waterman, 2015). With a fragmented sense of self, individuals enduring identity confusion lack directions to make important decisions in their lives; they feel disorientated and uncertain about deciding what goals to pursue in life as well as what is worth valuing and what to believe (Erikson, 1968). Furthermore, the developmental

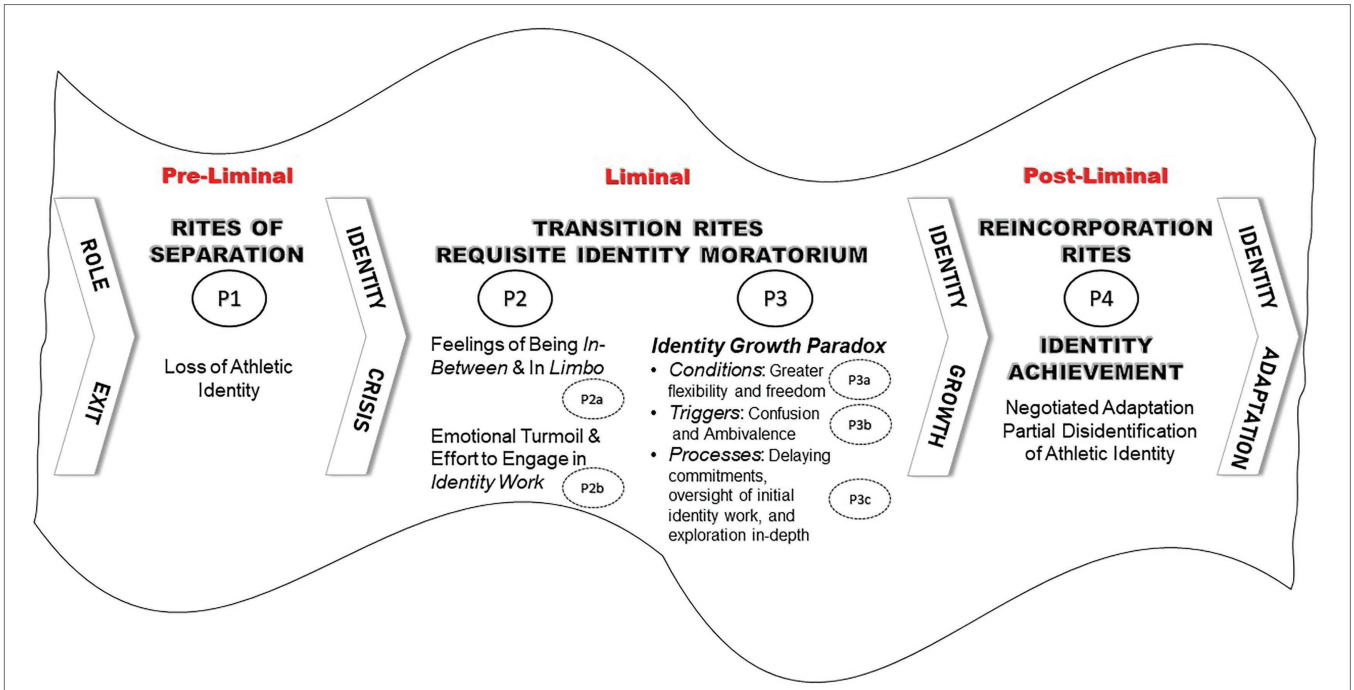

FIGURE 1 | Proposed integrated model of self-reformation during the life after sport transition.

aspect is indicated by a change in one's cognitive structure and content of identity (Kroger, 1996). For such a variation to constitute a development, there must be important additions to one's identity that lead to definite changes in one's behavior and thinking (Côté, 2015). A movement from a less complex and differentiated identity structure to a more synthesized one denotes a positive identity development (Kroger, 1996). Thus, identity growth is preceded by a period of trial and error and reflection upon which earlier identifications are examined in accordance with current social and cultural contexts and one's personal values, interests, and talents, in order to discard some of these earlier identity elements and integrate others into a new core identity configuration (Erikson, 1968; Kroger and Marcia, 2011).

Marcia's Identity Status Paradigm

Individual differences in how an identity crisis is handled to form a sense of self have been empirically operationalized through identity status paradigm of Marcia (1966). Identity statuses are derived from levels of exploration and commitment such that individuals in: identity achievement have high exploration and commitment; identity foreclosure have low exploration and high commitment; identity moratorium have high exploration and low commitment; and identity diffusion have low exploration and commitment (Marcia et al., 1993). Lacking identity commitments, individuals in moratorium are actively searching for a sense of self, whereas those in diffusion are not engaged in exploration (Marcia et al., 1993). In contrast, individuals in achievement and foreclosure have both established strong identity commitments, but they differ in the amount of exploration they have accomplished prior to resolving their identity crisis.

Liminality as an Identity Transition Process to Life After Elite Sport

As suggested, the core process of the transition to life after elite sport is conceptualized in our model through liminality, which originated from the major work entitled "Les rites de passage" of the French anthropologist Arnold van Gennep (1960), first published in 1908. In the transition from one identity or role to another (e.g., boy to man), van Gennep (1960) observed that, in all cultures, the rites of passage are divided into three phases: rites of separation (pre-liminal stage), transition rites (liminal stage), and incorporation rites (post-liminal stage). Depicting meaningful ritualistic elements linked with the passage of any transition from the old to the new (Feiler, 2020), this universal sequence is used to frame identity reformation and illustrate an evolving, dynamic, and adaptive transition process to life after sport. Through this lens of work, an athlete transitioning away from an elite-level athlete identity would move along (and at times regress) through the three phases of rites of passage to redefine a new sense of self. As elite athletes start letting go of their athletic identity, they navigate the transition rites, making psychosocial adjustments before moving onto a new meaningful and internalized identity.

While the concept of liminality has received some attention within the realm of sport marketing research (e.g., Green and Chalip, 1998; McCabe, 2006; Chalip, 2008; Rowe, 2008; Bowers, 2011), only a few studies related to the transition

out of sport referenced or alluded to the idea that retired athletes experienced a liminal period during this transition (e.g., Kerr and Dacyshyn, 2000; Stephan et al., 2003; Gairdner, 2015). To chart the identity shift athletes in transition experience, Kerr and Dacyshyn (2000) advanced three phases, including retirement, nowhere land, and new beginnings. This sequence was similar to the one provided by work of Bridges (1980) and Feiler (2020) on transition, both of whose research were directly informed and influenced by concept of liminality of van Gennep (1960). In the examination of identity reformation post-elite sport life, existing work provided evidence of existential questioning and deep self-investigation during the transition process (Kerr and Dacyshyn, 2000; Stephan et al., 2003; Gairdner, 2015); findings that effectively describe a liminal experience.

RITES OF SEPARATION AND IDENTITY CRISIS

In our model of transitioning out of elite sport, the termination of the athlete role, or role exit (Ebaugh, 1988), connotes the separation stage. Indeed, the rites of separation are triggered by a turning point during which the elite athlete role is terminated, from either a normative, voluntary event or a less predictable, involuntary event (Park et al., 2013). Marked by a sense of loss of athletic identity, the separation phase causes significant disruption to athletes' sense of self (Drahota and Eitzen, 1998; Willard and Lavallee, 2016). Without sport to define their identity, some elite athletes are likely to experience an identity crisis because new life roles may not be available to them in the wake of this change (Holstein et al., 2015; Willard and Lavallee, 2016). Although experiencing an identity crisis may appear to be catastrophic and implies a sense of struggle, from a neo-Eriksonian perspective, this crisis is considered to be a turning point in an individual's life that would trigger him or her to engage in identity work and exploration to facilitate the formation of a sense of self (Kunnen and Metz, 2015). The source of this crisis originates from a need to change and adjust responses to existential questions such as "who am I?" and "who do I wish to become?." We also recognize that the level of distress experienced during this transition may vary greatly, with some athletes experiencing this process with little or no distress to others experiencing it as a highly stressful experience (Wylleman, 2019).

Investigating the role exit process, Ebaugh (1988) contended that the challenges of losing a primary source of identity is aggravated if the role exit is unexpected, sudden, involuntary, and irreversible. Unfortunately, these factors are commonly present in elite athletes' exit from sport, since the end of their career is frequently out of their control, as in the case of a career-ending injury or being released from a team (Holstein et al., 2015; Wylleman, 2019). For athletes who did not plan prior to retiring from elite sport, a role exit that is unanticipated and obligatory in nature would intensify the difficulties of leaving sport (Butt and Molnar, 2009; Holstein et al., 2015).

The separation process can be challenging for some athletes who may be experiencing feelings similar to withdrawal symptoms. As described by Drahota and Eitzen (1998, p. 263), the role exit of athletes is "a difficult time for [them] because they lose what has been the focus of their being for most of their lives, the primary source of their identities, the physical prowess, the adulation bordering on worship from others, the money and the prerequisites of fame, the camaraderie with teammates, and the intense 'highs' of competition." Athletes' physical, emotional, financial, chemical, and mental attachment to the game enhances the difficulty to disengage from their athletic life and establish a new sense of self (Drahota and Eitzen, 1998). Elite athletes in the process of forming a new identity may, however, build on their past high-performance sport experience and incorporate some form of their athlete identity in this new sense self of self, a notion that will be further explained in the final proposition of the model. While athletes struggle to disentangle themselves from the past, social expectations add to the tension of letting go their elite-level athlete identity, as people often continue to treat athletes based on whom they used to be (Drahota and Eitzen, 1998). Regardless of the magnitude and intensity of the role exit process, the loss of the athletic identity causes elite athletes to experience a separation from a salient sense of self that leaves them with no other choice but to begin letting go of their athlete self.

The separation phase does not have to coincide with the official departure of an athlete, as he or she can be going through the vacuum stage of the role exit process prior to retiring from sport. According to Ebaugh (1988, p. 23), "role exit is process that occurs over time." As explained by Ibarra and Obodaru (2016), professional workers who are dissatisfied with their job, may contemplate a career change and undergo a liminal experience long before they leave their employment (if they leave at all). When some elite athletes can anticipate the end of their sport career, they may be propelled into liminality, while they are still active athletes. As demonstrated by the contemporary descriptions of liminal experiences, it has been challenging for researchers or elite athletes themselves to clearly identify when the transition process starts (Knights et al., 2016). Regardless of the idiosyncratic timing of this process, athletes must be able to let go of their former self as an elite-level athlete to be ready to move onto the liminal stage. Hence, we developed the following proposition in relation to the pre-liminal stage:

> *Proposition 1*: As a turning point, role exit from a high-performance sport career or the anticipation of it is postulated to trigger the separation stage of transition, a stage that is marked by a loss of a salient athletic identity (or upcoming one), which is expected to prompt an identity crisis.

Given the importance of identity reformation once individuals undergo an identity crisis, concepts of identity status and growth must be integrated in the core stage of this liminality model, which, in addition to describing the liminal stage, will be the focus of our next section.

TRANSITION RITES AND REQUISITE IDENTITY MORATORIUM

The separation stage leads to the start of an indeterminate state that is ambiguous for athletes, as they are in between letting go of the athlete identity and moving on to a new identity. Athletes in this stage can be referred to as "liminars." Originating from the Latin term limen, which means a "threshold," liminality refers to the transition period in which individuals are "no longer what they were, nor yet what they will" (Rowe, 2008, p. 128). Drawing on a work of van Gennep (1960), Turner (1967) extended the conceptualization of liminality, viewing the liminal period as an "interstructural situation" (Turner, 1967, p. 93), during which individuals are in betwixt and between conditions. During this phase, liminars have a few or none of the characteristics of the old and new states. Ibarra and Obodaru (2016, p. 49) denotes an "identity limbo" to illustrate how liminars are suspended in between the past and future positions. The idea of "no man's land" is echoed in work of Turner (1967, p. 96), being "neither one thing nor another."

Applied to the life after elite sport transition, liminality would refer to a period in which athletes feel "in-between" the athlete identity and the next identity they decide to pursue in their post-elite sport life. Evidences of Turner's conceptualization of liminality were observed in a few sport career termination studies. For instance, Stephan et al. (2003) explained how their athletes were in a liminal position, feeling in between the status of athlete and full-time employee. Similarly, Kerr and Dacyshyn (2000) reported that their former athletes experienced feelings of being suspended in between two worlds. They were not completely moved on from their former identity as an elite competitive athlete and not yet found or fully assimilated their post-sport identity. Based on the above literature, the following proposition is advanced to support the initiation of the transition rite of liminality for athletes:

> *Proposition 2a*: Elite athletes enter the liminal stage of a transition when they are experiencing feelings of being in limbo and being suspended in between the loss of athletic self and the absence of future directions.

In addition to losing their athletic self and feeling in between two worlds, athletes may feel directionless as they embark on a search for a new identity (Lavallee and Robinson, 2007). The notion that transitioning out of elite sport can leave athletes confused about what should be their next self was evidenced multiple times in the literature (Grove et al., 1997; Kerr and Dacyshyn, 2000; Lavallee and Robinson, 2007; Warriner and Lavallee, 2008; Douglas and Carless, 2009; Park et al., 2013). Once the playing days are over, athletic identity loss triggers a disruption to athletes' sense of self that is characterized by instability during which athletes may feel an incomplete sense of self. In addition, this disruption and instability may cause athletes to experience a loss of meaning in life and a struggle to fill the void as they feel uncertain about what their next chapter in life should be (Grove et al., 1997; Drahota and Eitzen, 1998; Stephan et al., 2003; Cavallerio et al., 2017). For instance, Warriner and Lavallee (2008, p. 306) highlighted two major themes pertaining to the experiences of sport retirement, which were "loss and turmoil" and "identity confusion," with participants describing their disengagement from elite sport as "profoundly traumatic." Emerging theme of nowhere land of Kerr and Dacyshyn (2000) closely resembles liminality, during which former athletes felt disoriented and confused, losing meaning and control in their lives due to the uncertainty of their future endeavors. Thus, retired athletes have reported to experience a liminal state during the transition to life after sport, given that feelings that are commonly observed during liminality include confusion, uncertainty, void, doubts, anxiety, ambiguity, and disorientation (Kerr and Dacyshyn, 2000; Cavallerio et al., 2017).

When facing an identity crisis as posited by Erikson (1968) and experienced during a liminal period such as transitioning to life after elite sport, individuals must make choices in terms of what to explore and which commitments to make, decisions that are all made while being in moratorium (Marcia, 1966). Given that positive identity development is preceded by a period of active exploration, it appears that the moratorium status is a requisite with respect to identity formation, and more importantly identity growth (Marcia, 1966). As explained by Marcia (1993), individuals in moratorium are going through a provisional but necessary transition to experience identity growth. Thus, we contend that moratorium is most akin to liminality as liminars capitalize on this liminal state to engage in identity work and achieve a synthesized sense of self.

During this identity search and the process of constructing an identity, Marcia (1993, p. 8) described individuals in moratorium as "trapeze performers, holding on to the bar of the past, while swinging toward that of the future, often with much of the vacillation, fear, intensity, and excitement connoted by the circus image." This illustration closely resembles the concept of liminality. Thus, the liminal phase, during which identity crisis is experienced, would require retired athletes to go through a moratorium period to resolve their identity concerns and reach an evolving and constructed sense of self for their post-sport lives. Given the sole path to identity growth calls for a temporary moratorium period, the following proposition was developed to further describe the liminal stage of transition in life after elite sport and integrate the identity status paradigm to advance the requisite of identity growth during liminality:

> *Proposition 2b*: The liminal stage is marked with psychological challenges and emotional turmoil as elite athletes are expected to make an effort to engage in identity work, such that a requisite identity moratorium is postulated to be the identity status most akin to the liminal stage in order to foster identity growth.

However, in the attempt to forge an identity, individuals in moratorium may face difficulties to identify a direction in their lives. They may appear to be worried and struggling to define themselves since they have not found answers to their identity-related questions (Crocetti et al., 2008; Meeus et al., 2010). This period of confusion is aggravated by athletes' insufficient

knowledge of who they are and what their interests, abilities, and values are outside of sport (Cummins and O'Boyle, 2015). The dearth of opportunities to explore interests outside of athletics and develop non-athletic competences during their playing days can cause them to lack confidence in areas outside of sport, which can also discourage them to try non-sport activities and new situations (Brewer et al., 2000). Due to the struggle and emotional trouble that come with being in moratorium (Côté and Schwartz, 2002; Meeus et al., 2010), the resolution of an identity crisis through the exploration of various identity alternatives is not always assured (Côté, 2006). Yet, the transition literature (viz., Dutton et al., 2010; Conroy and O'Leary-Kelly, 2014) demonstrated that a prerequisite to crossing the threshold out of liminality and into a reincorporated state consisted of individuals experiencing and documenting identity growth. Therefore, in the forthcoming part of transition rites and requisite identity moratorium, we advance three propositions related to transition conditions, triggers, and processes through the conceptualization of an identity growth paradox embedded within the liminal stage.

Identity Growth Paradox as a Catalyst Toward Achievement in Life After Elite Sport Transition

The path to traverse liminality and grow into an achieved identity is not a linear and straightforward process (Gordon et al., 2020); hence, we explain, in turn, key conditions, triggers, and processes underlying this path to demonstrate the identity growth paradox of the transition to life after sport that is critical to forge a constructed identity for once athletes' elite-level sport career ends.

Typically, the conditions surrounding athletes' transition are conducive to identity growth, as they provide great autonomy to athletes, enabling them to be creative, innovative, and agentic in crafting their post-liminal identity. Drawing upon the work of Ibarra and Obodaru (2016) around contemporary liminal experiences, we contend that the uncertainty of the duration and outcome of the life after sport transition, and the idiosyncratic aspect of developing an identity and making sense of this transitioning passage afford enough flexibility to stimulate innovation and reduce the need for elite athletes in transition to conform to external pressures.

The duration of being "in between" the athlete identity and the next identity is not predetermined and can be enduring for as long as it is necessary to discover a new self and/or cope with turbulent emotions. Depending on the reasons for retiring from sport and the amount of preparation prior to retiring, athletes may remain suspended between the old and new identities for an indeterminate period of time (Park et al., 2013). Similarly, a post-liminal identity may be unknown for many athletes at the onset of their transition. The uncertainty of identifying meaningful identity commitments once they leave their athletic career combined with the lack of a guaranteed positive identity development pathway demonstrate the difficulties of navigating this transition; conditions that also paradoxically offer favorable conditions to foster identity growth. Furthermore, the liminal experience of athletes is mostly self-guided, as the separation from their teammates and coaches upon retirement may require them to deal with the challenges of the transition on their own (Coakley, 1983; Lavallee et al., 1997). Although the lack of formal and collective structures would require athletes in transition to build their own support group to guide them through this process, this individualistic and flexible approach to social guidance may stimulate agency, independence, and creativity in crafting their post-liminal identity. The self-directed process of identity work effort and the idiosyncratic approach to meaning making during this transition are evidences of the lack of prescribed steps and legitimate narratives that can be used by transitioning athletes to help them build a new identity and make sense of their transition. Given that all these conditions provide greater potential for identity growth, the following proposition was formulated to support our conceptual model:

> *Proposition 3a*: The transition to life after elite sport is posited to offer conditions that afford athletes to experience greater degrees of freedom in constructing their next self, and the resulting enhanced imagination, innovation, creativity, and agency would facilitate positive identity development once they end their elite-level sport career.

In addition to providing grounds to support identity growth, these conditions are auspicious to enhance feelings of confusion and ambivalent emotions. Because these conditions can aggravate the turbulence inherent to being in limbo, they also illustrate the identity growth paradox underlying this transition process. We further contend that, although uncomfortable to endure, these feelings and emotions serve as triggers that can catalyze individuals to progress toward an identity synthesis. Undergoing identity crisis can in fact prompt individuals to search for different possibilities and experiment with various identity alternatives prior to committing to one, which are necessary steps to achieve a stable and unique identity (Erikson, 1968). As previously proposed, athletic identity loss may cause an identity crisis, which would therefore incite former athletes to search for meaning in life (Stephan et al., 2003) and explore neglected identities (Lally, 2007). During the in between phase, to move from disorientation to reorientation, athletes reported to search for meaning and spend time contemplating on their past athletic experience (Kerr and Dacyshyn, 2000), which are all conducive steps for identity growth.

Likewise, the confusion athletes experience during this transition is viewed as a trigger for identity work and existential inquiry that would catalyze identity growth (Gairdner, 2015). In this struggle for self-reformation, feelings of disorientation elicited a period of existential concerns during which athletes pondered questions such as "Who am I?" and "What is next?" (Kerr and Dacyshyn, 2000, p. 122). They expressed feelings of void that fostered the need to find new activities that would bring similar satisfaction and fulfillment as their athletic participation once did. Lavallee et al. (2000) also explained that feelings of anxiety can serve as a spur for personal growth by encouraging athletes to develop a deeper self-understanding and identify new configurations of meaning for their life after

elite sport. Therefore, the loss of the athletic identity and ensuing identity confusion can serve as catalysts for identity growth by inciting athletes to search for different possibilities and meaning in life that would be necessary to craft a new sense of self and adapt to their new life.

Furthermore, the awakening of ambivalence experienced during this liminal phase is likely to prompt individuals to engage in identity work and craft a new meaningful and evolving sense of self (Ibarra and Obodaru, 2016). In fact, feelings of ambivalence were found in organizational studies to promote identity growth (Maitlis, 2009; Dutton et al., 2010; Pratt and Pradies, 2011; Ashforth et al., 2014; Conroy and O'Leary-Kelly, 2014). The sport psychology literature on athletes' retirement from sport detected traces of ambivalence experienced during transition on numerous occasions. For instance, in study of Kerr and Dacyshyn (2000, p. 122), former athletes reported that they experienced "both positive and negative emotions throughout their transitions." Similarly, several studies underlined mixed feelings and contradictory sentiments with participants expressing a sense of relief from the demands of their athletic career and freedom from strict schedules they had to follow, while also experiencing a sense of loss, sadness, and fear from leaving their athletic career (Coakley, 1983; Sinclair and Orlick, 1993; Kerr and Dacyshyn, 2000; Stier, 2007; Gairdner, 2015; Willard and Lavallee, 2016; Cavallerio et al., 2017). Indeed, the sudden unstructured life and independence can cause athletes to feel lost as they no longer need to abide by a well-regimented life. Thus, positive sentiments of relief and freedom can be accompanied with feelings of uncertainty caused by identity loss as former athletes attempt to find a new path to pursue in their life (Kerr and Dacyshyn, 2000).

Taken together, these studies demonstrated the presence of oscillations between positive and negative feelings that illustrate this unstable state of transition, a journey of paradox, typical of such a form of liminal experience as transitioning to life after sport. The ambivalence of this transition can foster identity crafting and in turn help transitioning athletes experience identity growth. Thus, the ensuing proposition was developed in support of this paradox:

> *Proposition 3b*: When athletes enter the in between state feeling confused and/or having ambivalent emotions, although uncomfortable, they are more likely to experience identity growth because these feelings and emotions serve as a catalyst for identity work and existential inquiry necessary to craft a new, meaningful sense of self in life after sport.

While confusion and ambivalence can trigger identity growth, these feelings and emotions may be uneasy for some athletes to undergo, leaving them at risks of shortening liminality by prematurely settling into a "serviceable, secure identity" (Kroger, 1996, p. 209). Long-lasting challenges and stressful in between phases may lead them to avoid delaying commitments by falling into conforming with a conferred sense of self instead of taking the time to explore various options to reform a constructed sense of self. Foreclosing on options too early to avoid uncomfortable feelings of searching for suitable alternatives would be viewed as a maladaptive adjustment to life after sport from an identity development perspective.

Making sudden choices by defaulting back into familiar territories to attempt to end challenging emotions experienced in moratorium would seemingly alleviate confusion and solve identity concerns. Athletes' inability to make progress toward an achieved identity, however, would squander an opportunity to capitalize on a fruitful transition. In fact, a successful resolution of identity concerns requires individuals to capitalize on this interlude by exploring alternatives (Côté, 2006). A conforming and avoiding approach to forming a sense of self would therefore not be recommended to achieve a coherent and mature identity. Although identity commitments provide foundational directions in an individual's life, we assert that athletes in transition to life after sport must postpone establishing firm commitments until sufficient identity work has been accomplished to resolve their identity concerns and reach identity achievement.

However, this exploratory period may be lengthy and confusing, particularly for retired athletes who never had to search for a sense of self outside of sport (Grove et al., 1997). While some athletes are able to capitalize on the breadth of opportunities, the availability of various choices can make this developmental task cumbersome and overwhelming to accomplish for others. These difficulties may preclude athletes from adopting an extensive exploration and deliberation of potential alternatives to solve their identity concerns. In addition, athletes are at risk to fall into ruminating the purpose of their existence as they may have not explored enough outside their athletic boundaries and have limited possible identities to fall onto upon their retirement from sport. Losing a dominant athlete self, they may feel as if their life is meaningless without sport, which may lead them to experience existential ruminations (Taylor and Ogilvie, 2001). As well-described by Kroger and Marcia (2011, p. 35), individuals can "appear to be drowning in their struggles to swim against the tide of earlier authority-based identifications. Rather than explorers, they become ruminators, perpetually mired in what seem to be insoluble dilemmas." When moratorium becomes a permanent status, individuals are stuck in an incessant search for a new self, in which case, athletes end up stagnating in their identity development. Perpetual ruminations and internal conflicts paralyze their abilities to make decisions, leading to maladaptive reactions that would preclude athletes from solving their identity concerns.

However, the source of distress and discomfort may stem from the initial stages of identity search, especially when individuals explore various alternatives in breadth (Crocetti et al., 2008; Meeus et al., 2010; Wendling and Sagas, 2019). It is worthy of note that requisite identity work processes to resolve the identity crisis and underlying the moratorium status include exploring both in breadth and in-depth (Luyckx et al., 2008; Wendling and Sagas, 2019). During the early stages of exploration, individuals are considering broadly, various alternatives by gathering general information and experimenting with options whereas during latter stages of exploration,

individuals are implementing and evaluating deeply, fewer options. Once individuals have been able to narrow down their choices they were exploring broadly, they can investigate more deeply these choices to acquire a more refined and specific understanding of these potential commitments. While implementing these initial commitments, individuals are monitoring the viability of these chosen options to either strengthen them further or reconsider them if they are not satisfied with their in-depth assessment (Waterman, 2015).

Exploring in-depth from a more stable and secure base of holding initial commitments, athletes who are implementing and evaluating these choices were found to exhibit better functioning than those who wander in diverse paths and lack directions in their lives because they have not been able to focus on fewer options (Crocetti et al., 2008; Wendling and Sagas, 2019). There is therefore a need to take into consideration how advanced an individual is in the exploratory process, given that the developmental challenges associated with identity work may be alleviated once athletes are no longer considering various identity alternatives. A more advanced stage in the identity work process may indeed lead to a better adaptation in finding new life directions. Thus, we suggest that it is critical to offer support in the early phase of exploration in order to help elite athletes select a few alternatives that they can investigate in depth. As the moratorium period calls for a purposeful, organized, and systematic engagement in exploratory activities, athletes with a fragmented sense of self would benefit from an environment that is supportive of providing structure and oversight for their identity work effort.

These processes of identity growth underline the paradox that surrounds positive identity development during the transition to life after elite sport. Thus, the last proposition related to this paradox and embedded within the liminal stage is as follows:

> *Proposition 3c*: In addition to avoiding prematurely settling into a conferred sense of self, athletes exploring in-depth are more likely to experience identity growth than those exploring in-breadth, the latter of which requires support and oversight to ensure that athletes are not falling into perpetual ruminations and that initial identity work leads them to narrow down their options for an eventual formation of a synthesized identity.

In the quest for a new identity, elite athletes must find a way to reprioritize their interests and activities, and reorient their expectations to accommodate changes, shifting their focus from athletic goals and competencies to new ones (Stephan et al., 2003), which is the focus of the last section.

REINCORPORATION RITES AND IDENTITY ACHIEVEMENT

A progressive identity shift toward a synthesized identity is depicted *via* the formation of an achieved identity, which characterizes the ideal outcome of liminality to experience identity growth during the transition to life after elite sport. In identity achievement, individuals established a constructed sense of self whereas those in foreclosure acquired a conferred sense of self due to their lack of exploration (Marcia et al., 1993). According to Schwartz et al. (2011), foreclosed individuals reported significantly lower scores on meaning and purpose in life, and internal locus of control compared to achievers. Longitudinal work also showed that achievers exhibited better functioning and developmental outcomes than those foreclosed (Schwartz, 2007). Thus, given the importance of self-direction, adaptation, and identity work in the formation of a synthesized identity, identity foreclosure is viewed as a less mature status than identity achievement, the latter of which is considered the most optimal identity status and comes closest to Erikson's (1968) definition of identity synthesis (Marcia et al., 1993).

Similarly, the contemporary work role transition literature has identified a negotiated adaptation pathway in which individuals adapt and reconfigure their identities during role changes (Wittman, 2019). According to Wittman (2019, p. 728), in this pathway, "people refurbish, recombine, and amalgamate their identity structures to craft new identities to match their new roles." Thus, this negotiated adaptation would serve as the positive identity development outcome for the life after sport identity transition. Similarly, Ibarra (1999, p. 765) also viewed this path as one in which "people adapt aspects of their identity to accommodate role demands and modify role definitions to preserve and enact valued aspects of their identity."

Scant empirical evidence exists in the athlete transition literature that effectively describes the rite of reincorporation. One notable exception is offered by Drahota and Eitzen (1998) in their analysis of the shift to a former athlete identity, in which they observed that many years has passed after the athletic career ended before athletes could accept that they were no longer athletes. As explained by Kroger (1996), individuals may experience overwhelming separation anxiety from having to reconsider lingering values from a previous identity. Some athletes may in fact have a difficult time to traverse this transition and disassociate with the athlete identity because they continue to hold on tenaciously to the athlete self that has been so pivotal in their lives (Drahota and Eitzen, 1998; Stier, 2007). However, the search and formation of a new identity can be facilitated by building on core athletic skills and beliefs. As described by Wittman (2019) in the work role context, athletes who reincorporate through a negotiated adaptation would not completely *dis*identify with all aspects of their former identity. Although athletes must be able to come to terms with their former athlete self to adapt to a new identity (Drahota and Eitzen, 1998), they can still retain identity elements (e.g., discipline, confidence, commitment, competition, excitement, and community) that could be connected with new identity elements to create new identity subclusters (e.g., high-public profile jobs, entrepreneurial projects, and high-risk, high-reward businesses, and sport-related education and occupations; Holstein et al., 2015; Lupo et al., 2018; Wittman, 2019; Mateu et al., 2020).

Athletes who are transitioning to a new identity that is congruent to certain aspects of their previous athlete identity could effectively "negotiate" which of the identity elements from their athletic life could be reconfigured and retained and which

could be *dis*identified. While a detachment from the former identity must occur to embrace the new one, finding closure with the athletic identity does not mean to completely discard their athletic experience. Taking into account their past and combining it with the new identity, as supported in the Eriksonian identity literature, would enable athletes to make sense of their athletic career (Grove et al., 1998) and would serve as a form of continuity in their identity development in spite of the rupture (Erikson, 1968). In the rite of reincorporation, we would therefore contend that athletes successfully navigate the rite of transition and evolve into coherent sense of self by cementing a new identity through a negotiated adaptation pathway (Ibarra, 1999; Ashforth, 2001; Ibarra and Barbulescu, 2017). As a result, to enhance the prospect for well-being post-elite sport life, we developed this final proposition:

> *Proposition 4*: Identity achievement is suggested to be the identity status most akin to the reincorporation stage, which is posited to mark the consummation of the transition from athlete to a constructed sense of self through a negotiated adaptation pathway.

While adaptative adjustments post-elite sport life is indicated by an achieved identity, the reincorporation rite ultimately leads athletes to return to a more stable state during which they are able to redefine a salient self in their life after elite sport that leads to new beginnings.

DISCUSSION

The developmental challenges and psychosocial processes necessary when athletes transition to life after elite sport were depicted through this integrated model of self-reformation, in such a way that the occurrence of liminal experiences during this transition was deemed as an opportunity for identity reformation that would result in the discovery of a new, meaningful identity for athlete's life after elite sport. In this model, we framed identity reformation through the three phases of rites of passage; a process that starts with athletes losing a salient athletic identity upon retiring from their elite-level athletic career that provokes an identity crisis. As athletes experience an identity crisis and move on from this separation phase, they enter the transition rites, navigating through no man's land and being in limbo. Feeling in between their former elite athlete identity and future identity post-sport life, athletes must cope with emotional turmoil and make psychosocial adjustments before being able to progress to a new meaningful and synthesized identity. In this self-reformation model, we contended that positive identity reformation is accomplished by undergoing a temporary identity moratorium status during the liminal phase and eventually reincorporating into identity achievement post-liminal stage.

However, due to psychological challenges and identity work difficulties of the in between phase, elite athletes in transition may encounter a few roadblocks on their path to identity growth post-sport life. Although identity moratorium serves as a precursor to a progressive structural transformation in the identity formation process, this transitory status does not always lead to identity growth (Côté and Schwartz, 2002; Meeus et al., 2010). Given that psychosocial development and liminal experiences occurring later on in life would be affected by the resolutions of previous identity crises (Kroger, 2015; Ibarra and Obodaru, 2016), it is critical that the identity crisis experienced during the life after sport transition results in a positive identity development post-liminal stage. The importance of this developmental opportunity for athletes' functioning during adulthood warranted the need to identify key conditions, triggers, and processes that would foster identity growth during this liminal phase.

Experiencing transition conditions that afford greater degrees of freedom, undergoing transition triggers of confusion and ambivalence, and avoiding to prematurely commit to conferred identity options, while exploring a few ones in-depth rather than remaining trapped in an incessant exploration in-breadth, are all favorable aspects that buttress the identity growth paradox of the life after sport transition. As Waterman (2015, p. 312) puts it somewhat poetically, "it appears that going through the valley of distress is the route to the peaks of self-understanding and well-being." In the search for new directions in life after elite sport, athletes who embrace the fertile emptiness of liminality are likely to capitalize on this liminal opportunity to grow, which demonstrates that this identity growth paradox experienced during the transition serves as a catalyst toward identity achievement.

As suggested, greater freedom and flexibility experienced during the life after sport transition enable elite athletes to be more innovative, agentic, and idiosyncratic in constructing their next self. While taking advantage of this enhanced autonomy and diminished normative societal structure during this liminal experience would facilitate identity growth, these conditions may render feelings of confusion and ambivalence uncomfortable to endure. However, the awakening of these feelings can act as catalysts for identity growth by inciting elite athletes to invest in identity work and engage in existential inquiry to reach a decision and establish a constructed set of core values, beliefs, and goals that will endow direction and meaning in their life after sport.

Finally, critical processes to forge an achieved identity for once an athlete's sport career ends mainly consist of maintaining exploratory work until enough information and experiences have been gained to make a decision to establish firm identity commitments and resolve the identity crisis. Thus, elite athletes must not prematurely commit to conferred alternatives to avoid experiencing challenging identity search. While they are at risk of shortening the exploratory process to seemingly cope with discomfort and distress by hastily settling into a conferred sense of self, they are also vulnerable to fall into perpetual ruminations, which may paralyze their abilities to make decisions. The path to growing into an achieved identity post-sport life involves making a trade-off between ending hastily identity work processes for avoidance of discomfort and lingering in incessant exploratory process for fear of making the wrong choice.

While a conforming, avoiding, or ruminating approach would not be recommended to establish constructed identity

commitments, the source of developmental problems appears to emerge from considering broadly, various identity alternatives rather than implementing and evaluating deeply, fewer options. Therefore, support and oversight must be provided to elite athletes in the early stages of identity search in order to ensure that initial identity work eventually leads them to narrow down their options to lessen the risk of stagnating or even regressing in addressing identity concerns related to their transition to life after elite sport. Elite athletes must be encouraged to persevere in this challenging search for a meaningful identity and delay commitments for as long as it is necessary to achieve identity growth in spite of experiencing uncomfortable feelings of void, ambiguity, and uncertainty during this liminal phase. Certain identity elements of their former athletic self must be negotiated, retained, integrated, and adapted to the new identity. Therefore, reforming into an achieved identity for life after elite sport would corroborate the successful navigation of the transition rites and completion of the rites of passage, as elite athletes evolved into a synthesized sense of self by cementing, through a negotiated adaptation pathway, constructed identity commitments that will provide new beginnings and meaningful directions to their life after elite sport.

CONCLUSION

Given that theory building with regards to athletes' identity reformation upon retirement from elite sport has received only scant attention, in this study, we drew upon conceptual integrations of liminality and identity development to build a model of self-reformation that advances the presence of identity growth paradox during the transition to life after elite sport. Framing the core process of this challenging transition around liminality during which elite athletes are suspended in between the loss of athletic self and the absence of future directions, we offered a series of propositions that not only depict processes of athletes' identity development during the transition to life after elite sport, but also demonstrate a path for elite athletes to form an achieved identity for their life after sport.

We hope that this integrative framework not only informs future empirical research on athletes' identity reformation processes during their transition to life after elite sport, but that it will also stimulate further theoretical expansions on the dynamics of positive identity development during various transitions that trigger liminal experiences throughout the lifespan. Given the developmental and psychosocial challenges related to exploration and identity work, the proposed transition conditions and triggers as well as identity work processes underlying the identity growth paradox experienced during liminality merit further empirical examination, especially in terms of its function as a catalyst toward identity achievement. Providing a mixed approach of qualitative and quantitative evidence collected longitudinally in order to test these propositions is recommended to shed light on the complexities of liminal experiences and related identity growth and reformation.

While liminal experiences can offer a structured but idiosyncratic and rich account of identity development and related psychosocial challenges, the conceptual integrations with the identity status paradigm can indicate individuals' position in the model by using existing self-reported measures of identity status (Crocetti et al., 2008; Luyckx et al., 2008). This paradigm can also provide systematic and directly testable relationships underlying this model of self-reformation. In addition, the abundant literature on narrative identity and its commonly assessed variables such as meaning-making, exploratory processing, agency, and redemption can be applied in this line of inquiry to bring the nuance and clarity needed to our understanding of identity growth and self-reformation (Adler et al., 2017; Kerr et al., 2019).

While, we believe that the transition to life after elite sport provides a unique and fruitful context to study these critical theoretical integrations, we also aimed to inform practice by offering a plausible model that could be used to support elite athletes in need when navigating challenging transitions upon retirement from sport. This self-reformation model can in fact guide the development of educational and clinical interventions that are specifically targeted to athletes with similar identity functioning in order to anticipate transition challenges, promote their identity development and in turn enhance their quality of life after elite sport.

AUTHOR CONTRIBUTIONS

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

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Exploring the Experiences and Well-Being of Australian Rio Olympians During the Post-Olympic Phase: A Qualitative Study

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Research about the Olympic Games has primarily focused on preparing athletes for competition. Less attention has been paid to the post-Olympic-phase (POP) and athlete well-being during this time. This study explored Australian Olympic athletes' experiences following the conclusion of the 2016 Rio Olympic Games, including the factors that may have contributed to or challenged their well-being during this time. Eighteen athletes participated in semi-structured interviews and thematic analysis revealed that when Olympic performance appraisal met prior expectations, when athletes planned for a return to work or study, and when support from a variety of sources was readily available, this positively influenced athletes' well-being during the POP. When these factors were not in place, more challenging post-Games experiences were present, and well-being was compromised. The findings contribute to the broader literature on elite athlete well-being and at an applied level, may be used to inform targeted programs that focus on supporting athletes after an Olympic campaign.

Keywords: Australian Olympic athletes, post-Olympic Games, mental health, qualitative research, interviews, well-being

INTRODUCTION

The Olympic Games are a large-scale sporting event that often reflect the pinnacle of an athlete's career (Wylleman et al., 2012; Jensen et al., 2014). Competing in the Olympics can be associated with highly positive experiences such as national and international recognition, fulfillment of life-long goals, and attainment of financial benefit (Wylleman et al., 2012). However, as the spotlight fades on an Olympic campaign, athletes can experience unexpected challenges related to the post-Games phase that may lead to mental health issues which require coping processes (Schinke et al., 2015; Howells and Lucassen, 2018). Concern for elite athletes' mental health has increased in recent years and new guidelines have been produced for supporting athlete wellbeing (Schinke et al., 2018; Henriksen et al., 2019, 2020; Reardon et al., 2019; Stambulova et al., 2020). However, limited information is available to understand the contextual challenges that athletes face, and what resources they draw upon to cope during the post-Olympic phase

(POP). Therefore, further research is required to better appreciate athlete experiences during this period of the quadrennial cycle. Our exploratory study focused on the experiences of 18 Australian Rio Olympians throughout the POP, while also inquiring into the factors that contributed to or challenged their wellbeing during this time.

The Centre for Disease Prevention and Control (CDC) defines wellbeing as the presence of positive emotions and moods alongside the absence of negative emotions whereby life is judged positively in a range of psychological, social, economic, and physical domains (Centre for Disease Prevention and Control [CDPC], n.d.). Connected to wellbeing are definitions of mental health, which the World Health Organization classifies "a state of wellbeing in which every individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to her or his community" (World Health Organization, 2018, para 2). This definition was cited in a recent commentary on mental health research in elite sport (Poucher et al., 2021), while Kuettel and Larsen (2020) narrowed the focus of the WHO definition to describe mental health in elite sporting contexts as:

> . . . a dynamic state of well-being in which athletes can realize their potential, see a purpose and meaning in sport and life, experience trusting personal relationships, cope with common life stressors and the specific stressors in elite sport, and are able to act autonomously according to their values (p. 253).

This contextualization is important because elite athletes are prone to unique stressors associated with sporting participation like injury, travel, tense coach-athlete relationships, and poor performance outcomes which can negatively impact on their mental health (Greenleaf et al., 2001; Poucher et al., 2018, 2021; Kuettel and Larsen, 2020). To understand Olympic athlete experiences during the acute period immediately following an Olympic event, it is imperative to first consider how performance expectations and outcomes influence athlete wellbeing through this time. This is because the competition event is the main focus for an athlete during an Olympic campaign and there is a significant relationship between competition outcome and emotional state (Hassmén and Blomstrand, 1995; Wilson and Kerr, 1999).

Researchers note that successful performances are typically associated with pleasant affect, increased motivation, improved self-confidence, and positive media attention during the POP (Wylleman et al., 2012). However, following an unsuccessful performance, the opposite trend is observed with evidence suggesting that more severe psychological consequences (such as post-Olympic depression) can emerge over time (Gahwiler, 2007; Gordin and Henschen, 2012; Hammond et al., 2013; McArdle et al., 2014; Samuel et al., 2016; Howells and Lucassen, 2018). Howells and Lucassen (2018) explored the concept of 'post-Olympic blues' with four female British Olympians who competed at the 2016 Games. Through retrospective interviews, they found that failing to meet pre-determined performance expectations led to a variety of negative affective states including anxiety, crying, and interpersonal hypersensitivity. Compounding these feelings was the sudden loss of 'celebrity' status (i.e., reduced media attention) and family members who did not fully understand the ups and downs associated with the conclusion of an Olympic campaign (Howells and Lucassen, 2018). While Howells and Lucassen detailed some impacts of performance expectations/outcomes on post-Games affect, their narrow sample of female athletes who did not win a medal means there is an opportunity to build on these initial insights with a broader range of athletes.

Upon departing an Olympics, athletes begin 'The Homecoming' (Howells and Lucassen, 2018, p. 71) and several studies have investigated factors influencing athlete wellbeing during this phase (see Gulliver et al., 2012; Wylleman et al., 2012; McArdle et al., 2014; Samuel et al., 2016). For instance, Wylleman et al. (2012) uncovered how contact with parents, family, partners and peers should increase, while support from a sport psychologist could also be considered to benefit wellbeing during this time. The four male athletes' in Wylleman et al. (2012) suggested that formal workshops led by former Olympians in the months leading into an Olympic event could create a supportive environment in which to share other life-interests and ways to cope during the POP. Building on this concept of using formal programs to support elite athletes' wellbeing following a Games event, McArdle et al. (2014) evaluated the impact of a post-Games program on 10 Irish Olympic and Paralympic athletes who competed at London 2012. They showed how athletes embraced many elements of the program for supporting wellbeing; however, athletes' opinions differed when considering structural implementation factors such as the timing of mental check-ups and psychological debriefs. For instance, while there was relative consensus that a follow-up debrief was useful 4–5 weeks following the Games, debriefing immediately following or at the Olympics received "mixed reviews" (p. 276) given the considerably overwhelming nature of the event. Furthermore, McArdle et al. (2014) noted several barriers to program participation such as perceived stigma, low expectations, and inaccessibility (due to the regular centralized location). One of the key recommendations emerging from this study was the need for preparatory psychological education *before* the Games event so as to help athletes best cope with the *future* critical events. In sum, it appears that sport organizations hold significant responsibility for providing the formal structures and resources to support elite athletes, to cultivate their health seeking behaviors, and to lead educational initiatives pertaining to mental health literacy within and beyond the Olympic context (Henriksen et al., 2019; Gorczynski et al., 2020).

As time progresses during the POP, athletes begin to consider short and long-term career goals that impact on their wellbeing, such as returning to competition or retiring from sport. Athletic retirement has featured regularly in academic research, with a systematic review of athletes' career transitions featuring 126 studies over a 40-year period (Park et al., 2013). Park et al. (2013) found that certain factors influence a more or less successful transition into retirement, including the level of autonomy in decision making about retirement, and the perceived success they achieved throughout their career. In some cases, post-Olympic career uncertainty—whether an athlete plans to retire

or begin a new cycle of training for the next Games—has contributed to negative affect, making the transition to retirement a very challenging experience (Howells and Lucassen, 2018). Furthermore, Torregrosa et al. (2015) note that the strength of an athlete's sporting identity [i.e., the degree to which an individual thinks, feels, and identifies with the athlete's role (Brewer et al., 1993)] further enhances the difficulty experienced in career transition. However, it is currently unclear as to what role, if any, that career uncertainty plays in an athlete's immediate POP, potential return to competition (i.e., for athletes who are not retiring), and impact on athlete wellbeing. To better understand how athletes navigated the transition to continued participation or retirement and its impact on wellbeing during the POP, further research is required.

There is a broad range of literature underpinning research into elite athlete wellbeing and sport transitions frameworks have often been used to underpin research in this field (Wylleman and Lavallee, 2004). Stambulova and Wylleman (2014) defined transitions as '. . . turning phases or shifts in athletes' development associated with a set of specific demands that athletes have to cope with in order to continue successfully in sport and/or other spheres of their life' (p. 609). The Holistic Athletic Career Model (Wylleman and Lavallee, 2004; Wylleman, 2019) provides one of the earliest frameworks to exemplify the connection between athletic (e.g., physical), psychological (e.g., motivation), psychosocial (e.g., family), academic/vocational (e.g., student/athlete), financial (e.g., sport governing body funding), and legal (minor/adult) factors influencing athletes' transition experiences at various levels of development throughout their athletic and non-athletic careers. The Athletic Career Transition Model (Stambulova 2003, cited in Stambulova and Wylleman, 2014, p.10) focuses on the various barriers (e.g., low self-efficacy), resources (e.g., previous athletic and personal experiences), and coping strategies (e.g., planning, social and professional support) related to athletes' transition demands during their careers within and beyond sporting contexts. More recently, Samuel et al. (2020) combined various components of earlier transition models to generate the Integrated Career Change and Transition Framework. This model captures the (a) career change event; (b) transition demands; (c) the athlete's appraisal of transition demands, resources, and barriers; (d) the athlete's strategic decision making in relation to how to cope with a career change event; and (e) positive or negative transition outcomes. Specific to the Olympic context, Schinke et al. (2015) viewed the Olympic Cycle to comprise of several transition phases from pre-Olympic (National Team Selection, competing at international tournaments, Olympic qualification, and preparation for the Games) to in-Games participation, and the post-Games phase. A 2012 qualitative study with four male Beijing Olympians confirmed that athletes experienced a range of changes through these transitory phases in athletic, psychological, psychosocial, and academic vocational domains, demonstrating the potential utility of such frameworks for research exploring elite athletes transition experiences (Wylleman et al., 2012). However, these frameworks have only intermittently been implemented as a framework for research within the post-Olympic setting (e.g., Wylleman et al., 2012) and even less within southern hemisphere contexts.

As a result, we chose to draw upon these models in conjunction with previous literature as a lens from which to understand athlete experiences during the POP rather than strict theoretical framework for shaping the research, interpreting data, or discussing findings. More specifically, we preferred to be open minded about investigating the topic given the limited attention that national Olympic committees invest in the post-Games period (Henriksen et al., 2020) and the fact that few studies have given voice to athletes about what happens during this time. Therefore, the purpose of this study was to investigate what Australian Olympic athletes experienced following the conclusion of the 2016 Games. Our aim was to explore what, how, and why certain factors contributed to or challenged athlete wellbeing—as well as the strategies athletes used to cope—during the POP.

MATERIALS AND METHODS

As the focus of this study was to understand Australian athletes' unique experiences in the specific context of the 2016 post-Olympic period, the current project employed a qualitative design based on a post-positivist philosophy (Poucher et al., 2019). This philosophical stance seeks to accumulate knowledge in the pursuit of reality, but also acknowledges that the 'truth' for one person may not be the same as for others (Coulter et al., 2016; Poucher et al., 2019). Ontologically, this assumes that one universal truth "may never be fully understood" given the complexity of subjective human experience, restrictions of human language, and limiting methodological tools. Epistemologically, the goal is to minimize influence of the researcher on the researched in an effort to "produce knowledge that is as objective as possible" (Poucher et al., 2019, **Supplementary Materials**, p. 2) while gaining a better grasp of what reality might be in the specific contexts under investigation (Coulter et al., 2016). Hence, we approached this investigation with a belief that there could be 'universal POP experience of Olympic athletes' (although we may never completely understand it).

The Australian Olympic Context

In 2016, Australia sent a team of 422 athletes and finished eighth on the medal tally – well below expectations (Australian Olympic Committee [AOC], 2016a). Throughout the quadrennial cycle, athlete support remains the responsibility of Australia's National Institute Network and National Sporting Organizations (NSO's), with the exception of the pre-Games period from Olympic selection through to the Closing Ceremony. Amongst the AOC's key objectives is a commitment to support the overall health care of athletes; however, their remit to deliver athlete support only formally commences once an athlete is selected and signs the Australian Olympic Team Membership Agreement (Australian Olympic Committee [AOC], 2016b). Following an Olympic campaign, athletes are offered access to an extended network of athlete wellbeing and psychological support services under

the Elite Athlete Brief Counselling Support Program (Australian Sports Commission [ASC], 2016). Athletes are also advised to seek any required post-Games support from coaches, support staff; and/or via the support services provided by their NSO and home institute of sport (Australian Sports Commission [ASC], 2016). However, athlete support is impacted by various sport-specific nuances, including available resources, historical Olympic performances, and the size of the athlete cohort. For example, Foundation sports (those with a high probability of achieving a gold medal) such as swimming and sailing are prioritized under the sport categorization framework, and funded accordingly (Australian Institute of Sport [AIS], 2018).

Sampling, Recruitment, and Participants

In early 2018, the AOC commissioned our research team to carry out the present research[1]. Following university ethics approval (#HEAG-H 45_2018), athletes were purposively (Braun and Clarke, 2013) sampled from the 2016 Australian Olympic team so as to learn directly from their experiences during the POP. Although nearly 2 years after the Games, Howells and Lucassen (2018) explained that conducting research after a significant period of time allows adequate time and space for athletes to adjust, reduces heightened emotions often associated with intense sporting performances, and enables them to reflect upon, and reframe their initial perspectives of the event. These were important considerations given that some athletes may suffer from retrospective bias or be heavily influenced by current thinking/life experience at the time of the interview.

Because so few studies have been conducted with a focus on the POP, we sought a diverse range of Olympic athletes rather than selecting a sample from a specific sport, gender, medals won, or number of prior Olympic experiences. As such, the final sample relied on a convenience sampling approach (Patton, 2015). To recruit athletes, staff from the AOC distributed the study advertisement among their database of Rio Olympians. Athletes then either contacted the research team directly or provided their details to the AOC, who then forwarded this information to the researchers. When arranging athlete interviews, all AOC personnel were removed from communications to ensure athletes' anonymity. Out of the 422 athletes who were contacted to participate in this research, 18 agreed to be interviewed and were aged from 22 to 35 years (M = 28.33; see **Table 1** for participant details). To protect athlete's anonymity and reduce any identifiable features, pseudonyms were used, and their specific sports and competition outcomes were not included.

Data Collection

Each participant took part in one semi-structured interview with one of two authors who were trained in qualitative research methods and have previous qualitative research experience[2]. The semi-structured interview guide enabled a flexible exploration of the athletes' Olympic experiences and probing questions to obtain additional information of interest during the conversation. The interview started with a series of introductory questions about the athlete's sporting experiences over their lifetime; general experiences leading into the Rio Games, and brief descriptions of experiences during the Rio Games. These questions were used primarily to establish rapport and familiarize the athletes with the interview process rather than to specifically address the research questions. As we were interested in learning about the immediate period of time following the completion of an athlete's competition event (i.e., still in Rio) right up to how they were feeling at the time of interview, athletes were then asked about their post-Olympic experiences and factors that may have contributed to, or challenged, their wellbeing during this time. As such, key questions focused on what happened, the challenges faced, and what resources athletes drew upon to cope during the POP. Because definitions of post-Olympic timeframes varied in past research with Olympic athletes (e.g., Howells and Lucassen, 2018 interviewed athletes up-to 11 months after Games; McArdle et al., 2014 at least 3 months post-Games) and the fact that we conducted interviews nearly 2 years after Rio, we were open to athletes' interpretations of what they considered the post-Olympic timeframe to include. As a result of the open time frame, the athlete's articulation of when things happened, how, and why, emerged naturally during the interview. The interviews concluded by asking athletes to make recommendations for current and future Olympians, their coaches, families, and administrators to help improve experiences during future POP.

Depending on what was most convenient to each athlete, interviews were conducted in-person (n = 6) or via telephone (n = 12) and interviews ranged in length from 45 to 120 min (M = 60 min). These interviews were transcribed verbatim in preparation for data analysis and data collection ceased when no additional athletes volunteered their time to take part in the interview process.

Data Analysis

After uploading transcripts to computer software program NVivo 12, data were analyzed following Braun et al. (2016) and Braun and Clarke (2019) guides to thematic data analysis techniques. This six-step process enabled the researchers to detect patterns within the transcripts when exploring athlete descriptions of the who, what, when, where and why of key events related to the POP (Poucher et al., 2018). First, individual transcripts were read multiple times to ensure familiarity with the data. Next, important data were identified inductively and coded semantically, whereby chunks of data (quotes) were labeled in a manner that closely reflected the athletes' interview dialog (Braun et al., 2016; Braun and Clarke, 2019). Then, the preliminary codes were re-read to actively seek similar codes or differing insights before defining initial descriptive themes. Following this, two authors engaged in a critical dialog (Smith and McGannon, 2018) to review the coding and thematic processes. Here, interpretations of the data were discussed to explore the researchers' subjective analytic insights and develop a more collaborative and nuanced understanding of the data before finalizing the thematic descriptors and underlying content (Braun and Clarke, 2019). The final analytic step involved

[1]The AOC provided funding for this research directly to the lead author's university.

[2]Please see Supplementary Materials for the interview guide.

TABLE 1 | Participants.

Pseudonym	Sport	Sex	Age range at Rio	First time or multiple olympian	Retired or continued post-Rio
Banhi	Team	Female	20–30	First	Continued
Bonnie	Individual	Female	30–40	First	Retired
Caitlin	Individual	Female	30–40	First	Continued
Hamish	Team	Male	30–40	Multi	Continued
Harper	Team	Male	30–40	Multi	Retired
Karen	Individual	Female	20–30	Multi	Continued
Katie	Team	Female	20–30	First	Continued
Kendrick	Team	Male	20–30	First	Continued
Rayanne	Team	Female	20–30	First	Continued
Sacha	Individual	Male	20–30	First	Continued
Saif	Team	Male	30–40	Multi	Continued
Shawn	Individual	Male	30–40	Multi	Continued
Swain	Individual	Male	30–40	First	Retired
Swana	Individual	Female	20–30	Multi	Retired
Swen	Individual	Male	20–30	Multi	Continued
Talia	Individual	Female	30–40	Multi	Continued
Triya	Individual	Female	30–40	Multi	Continued
Walid	Team	Male	30–40	Multi	Retired
Totals	Team (*n* = 8) Indiv. (*n* = 10)	Fem (*n* = 9) Male (*n* = 9)	20–30 (*n* = 11) 30–40 (*n* = 7)	First (*n* = 8) Multi (*n* = 10)	Cont. (*n* = 13) Retired (*n* = 5)

writing up the data based on the overarching themes, underlying concepts, and supporting quotes.

Quality Standards

When reflecting on qualitative research, it is important to consider the quality of the process. In this section, several of Smith et al. (2014) quality standards for judging qualitative research (italicized below) are addressed. In the results section, a diverse range of quotes are provided so as to enhance the *width* and comprehensiveness of specific findings, and, when combined with the explanatory notes surrounding key quotes and themes, this serves to present a *coherent* narrative of the key events that our sample of athletes voiced in relation to the research topic. Given the limited attention the POP has received from the academic community, this is *worthy topic* for consideration. The results are underpinned by a *sincere* and *credible* approach (Smith et al., 2014) to build on existing research where a level of critical dialog was maintained with athletes (e.g., feedback on interview transcripts) and analysis with fellow authors (e.g., about interpretations of data) during the various stages of the research project (Smith and McGannon, 2018).

RESULTS

The findings from this study highlight the core post-Olympic experiences of a select group of Australian 2016 Olympians under three main themes: performance appraisal, planning for the POP, and availability of support. The results describe the positive and challenging experiences of the athletes under each thematic heading to give an indication of what contributed to their wellbeing and capacity to cope well (nor not cope well) as they navigated the POP. Quotes are used to exemplify the clearest examples of athlete experiences during the POP and although it may appear as though just a few athletes' ideas were included in the below text, the themes and underlying messages represent the collective perspectives of athletes, unless stated otherwise. **Figure 1** provides a visual representation of the findings.

Performance Appraisal

When athletes appraised their Olympic performance in relation to prior expectation, they described whether or not they met performance expectations and how they responded to this appraisal during POP. Additionally, athletes often viewed their response to performance outcomes in fluid terms, meaning that some athletes described negative feelings in the immediate POP, but in the longer term spoke of their overall POP in positive terms. As such, it was not always possible to specifically describe athlete experiences in terms of coping or not coping well.

Meeting Performance Expectations

Regardless of their context (i.e., first-time or multi-Olympians, retiring or continuing etc.), when athletes met perceived performance expectations or were satisfied with their performance, they reported positive post-Olympic experiences and coped well during the POP. For instance, Swana's athletic performance matched prior expectations, which was critical to her wellbeing as she progressed into retirement:

> My ultimate goal was to just do a PB [personal best], because I hadn't done a PB . . . for 5 years . . . I finally did my PB in the final, and honestly for me, doing a PB at that point in my career was like winning a gold medal. I know it's a cliché, but I did really have a fairy tale end to my career.

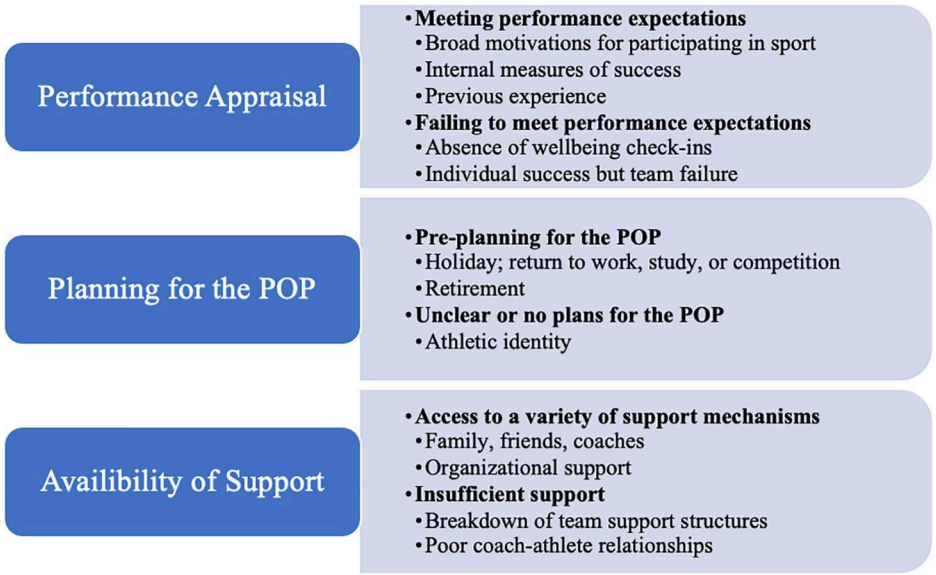

FIGURE 1 | Visual representation of themes.

Similarly, Shawn reflected upon on his broad motivations for participating in sport and previous experiences to feel positive about his Olympic performance:

> I'm [in a] pretty good place with Rio . . . I mean it obviously depends on . . . what you're doing the sport for . . . There are so many athletes that are doing it because they need validation from outside source . . . with Rio I was a bit older and didn't really care if people liked me or not. So then I was able to do it more for myself and it didn't matter what happened afterward. If I was happy with my performance, then that was enough.

Athletes like Shawn and Swana focused more on internal expectations rather than how others perceived their performance, and these internal measures of success were critical for responding positively to their Olympic performance and coping well during the longer term POP.

Failing to Meet Performance Expectations

Unfortunately, most of the athletes in this sample perceived that their performance failed to meet expectations (i.e., they did not set a personal best, make a final, or win gold) or were disappointed with their Olympic performance outcome. These adverse perceptions negatively influenced athletes during the immediate POP and for some athletes, led to negative and longer-term psychological distress. Hamish's comments provide important insights for those seeking to assist athletes overcome negative performance appraisals when navigating the POP, as it appears crucial to check in on their wellbeing well beyond the Olympic Games:

> I reckon I got over Rio, or not got over, but I started to let go of Rio, when I got close to the Comm Games [Commonwealth Games in 2018] because I thought to myself, I just don't want to be thinking about Rio when the Comm Games is in my backyard. So, I reckon . . . we're talking 14–15 months after Rio, I let go of Rio in some ways.

Further demonstrating the complexity of how athletes appraise their performance, retiring athlete Walid acknowledged that while his team failed to meet their performance expectations, he was satisfied with his individual performance:

> I had probably my best international tournament in Rio, but it counted for nothing cause we lost. So it's a tough balance, can I come back proud of how I went individually? Well yeah but I'll probably think about it in 20 years like having to explain why we didn't at least fight for a medal.

These conflicting personal feelings alongside the perceived pressure he felt with this being his final Olympic campaign, challenged his self-perception during the POP. They also demonstrate that differences may occur between team and individual athletes when responding to performance expectations, which is important for planning athlete support during this time. In sum, a range of different responses emerged when athletes appraised their performance in relation to expectations, confirming a strong connection between their performance outcome, athletic identity, and wellbeing during the POP.

Planning for the POP

All athletes described how planning for the POP prior to the Olympics served as a protective factor for their wellbeing while navigating the POP. Alternatively, failing to plan for the POP or being uncertain about retirement instigated more negative feelings during this time.

Pre-planning for the POP

Many athletes who shared positive experiences during the POP had pre-planned something to do for the POP. For these athletes, simply having a plan appeared to facilitate "a positive mindset because you've got these fun, exciting, awesome things to look forward to" (Shawn). This demanded a clear post-Olympic plan *prior to* Rio where some athletes scheduled a holiday, returned to the comfort of their home, and/or returned to regular sporting competitions. For Bahni, the physical and mental benefits of her returning to compete soon after her first Olympic Games were clear:

> . . . my [professional league] season . . . started within 10 days after [Rio]. I actually kind of found it refreshing because I could refocus. And I distinctly remember being on a road trip and talking about what happened in Rio with the girls and stuff and kind of being able to debrief and get my frustrations out and that with the coach as well as the players in our team.

While returning to competition had a positive effect for certain athletes, others felt that time away from sport and the team environment was a necessary break from the hype of the Olympics and helped them cope during the POP. Planning a return to work or academic studies was another protective factor drawn upon during the POP. First-time Olympian Kati described how having a strong connection to work and study (i.e., things beyond her athletic identity) were integral to coping well during her POP:

> I just love being in my routine at home. I have a lot going on outside of [sport removed], and I don't define myself as a [sport removed], we own a business, and I'm finishing my MBA soon, and there's lots of other things going on. So I really love being at home and being able to immerse myself in that. When I'm overseas and traveling and racing its [sport removed], and I love it, but I need to have other things in my life.

Overall, after being exposed to an emotionally charged, highly stressful, and exciting major life event presented athletes with a series of emotions and academic/vocational demands to contend with. For instance, while all athletes experienced an immediate sense of relief following the completion of their event, many athletes described a short-term emotional 'come down' (upon leaving the Games, and in most cases returning home) that often presented in negative physical and psychological symptoms upon returning home. Kendrick's explained how this unfolded for him during the POP:

> . . . it's just the pressure release . . . that following week, I was pretty Olympic'd out and . . . definitely that first 2 weeks . . . I was just really, really tired and . . . super, super run down straight after the Games . . . I think that was just mainly this huge stress relief sort of thing.

Even though Kendrick described his immediate POP feelings as a barrier to coping well, he spoke at length about drawing on psychosocial and vocational resources—like being back home, returning to work, and planning time with family and friends—as a mechanism for coping positively as time progressed during the POP:

> I just wanted to relax and, yeah, just hang out at home and, which I did . . . And then I thought I could end up going surfing for 2 months just at home. And, what else did I do? I renovated the kitchen, that was pretty fun. But besides that, I was pretty sweet. I just sort of got straight back into work. Luckily, I really like my job so that always helps. And, yeah, just started sort of working on the house and stuff and bought a dog, that was cool.

Therefore, acute responses during the POP did not necessarily translate into longer term challenges when adequate plans to return to 'normality' were made prior to the games.

Unclear or no Plans for the POP

When athletes did not have clear plans for the POP—like being uncertain about whether to retire or continue competing—this generated negative emotions. Walid explains the stress induced under such circumstances as he wrestled with his strong athletic identity and the reality of what might happen in his post-athletic career during the immediate and longer term POP:

> I was a bit stressed because I didn't have as much direction as I sort of planned. I thought it'd be very clear after Rio what I was going to do, and it wasn't . . . I think the hardest thing was realigning my goals . . . When you start a new career and you're starting at the bottom rung, it's sort of like, how do I move that set of goals which have been so clear for me to become the best in the world and put it somewhere else? And that might be, I want to be a great dad, or that might be, I want to be great at community service, or something like that. But it's not a clear, tangible thing that, as an athlete, you genuinely believe that you can . . . achieve something that other people can't.

Challenging experiences did not appear to be different for certain multi-Olympians even though they may have been able to draw on previous Olympic campaigns to manage their POP wellbeing. For instance, Swen outlined how social isolation in the immediate period following the Games served as a barrier to effective coping:

> When you get home it's really lonely; you miss hanging out with all your friends and waking up with them, and walking and hanging out with them, so there is an element of loneliness. It's quite depressing, and it is a little bit overwhelming, starting from square one again.

Overall, planning a returning back to normality or time away from the sport following an Olympic campaign played a critical role in athlete wellbeing during the POP.

Availability of Support

Athletes described how the availability of psychosocial and financial support (or lack thereof) from family, friends, coaching staff, and sporting organizations critically influenced their wellbeing during the POP. More specifically, athletes with strong support networks reported more positive post-Olympic wellbeing; whereas those who did not or could not access support struggled. Furthermore, national system stressors including organizational restructures, coaching changes, and funding cuts were clear impediments to athlete wellbeing during the POP although support from these entities often provided a necessary buffer during this time.

Access to a Variety of Support Mechanisms

When recounting the time immediately following competition, athletes noted how informal debriefs with coaches, subsequent celebrations with family members, and staying on after their event to support teammates positively impacted on their wellbeing during the POP. Various athletes also explained how connecting with friends outside of sport was beneficial and Kendrick explains how this process provided the necessary buffer to distract from the hype of the Olympic event and generate feelings of normality:

> . . . I reckon that's massively important, just having people and people who aren't involved in sport at all. They're the sort of people who . . . if you win it's all . . . like "oh, yeah, that's awesome" and if . . . you don't win, . . . they just don't really care about it, which is great because it gives you that mental break.

Alternatively, other athletes suggested that reconnecting with friends from within their sporting circles soon after returning home from Games was useful because they could understand what they were going through. While certain athletes suggested informal get togethers helped them feel socially connected in the months following the Games, they also mentioned the value of formal mentoring programs or internship opportunities (regardless of career stage) with past Olympians or the broader working community. These informal and formal arrangements helped create networks to draw upon for support and career development and positively impacted on athlete wellbeing during the POP. Overall, athletes highlighted their individualized and varied preferences for engaging family, friends, and other networks to help them cope during the POP.

Athletes who returned home immediately following the Games were able to attend celebration parades across various parts of Australia. While these public forms of support generated feelings of excitement, Rayanne explained how her team's unexpected success and ensuing 'celebrity of winning' raised a number of unanticipated challenges during the POP:

> We weren't prepared for how big of an impact the [performance] would have at home, either; we didn't realize the magnitude of how many young girls and boys or . . . how many people would message us on Instagram and Facebook and people wanting interviews, and media, and all that kind of stuff. We had no idea about the magnitude of how it would be.

This unique experience exemplifies the complicated and contextualized nature of how various experiences during and after the Games influence athlete wellbeing. Experiences like this also highlighted the importance of staying connected to athletes regardless of their performance outcome during the games. Indeed, when personal coaches regularly kept in touch (weekly/fortnightly) with athletes and initiated formal debriefs 1-to-3 months after the Games, athletes felt well supported. Additionally, when athletes received support via follow-up calls/meetings from Athlete and Career Educators (ACE) or psychologists from National Sporting Organizations (NSOs), this helped navigate some of the psychological challenges associated with their transition back to normality, as Talia explained:

> At the [institute of sport] I had an ACE coordinator . . . she was good, she would check in probably every 6 months to see if I was doing okay, how my wellbeing and quality of life was and we'd have a little bit of a chat. She sent me off to do a meditation, a bit of yoga – anything out of the box, but that stuff helps – people checking in and sort of forcing you to talk about it . . . having that support network there to improve your emotional wellbeing.

These formal and informal touch points appeared to be critical resources for checking in on an athlete's wellbeing, regardless of whether athletes were coping well or not during the POP. What remained unclear from the interview was whether athletes viewed their sports as having the necessary financial and human resources to execute the abovementioned strategies with enough regularity to really have an impact on the athlete's capacity to cope during the POP.

Insufficient Support

Unfortunately, there were situations where athletes identified extremely challenging post-Games wellbeing, which tended to arise when psychosocial support networks disintegrated. For example, when teams were disbanded due to coaching and support staff contracts expiring (or being fired), or when fractious coach-athlete relationships arose due to unaligned perceptions of the athlete's performance-that is, when athletes received poor feedback from coaches (or no communication) following what the athlete thought was a reasonable Olympic performance-athlete-coach relationships became strained, and reductions in athlete wellbeing was evident. Furthermore, uncertainty about whether or not funding was going to be continued during the POP contributed to another source of stress, particularly for female athletes from less well funded sports (e.g., combat sports). Bonnie lamented that situations like this were often compounded when NSOs did not offer support to fill the void:

> So I had my head of my team, the strength and conditioning coach . . . He was the one who had helped me plan from 2015 how to make the Olympics . . . Then I had a psychologist, the national coach, [NSO removed], nutritionist, massage therapists, all that sort of stuff. Everyone was helping me . . . Post-Rio, I didn't get contacted by a single person, not one of them contacted me . . . And I tried to contact them and there was no contact, there was no nothing . . . I lost all my funding. The Government just completely cut me. [Sport Governing Body] completely cut me. . . and I was just mentally fucked up. No assistance or help . . . I just got lost in the system.

As a first time Olympic athlete, Bonnie's severe situation was unique amongst athletes in this study. However, there is scope for other athletes within the Australian Rio Olympic team of more than 400 to have shared this distressing experience. In the absence of receiving organizational support and in light of Bonnie's feelings of abandonment, she then provided a novel solution for NSOs that may counter negative experiences like this in the future to better support athlete wellbeing during the POP:

> So I would definitely create . . . an athlete liaison program . . . it might be as simple as they're set up at the Olympics, maybe through the AOC or through the Sports Commission . . . and they just [say] here's a card, when you're ready post-Games, send us

> a text message and we'll call you. Or set it up now and organize when you would like, 2, 3, 4, and 10 weeks, and we'll give you a call . . . Just basic human contact I think is what people need . . . 'Hey, how are you going? Do you need anything? Here are the resources available, let us know if you need them.'

Similarly, Triya suggested that the current gap in mental health service provision for athletes could also be addressed by adding "post-Olympic wellbeing seminars" into existing pre-Olympic information sessions (that the AOC already coordinates). Her sense was that these could be utilized as a resource to advise athletes about psychological strategies and services that could be employed during the POP if wellbeing is compromised. Additionally, several athletes at different career stages noted that it would be useful to seek input from athletes *prior to* the Games regarding type of support and time at which they might like to receive support during the POP.

While NSOs appear to have a significant responsibility to provide ongoing support for Olympians, some athletes recommended that it be left up to the individual to make the call about drawing on psychological resources during the POP. This form of individualized planning/support appeared particularly critical because as Triya explained, there is stigma associated with seeking mental health support among Olympians:

> It's that vulnerability of saying, "Yeah, I'm not coping," I guess that is what keeps me just looking within my inner circle, because it's not something you want to put your hand up and go, "Yeah, I'm over here. I'm struggling massively." There's still that stigma involved with it . . . (Triya).

While certain athletes reported positive psychological consequences as a result of engaging with sport psychologists during the POP, Triya mentioned that the high turnover and a lack of consistency of available psychologists during an Olympic cycle made it difficult to build trusting relationships. Hamish raised another barrier that impinged on his wellbeing during the POP, where independent psychologists were not available for consultation:

> I would have absolutely spoken to a sports psych or a performance analyst or someone who wasn't directly involved in my team. I felt it was so hard for me to speak to people within my own team because there was so much blame . . . I had some conversations with our sports psych, but I didn't, I couldn't talk about anything that I wanted to, because it was too close.

Overall, National system stressors and organizational change served as clear barriers to coping well during the POP.

DISCUSSION

The purpose of this study was to explore the experiences of 18 Australian Olympic athletes during the period immediately following the 2016 Games. The results revealed that performance appraisal, planning for the POP, and the availability of support influenced athletes' wellbeing in positive and challenging ways as they navigated the POP. The findings contribute to the broader literature on elite athlete wellbeing and at an applied level, may help inform the development of targeted programs that focus on supporting athletes before, during, and after an Olympic campaign.

At the conclusion of their competition event, athletes at various career stages described how a sense of elation was often matched by fatigue. There were also challenges associated with the comedown from the Games matching the Howell's and Lucassen description of "post-Olympic blues" (2018, p. 67). However, the most profound factor influencing athlete wellbeing during the immediate POP related to whether or not an athlete's performance outcome met prior expectations, which reinforces previous research where athletes' appraisal of actual performance in comparison with expectations played a critical role in their initial state of wellbeing (Hassmén and Blomstrand, 1995; Wilson and Kerr, 1999; Greenleaf et al., 2001). Importantly, when athletes in this study focused on their own performance rather than discreet or dichotomous outcomes (i.e., winning or losing) and the broader impact they had as an Olympian (i.e., like inspiring young people), this served as a critical internal strategy for coping more effectively during the longer-term POP. Alternatively, when athletes perceived they failed to meet performance expectations—which the majority of athletes in this study described—more challenging post-Olympic experiences emerged. What remained unclear, however, was whether the athlete's performance objectives in the present study matched their sport organization and coach expectations (as they were not interviewed in this study). Whether self-imposed, or externally driven, expectations may have been unrealistic in some cases, particularly considering that less than 10% of athletes medal at Olympic events (Samuel et al., 2016). Taken together, maintaining realistic performance expectations appears critical to facilitating coping strategies (Stambulova, 2016), perceived performance satisfaction (Wylleman et al., 2012; Samuel et al., 2016), and a state of positive wellbeing following an Olympic Games.

Strongly influencing the athlete's wellbeing during the POP were a range of psychological, social, academic, and vocational factors previously outlined in Wylleman's Holistic Athlete Career Model (2019). For instance, some Australian Olympic athletes intentionally planned to detach from their athletic identity by returning to work or study while others celebrated being an Olympian in public parades. In fact, having something to do—a holiday or return to competition or work/study—was a specific resource used to cope, while those without a plan or who were uncertain about their future faced major barriers to wellbeing during the POP. Decreasing uncertainty in various aspects of Olympic preparation has been shown to help athletes stay confident while under pressure (Gould and Maynard, 2009; Stambulova et al., 2012). Furthermore, when athletes pursue interests and goals unrelated to their athletic careers (i.e., work/study), it can assist with coping and enhance their state of wellbeing after an Olympic campaign (Gordin and Henschen, 2012; Barker et al., 2014; Schinke et al., 2018; Kuettel and Larsen, 2020). Taken together, there is great value in supporting athletes with pre-planning their post-Games experiences *before* the Olympic Games to best support return to academic and vocational pursuits after competition finishes.

Our findings underlined the importance of psychosocial support from family, friends, and coaches, which has been well documented in previous research with elite athletes (Greenleaf et al., 2001; Brown et al., 2019; Teques et al., 2019; Samuel et al., 2020; Walton et al., 2021). Whilst most athletes indicated a strong sense of support from friends, family, and coaches, levels of organizational support were vastly different for all athletes in this study. When psychosocial support from coaches and governing bodies was absent, athletes were particularly vulnerable to negative post-Olympic wellbeing. In addition, coaching and support staff persistently tread the fine line of contractual termination at the end of an Olympic cycle and if relationships between athletes and coaches are soured by distrust (Greenleaf et al., 2001; Henriksen et al., 2020; Kuettel and Larsen, 2020), sporting organizations must consider where the ownership for athlete wellbeing should fall during this critical Olympic phase. Overall, these findings have practical implications for Olympic athletes and their National Sporting Organizations because sporting organizations must consider where the ownership for athlete wellbeing should fall during the POP

In Australia, National Sporting Organizations (NSO) recently affirmed athlete welfare as priority via increased investment in wellbeing and psychological support (Dunn, 2014; Australian Sports Commission [ASC], 2016; Sport Australia, 2019). For instance, the Australian Institute of Sport established a Mental Health Unit in 2018, where athletes were provided with access to appropriate practitioners through a Mental Health Referral Network (Rice et al., 2020). However, a lack of targeted programs for the POP may compound negative transitions (Gordin and Henschen, 2012) as athletes may feel vulnerable when reaching out for psychological support due to the stigma associated with help seeking behavior (Gulliver et al., 2012; McArdle et al., 2014; Poucher et al., 2021). To overcome this barrier, athletes in this study suggested that check-ins could be delivered via a neutral and centralized athlete wellbeing liaison officer-appointed pre-Games, by relevant NSOs-to provide individualized athlete support during the POP. Additionally, our findings echo Henriksen et al. (2020) recommendations that mental health screening and treatment be made available for athletes in the year following an Olympic cycle. Therefore, it appears vital for the governing bodies to step in and provide the necessary support when gaps in wellbeing service provision exist because the absence of follow-up could lead to problems for athletes who are hesitant to reach out, or, where relationships with team staff have broken down. However, sport psychology and mental health practitioners should take note that athletes in this study had mixed feelings about psychologists being engaged in the sporting system during the Olympics. Some athletes were very supportive of knowing the psychologist well, while others wanted to work with a psychologist completely disengaged from their sporting environment because of concerns with confidentiality. These distinct inclinations demonstrate the specific stressors that can arise in elite sport (Kuettel and Larsen, 2020), and so taking an individualized approach to planning psychological support appears vital so they can act according to athlete preferences during the POP.

Limitations and Future Directions

Although conducting interviews approximately 2 years after the conclusion of the OG provided adequate time for athletes to adjust or reframe their perspectives (Howells and Lucassen, 2018), this could be considered a limitation of the study. Collection of data in closer proximity to the POP may enhance the accuracy of athlete perceptions by reducing the reliance on longer-term recall (Howells and Fletcher, 2015). As such, future researchers could consider carrying out multiple interviews with athletes or an ethnographic research approach to capture shifting perspectives over time as they navigate their journey back to normality. In addition, our study focused solely on the perspectives of athletes. It would be beneficial to purposefully sample the accounts of coaches, psychologists, and team managers within specific sporting case studies to gain a more holistic insights into the POP. While athletic retirement has been a popular topic for researchers, there is also an opportunity to more specifically investigate whether retirement was voluntary or not, and how these situations impact on the mental health of athletes during the POP. Echoing suggestions from Wylleman et al. (2012), utilizing retired Olympic athletes to mentor current athletes appears to be a good strategy for helping cope during the POP as they are well positioned to share in athletes' experiences within (i.e., living in an Olympic village) and beyond the sporting context (i.e., how to cope after returning from the Olympics). However, further research is required to solidify how, when, where, and whom this form of support might be best placed to be delivered. Finally, future research could be more specifically framed by existing elite athlete transition models as they have yet to be tested for their applicability to Australian contexts and these models can provide guidelines about the context, time frame, methods, and type of supports practitioners can provide during the POP (Stambulova, 2016). Results from these studies could be utilized to improve assistance to athletes during this transition phase and address the current gap between research and practice (Stambulova et al., 2020).

Practical Implications

The findings from this study have a range of practical implications for people involved in supporting Olympic athlete wellbeing. First, a process of normalization appeared to occur during the POP as athletes transitioned back to normality following a very exciting and stressful Olympic campaign. While some athletes described initial disappointment with their performance (lowered perceived self-worth/perception), over time they overcome these negative feelings through self-reflection, psychosocial support from family, friends, or psychologists, or planned return to work/study/competition. Even in situations where athletes experienced success and adequate support was available, there was an immediate adjustment period to navigate when returning home. The process of adaptation can be further compounded for athletes retiring from sport as the reality of feeling disconnected from teammates, coaches, and friends sets in soon after competition finishes. It is therefore not surprising that many athletes in this study perceived the POP as a challenging event that lowered subjective wellbeing

until re-adaptation occurred (for some athletes, up to 2 years after the 2016 Games). While it still remains unclear is how long this process of normalization might take, athletes, coaches, and sporting organizations need to be conscious of the challenges that athletes encounter when transitioning back to normality following an Olympic campaign, and support athletes by using a variety of mechanisms to facilitate a return to 'normal' levels of wellbeing over time.

The many individual differences in athlete responses to performance outcomes indicates that maintaining realistic performance expectations is essential. Athletes should maintain a broad focus about the impact of being an Olympic athlete by balancing sport and life goals and focusing on internal measures of success. These expectations should be matched by coach, NSO, and AOC goals to minimize the pressure of external performance indicators and maintain wellbeing during the POP. Following an Olympic Games, support from family and friends was critical to athlete wellbeing and it was clear that athletes benefited from making post-Olympic plans *prior to* an Olympic campaign (e.g., a holiday, return to work, study, or professional competitions). Assisting athletes with the planning process early in the quadrennial cycle is likely to have a positive impact on post-Games wellbeing.

A higher-level oversight of athlete mental health and wellbeing would be valuable (beyond individuals and their teams) because while some athletes felt supported, others seemed bitter and unsupported by their sport. NSOs should ensure a range of personalized support is available due to stigma associated with reaching out for mental health challenges but also because athletes may prefer to connect internally (welfare manager or sport psychologist) or externally (independent psychologist or other mental health professional) when seeking support during the POP. The newly developed Mental Health Unit - implemented following the POP described here - may assist in this goal in future Olympic cycles (Rice et al., 2020). Through this unit, sport governing bodies could standardize wellbeing support across sports—perhaps in the form of an athlete wellbeing employee—as it seemed important to have a central person to follow up athletes over an extended period during the POP (at least 12 months). Relatedly, more assistance with developing career options for life after sport (mentors within the sport/Olympic context and networks outside of sport) would be of benefit, particularly for athletes considering retirement.

CONCLUSION

Overall, this study explored the experiences of Australian Rio Olympians to better understand what athletes encountered, and how this influenced their wellbeing, when navigating the POP. Drawing on the voices of 18 athletes enabled us to conclude that: (1) Olympic performance appraisal strongly influenced athletes' well-being during the POP; (2) Planning pre-Games for the POP was a major coping resource in the transition to normality; and (3) Available support in the POP was important but more was desired. It is hoped that the findings will be useful for NSOs, coaches, athletes, and their families in formulating plans for to enhance athlete wellbeing during future Olympic campaigns.

DATA AVAILABILITY STATEMENT

The datasets generated for this study are not readily available because to protect anonymity of participants, data cannot be made available. Please contact the lead author for any further information. Requests to access the datasets should be directed to AB.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Western Sydney University Human Ethics Committee. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

AB conceptualized the study, recruited participants, conducted interviews, supervised the analysis, and drafted the final manuscript. CW completed the literature review and data analysis while developing initial drafts of the manuscript. DO assisted with study conceptualization, revisions of data analysis, and manuscript drafts. LF completed interviews and data analysis as well as contributed to initial drafts of the manuscript. TH conceptualized the study, contributed to recruitment of participants, and assisted with drafts of the manuscript. All authors reviewed and approved the final manuscript.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.685322/full#supplementary-material

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REVIEW
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Let's Talk About Mental Health and Mental Disorders in Elite Sports: A Narrative Review of Theoretical Perspectives

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The objective of this article is to discuss: (a) the various theoretical perspectives on mental health and mental health disorders adopted in sport psychology, and (b) how the adoption of these various theoretical perspectives in studies might impact upon the interpretations and conclusions in research about the mental health of participants in elite sports. Well-being as a target construct, holistic models, the single continuum or stage models, and Keyes' dual-continuum model of mental health are described, together with a sports psychiatric view of mental health. The strengths and limitations of various mental health perspectives are discussed. We conclude that mental health is a complex construct and that the sport psychology literature, much like the clinical psychology literature, has struggled to reach a consensus regarding a definition or a feasible approach to investigating mental health. For the researcher, it becomes important to make explicit the underlying theoretical perspective adopted and the operationalization upon which conclusions about elite athletes' mental health are based so that an increased knowledge base with high scientific credibility can be established and consolidated over time.

Keywords: elite athlete, sport performance, common mental health disorder, health, well-being

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INTRODUCTION

In recent years, sport psychology researchers have exhibited an almost explosive growth in interest in the investigation of mental health among elite athletes (Kuettel and Larsen, 2020; Poucher et al., 2021). This interest has, at least partly, been stimulated by the mental health movement found in global health-promotion programs calling for greater responsiveness in society overall (e.g., IUHPE, 2018). In a scoping review, Kuettel and Larsen (2020) found that 81% of mental health studies focusing on elite athletes had been published between the years 2013 and 2018. The authors noted that a majority of these studies focused on the assessment of risk factors or various psychological health symptoms possibly related to common mental disorders (Kuettel and Larsen, 2020). Concerns have been expressed in the literature about the high prevalence of mental health issues among elite athletes (e.g., Rice et al., 2016; Reardon et al., 2019), and that stigma in the elite sports culture may decrease help-seeking behaviors and lead sports organizations to depreciate mental health issues as unwelcome "weaknesses" not compatible with high-level sports (e.g., Bauman, 2015; Foskett and Longstaff, 2018; Castaldelli-Maia et al., 2019).

Voices of caution have nevertheless been raised in the sport psychology literature, arguing that the multidimensionality and complexity of separating normal states related to performance issues vs. mental illness or mental disorders may not be being sufficiently considered in today's research (e.g., Uphill et al., 2016; Lebrun and Collins, 2017; Henriksen et al., 2020). For example, increased but transient stress reactions related to challenging sports situations, such as competitions or temporary setbacks, are common and a normal part of the elite sports life (Fletcher and Sarkar, 2012; Turner and Barker, 2013; Martindale et al., 2015). Psychological symptoms associated with the pursuit of the sport may, however, easily be mixed with pathological issues if generic assessments developed for the general population are used on elite athletes without consideration of the psychosocial context in which various symptoms arise (e.g., Lebrun and Collins, 2017; Henriksen et al., 2020; Lundqvist, 2021). Moreover, variations in mood may be linked to the current training load; intense training periods are known to be associated with mood disturbances, but mood usually improves when the training load decrease (Raglin, 2001).

Just as in society at large, mental health literacy and awareness of psychological problems should also be present in elite sports. Deliberate efforts to reduce stigma or to influence decision-makers to take action and increase resources for mental health care among athletes may be justified. These efforts should nevertheless be kept separate from the primary goal of research, which is that the researcher should continuously strive for valid and objective knowledge development to increase the understanding of mental health among elite athletes. Finding a consensus across scholars and disciplines about how to define mental health is difficult and changed societal attitudes toward mental health also change the representation of the mental health construct over time (e.g., Manwell et al., 2015; Bolton and Buhgra, 2021). The lack of consensus has resulted in a wide range of definitions, theories, models, or mental health paradigms being adopted by mental health scholars and practitioners in sport psychology as well as other applied psychological research disciplines (Manwell et al., 2015; Rice et al., 2016; Kuettel and Larsen, 2020). The term "mental health" is sometimes used interchangeably with a desirable mental condition of well-being that may be improved by health factors and proactive efforts (i.e., salutogenesis) and at other times it is used to signal mental ill-being or mental disorders (i.e., pathogenesis; see also Antonowsky, 1979).

The present article aims to discuss various theoretical perspectives of mental health applied in the sport psychology literature, and their impact on evaluations and conclusions about elite athletes' mental health status in research. Both the clinical and sport psychology literature is consulted to provide a historical perspective on the various controversies that still surround these constructs. Theoretical perspectives on positive mental health and approaches targeting non-clinical mental health variations are first presented followed by the psychiatric perspective of mental disorders. Thus, this article especially focuses on exemplifying and discussing (a) the various theoretical perspectives on mental health and mental disorders adopted in clinical psychology and sport psychology, and (b) how the adoption of these various theoretical perspectives in studies might impact upon interpretations and conclusions about the mental health status of participants in elite sports.

PERSPECTIVES ON MENTAL HEALTH IN SPORT PSYCHOLOGY

The importance of psychological health among elite athletes was most likely first introduced into the sport psychology literature by Morgan (1985), who suggested the Mental Health Model of sports performance, in which psychopathology was examined by means of personality and mood assessments (see also Raglin, 2001). In more recent years, well-being, mental health symptoms, and mental disorders among elite athletes have attracted the interest of researchers (e.g., Lundqvist, 2011; Lundqvist and Raglin, 2015; Gouttebarge et al., 2019; Reardon et al., 2019; Kuettel and Larsen, 2020; Kuettel et al., 2021). Due to the widespread use of the construct of mental health in the sport psychology literature, prominent theoretical models, and orientations will be reviewed below to illuminate the wide scope of meanings that may be attached to this construct.

Well-Being as a Target Construct of Mental Health

In 1948, the World Health Organization (WHO) brought the first definition of health into force, stating it to be: "complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2006, p. 1). In line with the psychological literature in general, the WHO has frequently been referred to over the years when health-related issues are discussed in sport psychology (e.g., Schinke et al., 2017; Kuettel and Larsen, 2020). Although the WHO's first definition should be acknowledged as highlighting health as more than just the absence of physical illness, it has also been criticized over the years; the word "complete" suggests health to be a narrow and almost unattainable state rarely achieved over long periods of life, whereby most people would be classified as unhealthy (Huber et al., 2011). Transferred to an elite sporting context, where daily variations in well-being outcomes are likely to occur as physical and psychological limits are pushed in the striving for athletic development, the adoption of this early definition would be likely to result in conclusions that all elite athletes suffer from ill-being.

A later definition by the WHO (2004) proposed that mental health be defined as "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" (p. 12). This definition targets the subjective state of well-being as central to mental health. Assessments of well-being in terms of positive functionality in life (the eudaimonic perspective; Ryff, 2014) and perceived happiness and life satisfaction (the hedonic perspective; Diener, 2009) would accordingly be proper indicators of mental health (cf. Ryan and Deci, 2001; Huta and Ryan, 2010). Models or theoretical approaches commonly adopted as frameworks in well-being studies, for example, the Self-Determination Theory (Ryan and

Deci, 2000) and the PERMA model (Seligman, 2011, 2018) closely relate to eudaimonic and hedonic philosophies (Lambert et al., 2015). Application of the well-being view of mental health in research on elite athletes suggests that mental health should be framed as the athlete's psychosocial functionality and ability to nurture individual talents in the lived elite sports environment, subsequently also increasing the probability of the elite athlete regularly experiencing positive affect and life-satisfaction (Lundqvist, 2011, 2021).

Well-being research in sport psychology has been limited by a conceptual lack of clarity in studies that have commonly treated well-being as an undefined "feel-good factor" not related to established theoretical models or frameworks (Lundqvist, 2011; Kuettel and Larsen, 2020). Moreover, the progress of well-being research in sports and other fields of psychology has been limited by a lack of sound measures for assessing well-being (Lundqvist, 2011; Cooke et al., 2016; Linton et al., 2016; Giles et al., 2020). Several sport psychology scholars have nevertheless explicitly studied well-being as a defined target construct of mental health (e.g., Lundqvist, 2011; Lundqvist and Sandin, 2014; Lundqvist and Raglin, 2015; Macdougall et al., 2016, 2019; Kuettel and Larsen, 2020) and well-being is increasingly adopted as an indicator of positive mental health in studies (e.g., Kuettel et al., 2021; McLoughlin et al., 2021). In general, well-being studies have searched for empirical knowledge that can give rise to strategies to maintain, protect, or increase athletes' well-being, both in sports and in life. Thus, the intent in well-being studies on elite athletes has commonly been mental health promotion and a search for protective factors in the sporting context (e.g., Lundqvist and Sandin, 2014; Kuettel and Larsen, 2020; Lundqvist, 2021).

Holistic Models of Mental Health

In line with the WHO (2004) definition of mental health, holistic perspectives on mental health focus on the whole person and consider the interactional pattern between the person and their environment. This might include a variety of factors; for example, goals, values, functionality/capacity, cultural aspects, and norms in society (e.g., WHO, 2004, 2012; Wittchen et al., 2014; Manwell et al., 2015). Thus, mental health is regarded in these models as a highly complex and multidimensional construct. For example, the biopsychosocial perspective (e.g., Engel, 1980) suggests that biological (e.g., genetic vulnerability, stress reactivity), psychological (e.g., attitudes, cognitions, moods/affects, beliefs, health behaviors, coping skills), and social factors (e.g., family background, social support, environment) interact in intricate patterns to generate various mental health outcomes (Hoffman and Driscoll, 2000). Other holistically oriented approaches found in mental health studies include, for example, ecological models, developmental or life-course models, and quality-of-life perspectives (e.g., Manwell et al., 2015; Reupert, 2017).

The call for a holistic perspective on mental health in elite sports is highly visible in the sport psychology literature; for example, in consensus statements summarizing factors in sports that may relate to elite athletes' mental health, or discussions about the mental health challenges attached to athletes' development, career-transition phases, sports injuries, and dual careers (e.g., Wiese-Bjornstal, 2010; Stambulova et al., 2015, 2020; Wylleman and Rosier, 2016; Schinke et al., 2017; Breslin et al., 2019; Wylleman, 2019; Kuettel and Larsen, 2020; Storm et al., 2021). Purcell et al. (2019) argued for the need to consider the ecological system surrounding the individual athlete when frameworks targeting the promotion of mental health and early intervention or treatment are developed:

> In the case of elite athletes, this includes the "microsystem" of coach(es), teammates (where appropriate) and family/loved ones. The wider sporting environment (e.g., the athlete's sport, its rules and governing body) forms the ecosystem, while the role of national and international sporting bodies and the media and broader society form the macrosystem. (p. 3)

Holistic models may indeed provide a comprehensive overview of elite athletes' mental health and the related risk and protective factors in the multifactorial and complex performance-oriented elite sports environment (e.g., Schinke et al., 2017; Henriksen et al., 2020; Stambulova et al., 2020; Storm et al., 2021). From a holistic perspective, variables related to the promotion of mental health as well as the prevention and treatment of mental ill-being could be considered together (Purcell et al., 2019). The complexity and the great number of parameters in need of investigation nevertheless increase the methodological challenges for researchers. For example, various scientific disciplines (e.g., medicine, psychology, sociology) emanating from different research traditions and having different objectives in the study of mental health need to be merged, and the number of plausible mental-health-related variables to consider may be almost innumerable (e.g., Thiel et al., 2015). The search for a holistic understanding of mental health may therefore also pose a risk of reduced precision and internal validity in studies that provide complex or overarching models or frameworks that might be difficult to evaluate empirically.

Single Continuum and Stage Models of Mental Health

Continuum models of mental health have become increasingly promoted in the sport psychology literature among researchers studying elite athletes' mental health (e.g., Schinke et al., 2017; Moesch et al., 2018; Purcell et al., 2019). These continuum models rest on the idea that individuals can move bidirectionally along a single mental health–mental disorder continuum (e.g., Haggerty and Mrazek, 1994; Chen et al., 2020). Mental health indicators usually range from (a) normal variations in mood and psychological and social activity, through (b) normal emotional or behavioral reactions to life-situations (e.g., being nervous, sad, decreased social activity), to (c) increased levels of psychological harm or injury (e.g., anxiety, reduced performance, pervasive sadness, difficulties concentrating, social withdrawal), and finally (d) mental illness in terms of diagnosable psychiatric conditions (e.g., Chen et al., 2020). Some models also suggest interventions aimed at risk-reduction for mental illness symptoms (i.e., prevention) at one extreme of the continuum and treatment and relapse prevention conducted in clinical care at the opposite end (Haggerty and Mrazek, 1994; Purcell et al., 2019).

Closely related to single-continuum models are stage models, in which the heterogeneity of mental health or disorders are displayed stepwise; for example, from wellness to distress and thereafter to clinical disorders of various severities (Patel, 2017). Overall, these models target various symptoms and generally promote the use of self-care and health-related actions (e.g., sleep, nutrition, recovery, seeking low-intensity support from family and friends) when early and mild symptoms appear, and appropriate psychological interventions or psychiatric care in cases where symptoms are severe and in need of clinical treatment (Patel, 2017; Chen et al., 2020).

Single-continuum models as part of frameworks for mental health among elite athletes have been argued as useful in elite sports to account for the great variation in expressions of psychological health and levels of functioning among athletes beyond categorical perspectives (e.g., Schinke et al., 2017; Purcell et al., 2019). While continuum models might be a viable approach to improving our understanding of mental health among elite athletes, their adoption in studies on elite athletes also pose challenges related to the interpretation of symptoms. This is because emotion-related symptoms (e.g., distress, anxiety, stress), which occur temporarily as natural and appropriate consequences of elite athletes' sporting pursuits, may easily be misinterpreted as failing mental health in cross-sectional studies (e.g., Henriksen et al., 2020; Lundqvist, 2021). Thus, these assessments should be complemented with additional information obtained, for example, by the use of clinical interviews. Moreover, the learning experiences that athletes gain from exposure to moderately challenging life and sporting situations are often linked with momentary adverse emotional responses. For some athletes, such experiences might act to enable long-term psychological resources and increase levels of resilience, helping them to bounce back and stay mentally healthy in future situations (Seery et al., 2010; Collins and MacNamara, 2012; Sarkar et al., 2015; Henriksen et al., 2020). Thus, in the absence of health-related information other than self-reports of emotion-related symptoms, continuum models do not provide any guidance as to whether reported symptoms should be regarded as natural reactions to sports or early signs of mental health concerns or disorders. These models, therefore, leave interpretations highly open to the researchers' framing of symptoms. Based on the nature of elite sports and the basic idea underlying single-continuum models, it is to be expected that, if assessed over time, many elite athletes would move back and forth along the mental health continuum without necessarily being at risk of developing clinically relevant concerns or mental disorders in need of treatment.

Keyes' Dual Continuum-Model to Explain Mental Health

The human emotional repertoire is known to include both positive (e.g., well-being) and negative (e.g., sadness, unhappiness, anxiety) emotional states, and a fully lived life will also be very likely to include occasional periods when functionality and productively are temporarily lacking (Hagen, 2011; Galderisi et al., 2015). Keyes (2002, 2003) noted that a one-dimensional reliance on the assessment of either well-being or ill-being to indicate mental health may be inadequate for a comprehensive understanding of complete mental health, and therefore introduced a two-dimensional approach called the dual-continuum model. The dual-continuum model suggests that mental health consists of a mental illness continuum and a mental health continuum, where symptoms on each dimension may range independently from high to low. The two dimensions are viewed as related but essentially distinct. According to this perspective, assessments of the symptoms of mental health (i.e., emotional, psychological, and social well-being) and symptoms of mental illness should be performed simultaneously to obtain a comprehensive understanding of the individual's complete mental health status. Crossing the dimensions results in three plausible states of mental health: languishing, moderate mental health, and flourishing (Keyes, 2002, 2003, 2005). Complete mental health would be indicated by low levels or the complete absence of mental illness symptoms and high levels of mental health symptoms. Mental illness would be indicated by the opposite pattern, with low levels or a complete absence of well-being symptoms combined with high levels of ill-being symptoms (Keyes, 2003).

Based on the complex nature of elite sports, where a range of health-related symptoms may be reported, some scholars (e.g., Uphill et al., 2016) have argued in favor of theoretically adopting the dual-continuum model to improve our understanding of elite athletes' mental health. Nevertheless, the use of Keyes' (2002) model imposes increased challenges when interpreting athletes' mental health status. For example, Van Slingerland et al. (2018) found some student-athletes to maintain moderate to high levels of mental health functioning and flourishing, while at the same time also reporting being diagnosed with a mental disorder. Similar complexities in interpretations of mental health and mental ill-being continuums were reported by Durand-Bush et al. (2015), who found that athletes reported low mental health functioning and moderate levels of stress but also moderate levels of self-regulation capacity and moderately high psychological well-being, suggesting a positive adjustment. Adopting the dual-continuum model as a theoretical framework, Kuettel et al. (2021) performed latent profile analysis to identify mental health profiles based on athletes, anxiety, depression, and well-being scores. In a sample of 612 Danish elite athletes, the majority (64.2%) of the athletes were profiled as flourishing, approximately a third (29.3%) as having a moderate mental health profile, and a minority of the sample (6.5%) as languishing. Moreover, athletes classified into the various mental health profiles differed significantly in self-reported scores of protective factors (social support, sleep, perception of sport environment) and risk-factors (perceived stressors, workload; Kuettel et al., 2021). Thus, by adopting the dual-continuum model, "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" (Uphill et al., 2016, p. 3). Multiple assessments targeting both positive mental health and mental ill-being may provide extended information to the interpretation of elite athletes' complete mental health.

MENTAL DISORDERS

During the past few years, mental health studies among elite athletes have increasingly assumed a biomedical model based on medicine and psychiatry (e.g., Markser, 2011; Bär and Markser, 2013; Ströhle, 2019). The psychiatric view is also visible in the International Olympic Committee's (IOC) approach toward protecting mental health in elite athletes (Reardon et al., 2019; Gouttebarge et al., 2021). Sport psychiatry adopts psychopharmaceutical and psychotherapeutic approaches to treatments when mental disorders are diagnosed among athletes. At an overarching level, the procedure of diagnosing mental disorders acts to separate pathological conditions from what could be regarded as non-clinical mental health variations among populations (Amoretti and Lalumera, 2019). The sports psychiatric perspective adopts the today's dominant diagnostic tools, which are the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5; American Psychiatric Association, 2013) and the International Statistical Classification of Diseases and Related Health Problems-11 (ICD-11; cf. Pocai, 2019).

General Controversies Surrounding Mental Disorders

Although seldom explicitly discussed or problematized to any great extent in the sport psychology literature, the definition of a mental disorder and its classification is still a matter of debate and controversy (e.g., Bell, 1994; Andersson and Ghaderi, 2006; Bolton, 2013; Frances, 2013; Poucher et al., 2021). The deductive, top-down approach of classifying behavioral problems into diagnostic categories has been criticized by clinical psychology scholars adopting alternative approaches, for example functional analysis used in cognitive-behavioral therapy, which to a greater extent target the idiographic and contextual perspective of the person (Andersson and Ghaderi, 2006). The definition of mental disorders has also varied over time, with changed inclusion/exclusion criteria or classification systems due to scientific progress, but also due to the dominant political and social interests/needs of different periods (Kinderman et al., 2017; Amoretti and Lalumera, 2019). Changed boundary criteria for mental disorder diagnoses across editions of the DSM have triggered debates in the literature (Bolton, 2013; Frances, 2013; Sweet and Decoteau, 2018). For example, the bereavement criterion in DSM-IV prevented people in grief from being diagnosed with depression, but this criterion was excluded from the fifth edition of the DSM manual, a choice that has been criticized for increasing the over-diagnosing and pathologization of normal life reactions (e.g., Frances, 2013; Wakefield, 2013, 2016; Paris, 2015).

What is considered to be the value of diagnoses of mental disorders for a clinician or sports psychologist might also be different from the perspective of a researcher, and researchers might vary depending on their philosophical orientation and the objectives of their research (Andersson and Ghaderi, 2006; Heckers, 2015). A diagnosis of a mental disorder may be explained as: (a) something real, biological, and independent of human beliefs, perceptions, or activities (realism; Kendler, 2016), (b) a concept that changes based on the present societal norms and ideas of what is regarded as normal and deviant, which may subsequently loop back to how people identify themselves through these concepts and the language used to describe themselves (e.g., Hacking, 1998, 2004; Brinkmann, 2005; Kendler, 2016; constructivism), and (c) a tool that helps the clinician to organize complex clinical observations, to ease communication between caregivers and to guide treatment as well as make predictions about progress and outcomes (pragmatism; Kendell and Jablensky, 2003; Kendler, 2016). Thus, the definitions of mental disorders and various diagnoses are far from being a unified set of concepts.

Mental Disorders and Sport Psychiatry

In the elite sport literature, a rapidly growing number of studies have chosen to adopt a sport psychiatry language to describe mental health. Thus, they have sought to investigate the prevalence among elite athletes of self-reported symptoms related to mental health disorders. Gouttebarge et al. (2019), for example, included 37 studies in their systematic review and meta-analysis, and reported the prevalence of current and former elite athletes' self-reported symptoms of alcohol misuse, distress, sleep disturbances, and anxiety/depression. Rice et al. (2019) identified a total of 61 studies eligible for a systematic review of elite athletes' anxiety symptoms and disorders. In general, studies have suggested that the prevalence levels of symptoms related to common mental health disorders are comparable with levels found in non-athlete populations (Gorczynski et al., 2017; Rice et al., 2019). Great variations in reported prevalence levels can nevertheless be found in research conducted to date, with a wide range of screening tools being used to estimate various mental health symptoms and disorders among elite athletes (e.g., Gouttebarge et al., 2019; Reardon et al., 2019; Rice et al., 2019). Golding et al. (2020), for example, found variations from 7 to 34% across studies investigating prevalence levels of depression among high-level elite athletes. These variations were at least partly explained by the studies' adoption of diverse depression assessments in the absence of clinical interviews to confirm a diagnosis of depression (Golding et al., 2020).

The definitions and assessments adopted by researchers are known to impact upon reported prevalence in populations (e.g., Migliavaca et al., 2020). For example, Schinnar et al. (1990) compared 17 definitions of mental disorders and found that estimates of the prevalence of severe mental illness ranged from 4 to 88%, contingent upon which definition was adopted in studies. Thus, the operationalization of mental health symptoms and disorders in studies, and how broad or narrow are the criteria used to determine whether symptoms constitute a health concern or not, will impact upon the prevalence levels reported in various athlete populations. Thus, the scientific choices when investigating symptoms and diagnoses of mental disorders among elite athletes provide room for variation and the scientific goals of researchers, the philosophical perspective on mental disorders adopted, and the choice of assessment should be visible and explained in all studies.

GENERAL DISCUSSION

Like other subdisciplines of psychology, the sport psychology literature has struggled to find consensus on a definition or a feasible approach to investigate mental health constructs among elite athletes. Various theoretical perspectives adopted by mental health researchers may also impose strengths and limitations in results obtained in studies. What is considered to be mental health or a lack of mental health will vary in studies depending on the definition, theoretical perspective, and assessment chosen by researchers.

The First Phase of Research on Mental Health Concerns in Elite Sports

Considering the increasing number of articles published in recent years, the view that elite athletes will be immune to mental health concerns seems to have been, until recently, a prevailing view among many researchers, practitioners, and sports organizations (Bär and Markser, 2013; Bauman, 2015). The current evidence base on elite athletes' mental health is dominated by the clinical and sports psychiatric perspective and to an increasing extent also a holistic or continuum perspectives (Schinke et al., 2017; Gouttebarge et al., 2019; Kuettel and Larsen, 2020; Stambulova et al., 2020; Rice et al., 2021). Several sport psychology organizations have responded to the mental health movement by producing consensus or position statements discussing mental health symptoms and disorders in the context of elite sports (Schinke et al., 2017; Moesch et al., 2018; Van Slingerland et al., 2018; Gorczynski et al., 2019; Reardon et al., 2019). Thus, great efforts have been made on research aiming to raise awareness that mental health concerns can also be present among elite athletes, enabling the question to be put on the sport political agenda. This first phase of research should be acknowledged for uncovering the reality that elite athletes are not superheroes but human beings, and therefore are not immune to mental health concerns. However, a shotgun approach has seemingly been adopted to collect data by the application of a wide range of general and clinically oriented screening instruments among widely distributed samples of elite athletes. From a scientific standpoint, and in terms of continued knowledge development, conclusions about elite athletes' mental health should not be running ahead of valid empirical data on the subject. Definitions of mental health, research orientations, and methodological quality should therefore be considered very carefully when evaluating and interpreting the results on elite athletes' mental health drawn from research conducted during this initial phase.

Toward a Second Phase of Mental Health Research in Elite Sports

A stress–mental health vulnerability hypothesis has been assumed in the sport psychology literature, implying that elite athletes who are exposed to a great number of distinct and elite sport-related stressors are more vulnerable to mental health concerns than non-athletes not exposed to these stressors (e.g., Arnold and Fletcher, 2012; Gorczynski et al., 2017). A direct relationship between exposure to elite sports stressors and mental health concerns is, however, challenged in available research, which indicates comparable levels of symptoms reported among elite athletes and non-athlete populations (e.g., Gulliver et al., 2015; Rice et al., 2016; Gorczynski et al., 2017; Gouttebarge et al., 2019). Research conducted in the general clinical psychological literature confirms that the relationship between stress and mental health disorders (e.g., depression) is highly complex, with several plausible biopsychosocial factors mediating the relationships (Hammen, 2015). In addition, psychological sciences emphasize the interplay between various biological, psychological, and socio-environmental variables, and their interplay, to a greater extent than the biomedical view of mental health. Thus, a dimensional rather than a categorical or diagnostic view may be preferable when searching for an understanding of what could be considered normal or abnormal behaviors (Wittchen et al., 2014; Rice et al., 2021).

Scholars have cautioned that the categorization and labeling of mental health into psychiatric diagnoses may pose a risk of an exaggerated individualization and pathologization of problems that may actually be related to social and structural elements in the person's life (Kvist Lindholm and Wickström, 2020). Thus, moving toward the second phase of research on mental health among elite athletes, mediating biopsychosocial factors (e.g., learning history through life, genetic vulnerability, sleep, nutrition, mental health literacy, coping repertoire, resilience, social support, environmental, and cultural factors within and outside elite sports) that might explain with greater precision the various relationships between stress exposure and mental health outcomes in the elite sports context need further investigation by empirical studies. A greater use of qualitative methods in mental health research would also enable a deepened understanding of the lived experiences of elite athletes together with a broader insight into various protective and risk-factors for mental health that elite athletes may perceive during their careers. Several theoretical perspectives on mental health (e.g., holistic perspectives, single or dual-continuum models) previously exemplified in this article focus to a greater extent on health promotion (salutogenesis) than illness and treatment (pathogenesis). Some empirical studies have also found elite athletes to report a better quality of life than normal populations both during and after their elite careers (Filbay et al., 2017, 2019; Bullock et al., 2020). Plausible explanations for these findings may be that the learning experiences and skills acquired through participation in elite sports build psychological resources (e.g., resilience, awareness of the body's capabilities, self-management skills) that act as protective factors in the long term (e.g., Bullock et al., 2020). The use of alternative theoretical approaches than the biomedical model may therefore provide alternative understandings of mental health expressions or outcomes and provide insights into useful support strategies for elite athletes (cf. Lundqvist, 2021). Contemporary scholars within this research field are increasingly also promoting the development of extended psychosocial support systems around athletes, focusing on a sustainable overall situation to help athletes maintain their mental health and to develop over time, including during challenging career phases (Stambulova et al., 2015, 2020; Wylleman and Rosier, 2016; Breslin et al.,

2019; Purcell et al., 2019; Lundqvist, 2020, 2021; Storm et al., 2021). Arguably, from both a mental health and performance perspective, there are benefits in proactively supporting high-level athletes to develop the psychosocial resources to remain functional with experienced quality of life both during and after their elite sporting careers. A majority of research has so far been conducted in Western countries, with Europe and Oceania prominent among these, and protective factors are still less studied (Kuettel and Larsen, 2020). Elite-sports systems and cultures may differ greatly across countries. Future researchers on this topic are therefore encouraged to expand the scope of nationalities and continents studied to increase the knowledge of cross-cultural differences and similarities in mental health expressions, needs, and the development of support systems around the world.

Summarizing Conclusions

Mental health is a highly complex construct and, based on the history from other research areas, it seems unlikely that consensus will be reached on a uniform definition to be used in elite sporting contexts. To establish an increased knowledge base with high scientific credibility over time, it thus becomes important to make explicit the underlying theoretical perspective adopted and the operationalization on which conclusions about elite athletes' mental health are based. Various theoretical perspectives and methodological approaches to mental health inflict strengths and limitations but also bring different views on mental health that may act to increase a more holistic understanding of how mental health among elite athletes can be promoted in their lived context.

AUTHOR CONTRIBUTIONS

CL initiated and wrote the manuscript. GA critically reviewed and revised the manuscript for intellectual content before submission. The authors discussed and agreed upon the main messages during the preparation of the paper. All authors contributed to the article and approved the submitted version.

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Thriving Through Relationships in Sport: The Role of the Parent–Athlete and Coach–Athlete Attachment Relationship

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The aim of this research was to examine whether attachment relationships to significant others, such as to parents and/or sports coaches, enable thriving and competition performance within sport. Two studies employing cross-sectional and prospective designs were carried out across different samples of athletes of varied skill levels and sports. In Study 1, we found athletes' attachment to their sports coach was significantly associated with athlete thriving and mediated by psychological needs satisfaction. Results of Study 2 found that athletes' secure attachment to their mother and/or father positively predicted the experience of thriving at the competition while athletes' insecure attachment did not predict thriving. Furthermore, athletes' attachment to both mother and father did not predict competition performance. Together, these two studies acknowledge the significant role that athletes' secure attachment relationships with parents and coaches play in facilitating thriving in athletes. These findings have significant implications for research and practice.

Keywords: attachment styles, competition, performance, well-being, parents, relationships, coaches

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INTRODUCTION

Sport performers encounter a variety of stressors, hassles, and adversities as part of their involvement in competitive sport, with responses to such demands having powerful effects not only on sporting performances but also on athletic well-being (Jones and Hardy, 1990; Arnold and Fletcher, 2021). Despite academic literature seeking to examine, understand, and promote *both* performance and well-being, recent media coverage indicates that an unrelenting need to succeed within the realms of elite sport can create detrimental and harmful environments where performance and results are given priority at the expense of athletic welfare (Grey-Thompson, 2017; Phelps et al., 2017; Brown et al., 2021b; Kavanagh et al., 2021). This focus also appears to be evident in youth sport, with reports illustrating concerning numbers of young people experiencing emotional harm or child abuse while taking part in sport (Hartill and Lang, 2018). Therefore, a pressing and important issue in contemporary sport is how performance can be enhanced while simultaneously optimizing well-being within highly demanding environments.

In support of the growing calls to protect athlete well-being in the pursuit of performance (Arnold and Fletcher, 2021) and the subsequent re-stating and development of welfare policies (Kavanagh et al., 2021), scholars have begun to pursue an agenda toward the promotion of thriving in sport (Brown et al., 2021b). *Thriving* describes the concurrent perception of a high-level of performance and experience of high levels of well-being within a specific sporting encounter (e.g., a match; Brown et al., 2020a) or an overall perception of high levels on both dimensions over a sustained period (e.g., a month; Brown et al., 2017b; see also, Brown et al., 2018). Given the subjective nature of perceptions and experiences, the occurrence of thriving is understood from the viewpoint of an individual evaluating one's own functioning (e.g., do I perceive that I performed at a high-level in today's match?). As such, the construct of thriving has been qualitatively explored via the lived experiences of individuals operating in sport (see, e.g., Brown and Arnold, 2019) and quantitatively identified via their self-reported accounts on performance and well-being dimensions (see, e.g., Brown et al., 2017b; McNeill et al., 2018). When researching thriving in sport, it has been important for scholars to recognize the full and holistic nature of thriving (see, Brown et al., 2017a; Ryan and Deci, 2017), whereby the participants would be expected to demonstrate high levels across multiple, context-relevant functioning indicators to be labeled as thriving (Brown et al., 2020b). Quantitatively, this has been evidenced through the work of Brown et al. (2017b) who conducted factor mixture analysis to determine the shape and level of functioning profiles with a sample of 535 sport performers. Their results demonstrated no shape effects with performers reporting comparable perceptions on subjective performance, eudaimonic well-being, and hedonic well-being measures, ranging from high (i.e., thriving) to low levels. When combined with the wider evidence from McNeill et al. (2018), Brown et al. (2020a), and Rouquette et al. (2021), these findings suggest that proxies for functioning can be modeled with a single, global factor (i.e., functioning/thriving).

Within the initial work on thriving, researchers have identified various psychosocial variables associated with its occurrence. Adopting the categorization offered by Brown et al. (2017a), these variables can be broadly categorized as personal (i.e., individual attitudes, cognitions, and behaviors) and contextual (i.e., environmental characteristics and social agents) enablers. Examples of personal enablers of thriving in sport have included desire and motivation, goal setting and creating challenge, positive mental state, self-belief, mental toughness, self-regulation, and personal resilient qualities (Brown et al., 2017b, 2018; Gucciardi et al., 2017; McNeill et al., 2018). Turning to contextual enablers, these have included the depth and sincerity of relationships and the support that can be provided by coaches, support staff, parents, and colleagues/teammates (Harris et al., 2012; Brown et al., 2017b; Gucciardi et al., 2017; Brown and Arnold, 2019). Further research is, however, required on the relationship between contextual enablers and thriving in sport, given that Brown et al. (2017b) contrastingly found that perceived social support, coach need support, and coach need thwart variables could not significantly predict sport performers' membership to a thriving profile.

One contextual enabler that is of particular interest in future enquiries is a sport performer's attachment to significant others, such as to their parents and/or coaches. Outside of sport, research has found that interpersonal relationships built on secure attachments can act as a contextual enabler for thriving across the lifespan (see, e.g., Haynes et al., 1984; Carver, 1998; Feeney and Collins, 2015a,b). Indeed, Feeney and Collins (2015a,b) present a model of thriving which, rooted in and providing advances to attachment theory (Bowlby, 1969/1982), positions relationships as central for enabling thriving through two life contexts. These are: successfully coping with adversity (by helping to strengthen *as well as* protect) and participating in opportunities for growth in the absence of adversity (with support providers serving as *active catalysts* for thriving). Given these empirical links found outside of the sports context and the aforementioned importance of promoting thriving in sport, it is critical that future research investigates attachment as a contextual enabler of athletic thriving.

The term "attachment" refers to an individual's ongoing emotional bond with a significant figure (usually the mother or a significant caregiver) upon whom s/he has learned to rely on for protection and care (Bowlby, 1969/1982). Differences in the ability of a child to signal the need and desire for closeness, as well as differences in a caregiver's responsiveness to the needs of their child, produce variations in what Ainsworth et al. (1978) labeled *attachment styles*. Alongside of which, a set of knowledge structures or internal working models (IWMs) are formed that are cumulative representations of the self (child) and of significant others (caregivers). Based on Bowlby's theories, Ainsworth et al. (1978) identified three styles of child attachment: secure, anxious ambivalent, and avoidant. When a parent demonstrates availability, is sensitive to signals of distress, and responsive when called upon for protection and/or comfort, a *secure* attachment style is developed. The IWM of a secure individual includes trust in the caregiver and confidence in the availability and provision of support should the individual encounter adverse or frightening situations. With this assurance, secure individuals are generally bold in their explorations of their environments as they are able to rely on themselves and others when needed; they are also comfortable with relational closeness. An anxious ambivalent attachment style is developed when a caregiver is inconsistent in their availability, reassurance, and providing protection and/or comfort (e.g., being available and supportive on some occasions and not on others). The IWM of an anxious individual includes uncertainty as to whether the caregiver will be available, responsive, or supportive when called upon. Due to this uncertainty, an anxious individual has a lack of trust in their caregiver, a fear of rejection, and a strong need for relational closeness (Cassidy, 1994). Lastly, when a caregiver constantly rejects a child when s/he approaches for comfort and/or protection, an avoidant attachment style is developed. The IWM of an avoidant individual includes negative self-evaluations and a lack of confidence that their caregiver will be accessible and responsive when called upon. On the contrary, they expect to be rejected and the importance

of caregiver availability is minimized and relational closeness is avoided (Cassidy, 1994).

Research on parent–child attachment has been conducted across a variety of domains (e.g., familial, social/friendships, education, sport; Zimmermann, 2004; Ramsdal et al., 2015) and at different phases of a lifespan (e.g., infancy, childhood, adolescence). A secure attachment is considered important for the development of positive social–emotional competence, cognitive functioning as well as good physical and mental health including well-being (Mónaco et al., 2019). In general, previous research has found those with insecure attachments to be more at risk from developing negative outcomes and ill health (Gillath et al., 2016).

In relation to the context of sport, studies that have focused on the parent–child attachment relationship have investigated links with engagement and motivation for physical activity, physical self-concept (Ullrich-French et al., 2011; Li et al., 2016) as well as the development of sporting friendships (Carr, 2009). Collectively these studies have demonstrated a strong positive link between mother and father secure attachment and motivation for physical activity as well as positive links to athletes' physical self-perception (Ullrich-French et al., 2011; Li et al., 2016). Furthermore, Carr (2009) found that attachment to parents played a significant role in influencing how sporting friendships were formed within the context of sport. On the contrary, across all studies, attachment insecurity was notably most detrimental to these outcomes. Notwithstanding these associations, parent–athlete attachment is yet to be shown to influence sport performance and no previous studies have examined the relationship with thriving in sport.

In addition to influencing child–parent relationships, once developed, IWMs act as a prototype and play an important role in shaping close relationships and can guide the formation of future attachments including those with leaders, teachers, friends, and sports coaches (Collins and Read, 1990; Bergin and Bergin, 2009; Mayseless, 2010; Davis and Jowett, 2014). That said, across these relationships a person's IWMs may undergo revision or be replaced when changes occur in parental caregiving (Egeland and Farber, 1984) or when a person has a corrective experience, such as the development of a supportive and sensitive relationship. Not all people interact in the same way and thus, it is possible to have working models and attachment styles that reflect the nuances connected with different relationships (Overall et al., 2003). For instance, individuals can hold a set of representations for relationships with parents, and another set of representations for their peers (Gillath et al., 2016).

In recent years, this framework has begun to examine contextual relationships in sport beyond the parent–child relationship including the coach–athlete relationship and sport friendships (Carr, 2009; Felton and Jowett, 2013; Davis and Jowett, 2014). With regard to the coach–athlete relationship, Davis and Jowett (2010) argue that coaches can take on a "stronger and wiser" role by providing support, advice, guidance, and comfort as well as encouraging exploration and risk-taking behaviors, similar to the role of parents. On this premise, Davis and Jowett (2010) found coaches to fulfil the basic functions of attachment (i.e., proximity maintenance, safe haven, secure base) essential for an attachment relationship to occur (Hazan and Shaver, 1994). Specifically, athletes reported turning to their coach during times of need, seeking a level of closeness with their coach, and relying on them to explore and discover aspects of their sporting environment. Based on this initial evidence, Jowett and colleagues investigated links between coach–athlete attachment and athlete's affective well-being (Felton and Jowett, 2013; Davis and Jowett, 2014), sport satisfaction (Davis and Jowett, 2010, relationship quality (Davis et al., 2013), and eating psychopathology (Shanmugam et al., 2011). Findings have indicated that avoidant and anxious attachment styles are negatively linked to relationship satisfaction, sport satisfaction (i.e., satisfaction with their training and instruction, personal treatment, and performance) and well-being including vitality, and positive affect. On the contrary, when athletes reported low levels of attachment anxiety and avoidance (i.e., a secure attachment) they reported high levels of well-being (Davis and Jowett, 2014), Furthermore, this relationship has found to be most significant when all three psychological needs (e.g., autonomy, competence and relatedness) are satisfied (Felton and Jowett, 2013). Although not yet associated directly with performance, these findings suggest that coach–athlete attachment may offer an important enabler of thriving.

Within both the thriving and attachment literatures, basic psychological need satisfaction has been shown to be a key variable of interest. To elaborate, within the thriving literature, satisfaction of basic psychological needs has been forwarded as a pre-requisite and proximal determinant of thriving (see Sheldon, 2009; Mahoney et al., 2014; Brown et al., 2017a; Ryan and Deci, 2017). Indeed, Ryan and Deci (2017) suggest that humans are thought to achieve full functioning (or thriving) through the satisfaction of the basic and universal psychological needs of autonomy, competence, and relatedness. With regard to sport-based evidence, basic psychological need satisfaction has been shown to be a reliable predictor of thriving across cross-sectional (Brown et al., 2017b), longitudinal (Brown et al., 2021a), and prospective (Brown et al., 2020a) studies. Turning to the relationship between attachment and basic psychological need satisfaction, Felton and Jowett (2013, 2017) have found that basic psychological need satisfaction mediates the relationship between coach–athlete attachment and parent–athlete attachment on athlete's well-being (vitality, positive and negative affect). Thus, when examining the possible relationship between attachment and thriving, it appears important that basic psychological need satisfaction is also considered as a potential mediating variable in this relationship.

The Present Study

The overarching aim of this paper was to add to the small body of emerging work on athlete thriving by examining "if" and "how" relationships to significant others, such as to parents and/or sports coaches enable (or hinder) thriving within sport. While research has attempted to examine both contextual enablers (attachment relationships) and process variables (basic psychological needs) on separate indicators of thriving (specifically, well-being), research has not yet examined such enablers of thriving as it has been conceptualized within sport

to include indicators of well-being and performance in tandem. Thus, this paper presents two studies. Study 1 aims to extend previous research by examining: (1) the relationship between coach–athlete attachment and thriving across a variety of sports and (2) the mediating effects of basic psychological need satisfaction on the relationship between coach–athlete attachment and thriving. In line with the aims of Study 1, the hypotheses are firstly, a secure coach–athlete attachment relationship will have a positive association with thriving, while an insecure avoidant and anxious coach–athlete attachment relationship will have a negative association with thriving. Secondly, we hypothesize that basic psychological needs satisfaction will mediate the associations between secure coach–athlete attachment and insecure (anxiety and avoidance) coach–athlete attachment and thriving.

Study 2 aims to provide a preliminary examination of the predictive effects of parental attachment (mother and father) on thriving and competition performance within the sport of gymnastics. Gymnasts are often placed in competitive environments that require them to cope with various psychological demands and pressures (e.g., expectations) at an early age (Mellalieu et al., 2009; Jacobs et al., 2017). As such, the anxiety and fear associated with gymnasts' competition may activate the need for parental security in order to buffer the negative effects associated with not being able to perform well in the sport (Feeney and Collins, 2015a). Additionally, by conducting the study in a specific sport and situating the experience of thriving within a competition, we could record objective performance via judges' scores. In so doing we were able to address a limitation of previous thriving literature pertaining to the need to consider the role of match/competition outcome with thriving (see, Brown et al., 2021a). Therefore, based on previous research, we first hypothesize that gymnasts' secure attachment with their mother and/or father will positively predict the experience of thriving at the competition and an insecure attachment with mother and/or father will negatively predict the experience of thriving at the competition. Secondly, we hypothesize that a gymnast's secure attachment with his/her mother and/or father will positively predict competition performance and an insecure attachment will negatively predict competition performance. Thirdly, we hypothesize that a gymnast's experience of thriving at the competition will be positively associated with competition performance.

STUDY 1

Method

Participants

The sample included 290 Swedish athletes (138 female and 152 male) ranging in age from 11 to 46 years old and with a mean age of 18.46 (SD_{Age} = 4.54). Participants were involved in a variety of individual and team sports (e.g., football, basketball, floorball, ice hockey, badminton, golf, and gymnastics) and represented their sports at various levels of performance including recreational (1.0%), club (2.1%), regional (64.1%), national (29.3%) and international (3.1%) levels (0.3% did not specify level). Furthermore, participants trained on average 9.2 h per week (*SD* = 6.00) and reported an average coach–athlete relationship length of 2.8 years (*SD* = 2.39).

Procedures

Ethical approval to conduct this study was granted by the Regionala Etikprövningsnämnden i Umeå. Upon ethical approval, sport organizations and sports clubs were contacted via phone and/or email using both purposeful and convenience sampling techniques with information regarding the study and to elicit their athletes' participation. A cross sectional, questionnaire-based design was employed. Upon consent, one of two methods for data collection was adopted. First, a date and time for the research team to visit the sports clubs closest to the first author were arranged. Upon meeting the participants at the beginning of a training session, the aims and objectives of the study were explained and written consent was obtained. The confidentiality and anonymity of the study were outlined, and participants were informed of their right to withdraw from the study by contacting the author and providing their unique code. A multi-section questionnaire was then distributed in paper and pencil format, and participants were reassured of the anonymity and confidentiality of their responses. Participants were asked to complete the questionnaire independently from their coach and peers, and members of the research team were on hand to supervise and respond to any queries. This process took approximately 20 min. For those athletes' who could not be contacted face to face, a second method of data collection that involved a web-based survey was utilized. Sport clubs and organizations were asked to distribute the web-based survey link they were sent by the research team to their athletes. The web-based survey explained the purpose, participants' ethical rights, as well as instructions on how to complete the questionnaire online. Upon consent, the multi-section questionnaire became available. Following completion, the participants' data were electronically sent to a secure database for analysis.

Measures

The following measures were used in the present study. All items were translated to the Swedish language using a parallel back translation process.

Coach–Athlete Attachment

The Coach–Athlete Attachment Scale (Davis and Jowett, 2013) contains 19 items designed to measure an athlete's secure and insecure attachment styles toward their principle sports coach. Specifically, five items measured athletes' secure attachment (e.g., "I know I can rely on my coach"), seven items measured athletes' insecure anxious attachment (e.g., "I worry that I won't fulfil my coaches' expectations"), and seven items measured athletes' insecure avoidant attachment (e.g., "I do not turn to my coach for reassurance"). Participants were asked to indicate the extent to which they agreed with each statement on a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*) in relation to how they felt toward their principle sports coach within the last month. Evidence for the validity and reliability of this

instrument has been provided by Davis et al. (2013) and Davis and Jowett (2014).

Basic Psychological Need Satisfaction

The 20-item Basic Need Satisfaction in Sport Scale (BNSSS; Ng et al., 2011) was utilized to measure athletes' basic psychological needs satisfaction. Specifically, 10 items measured athletes' autonomy satisfaction (e.g., "In my sport, I get opportunities to make choices"), five items measured competence satisfaction (e.g., "I am skilled at my sport"), and five items measured relatedness satisfaction (e.g., "In my sport, I feel close to other people"). Participants were asked to respond on a seven-point Likert scale (1 = *Not true at all*, 7 = *very true*) in relation to how they felt within the last month. Ng et al. (2011) provided support for the factor structure of the scale and its internal consistency. As in previous research (e.g., Jowett and Shanmugam, 2016), a composite approach (i.e., a global factor) was implemented for basic psychological need satisfaction, with average subscale scores for autonomy satisfaction, competence satisfaction, and relatedness satisfaction used as observed values for a latent need satisfaction variable. The Cronbach alpha values for the autonomy satisfaction, competence satisfaction, and relatedness satisfaction subscales were 0.87, 0.88, and 0.92, respectively.

Thriving

Participants were asked to provide evaluations of their subjective performance and well-being to assist in identifying sport performers who thrived (cf. Brown et al., 2017a). Taking subjective performance first, this was measured by asking participants to rate their satisfaction with personal sporting performance over the past month on an 11-point Likert scale ranging from 0 = *totally dissatisfied* to 10 = *totally satisfied* (Levy et al., 2011; Arnold et al., 2017; Brown et al., 2018). In line with Brown et al.'s (2018) conceptualization of thriving in sport as well as Ryan et al.'s (2013) recognition of differentiated approaches to understanding well-being, separate measures were used to assess hedonic and eudaimonic well-being. The indicator of hedonic well-being in this study was the positive affect scale from the Positive and Negative Affect Schedule Short Form (I-PANAS-SF; Thompson, 2007). Specifically, participants were asked to report the extent to which they experienced five emotional descriptors (viz., active, alert, attentive, determined, inspired) during their sporting encounters over the past month on a five-point Likert scale ranging from 1 = *never* to 5 = *always*. To indicate eudaimonic well-being, the Subjective Vitality Scale (SVS; Ryan and Frederick, 1997) was used, with participants reporting the extent to which they experienced aliveness and energy in their sporting encounters over the past month. Specifically, participants were asked to respond to four items from the SVS (e.g., "I felt alive and vital") on a six-point scale ranging from 1 = *not at all true* to 6 = *very true*. Subscale scores for positive affect and subjective vitality were used as observed values (alongside subjective performance) for a latent thriving variable. The Cronbach alpha values were 0.85 for the positive affect subscale and 0.93 for the subjective vitality subscale.

Data Analysis Plan

Analyses were conducted using SPSS 25 (IBM, 2017) and MPlus 8.4 (Muthén and Muthén, 2019). SPSS 25 was used to screen for the proportion of missing data, univariate and multivariate outliers, and to compute the subscale scores for autonomy satisfaction, competence satisfaction, relatedness satisfaction, subjective vitality, and positive affect. In addition, scores were computed for the components of attachment to report the level of attachment athletes felt toward their coaches. Mplus 8.4 was used to determine the fit of the measurement model, calculate descriptive statistics for and correlations between latent constructs, and to examine the mediation model using a structural equation modeing framework. All analyses in Mplus 8.4 were conducted using a maximum likelihood estimation with robust standard errors (MLR) to account for any non-normality within the data and any missing values (Muthén and Muthén, 2015); Mplus syntax for the analyses can be viewed in the Electronic Supplementary Resources.

The raw data set was initially screened for univariate outliers by comparing reported values to the minimum and maximum permissible scores for each of the scale items, with any inadmissible values replaced with a missing data value. Next, the proportion of missing data within the data set was assessed and cases with large amounts of missing data (>10%) were removed (cf. Hair et al., 2010). In instances where a case was missing data on a small number of items and data were deemed to be missing at random, the expectation–maximization algorithm was used to impute the missing values (cf. Tabachnick and Fidell, 2013). The item-level data were then averaged to create the respective subscale scores, with the subscale scores then used to identify any multivariate outliers; outliers were determined using the Mahalanobis distances with $p < 0.001$ (Tabachnick and Fidell, 2013). Following the completion of data screening, the subscale scores were considered as observable indictors of the latent factors for need satisfaction and thriving.

The measurement model was constructed with each of the latent variables allowed to freely correlate. The adequacy of the measurement model was determined via interpretation of model fit indices and parameter estimates (see Gunnell et al., 2016). Model fit indicies included the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) with values *close to or above* 0.90 interpreted as acceptable, and Standardized Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA) with values *close to or below* 0.08 considered as acceptable (see, Marsh et al., 2016). Parameter estimates were examined to determine whether items were behaving as had been intended with acceptable standardized factor loadings of above 0.30 and statistically significant ($p < 0.05$ and confidence intervals did not cross zero; Brown, 2006). On the occurrence of inadequate global model fit, modification indices were used to identify areas of possible ill fit (e.g., where a specific restriction on the model is related to global misfit) and then the researchers discussed any proposed modifications in the context of previous research and theoretical knowledge. The measurement model was also used to compute the mean and standard deviation values for each of the latent constructs and the correlations between them.

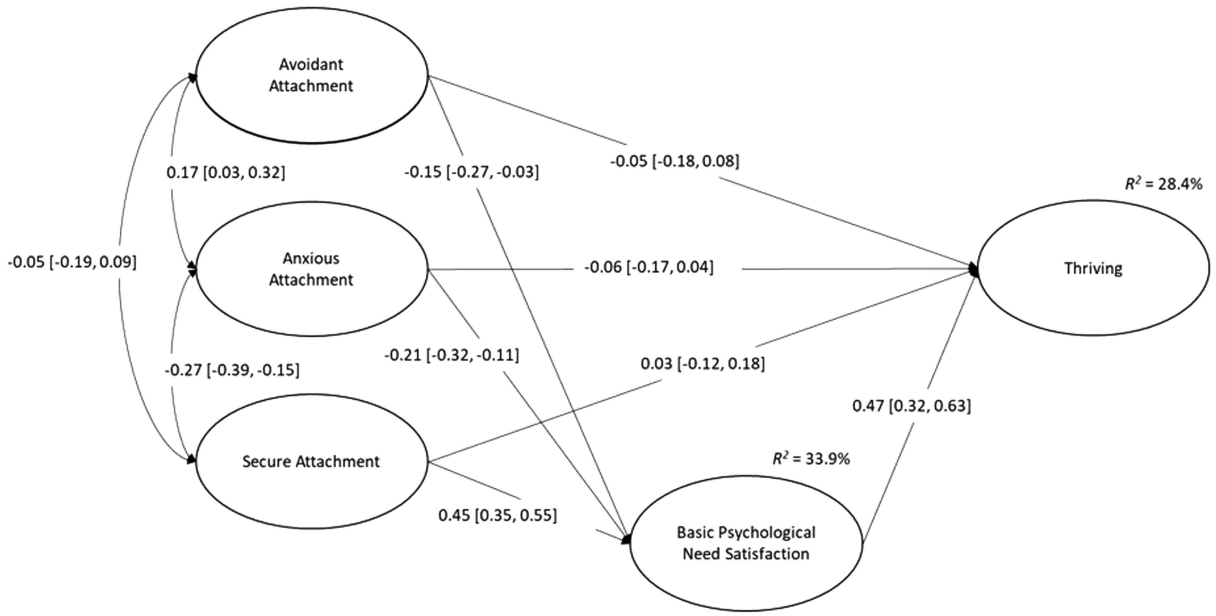

FIGURE 1 | Latent path model displaying the mediation model with attachment styles, basic psychological need satisfaction, and thriving. Standardized parameter estimates are displayed with the 95% confidence interval in parentheses.

To examine the potential mediating effect of need satisfaction on the relationships between the attachment styles and thriving, two latent path models were constructed. The first included the data for attachment styles and thriving, with thriving regressed on the styles to establish whether any direct, predictive paths existed (Model 1). Need satisfaction was then added in the second model, along with indirect paths for the predictive effect of attachment style on thriving via need satisfaction (see **Figure 1**; Model 2). The direct and indirect effects were interpreted using the unstandardized and standardized factor loadings, and statistical significance ($p < 0.05$ and confidence intervals did not cross zero). The statistical significance of the indirect effects was also interpreted using bias-corrected 95% confidence intervals[1] (MacKinnon et al., 2004).

RESULTS

Data Screening

Following data screening, four cases were removed from the data set for missing greater than 10% of data, and 17 multivariate outliers were excluded; no univariate outliers were identified. Therefore, the final sample size for the measurement model and mediation analysis was 269.

Measurement Model

The measurement model demonstrated acceptable fit based on CFI, TLI, RMSEA, and SRMR values ($\mathrm{MLR}\chi^2_{(265)} = 593.105$, $p < 000$; CFI = 0.916; TLI = 0.905; RMSEA [90% CI] = 0.068 [0.061,0.075]; SRMR = 0.074). All standardized loadings were above the recommended threshold of 0.300 and statistically significant. The descriptive statistics for, and correlations between, each of the latent variables are presented in **Table 1**.

Mediation Analysis

The results from Model 1 indicate that significant predictive relationships existed between anxious attachment and thriving ($\hat{\beta}_{\mathrm{ANX}} = -0.152$, $z = -2.126$, $p = 0.033$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{ANX}} = -0.155$), and between secure attachment and thriving ($\hat{\beta}_{\mathrm{SECUR}} = 0.192$, $z = 3.616$, $p < 0.001$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{SECUR}} = 0.252$); however, a non-significant prediction was found for avoidant attachment and thriving ($\hat{\beta}_{\mathrm{AVOID}} = -0.080$, $z = -1.366$, $p = 0.172$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{AVOID}} = -0.110$). When need satisfaction was added as a mediator in Model 2, the relationships between the five constructs were in the expected direction. However, the direct paths from the attachment styles to thriving were non-significant: avoidant attachment and thriving ($\hat{\beta}_{\mathrm{AVOID}} = -0.039$, $z = -0.794$, $p = 0.427$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{AVOID}} = -0.054$), anxious attachment and thriving ($\hat{\beta}_{\mathrm{ANX}} = -0.059$, $z = -1.091$, $p = 0.275$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{ANX}} = -0.061$), and secure attachment and thriving ($\hat{\beta}_{\mathrm{SECUR}} = 0.025$, $z = 0.447$, $p = 0.655$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{SECUR}} = 0.033$). Need satisfaction was a significant, positive predictor of thriving ($\hat{\beta}_{\mathrm{NS}} = 0.665$, $z = 4.047$, $p < 0.001$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{NS}} = 0.475$). The relationships between attachment styles and need satisfaction were significant and in the predicted direction: avoidant attachment and need satisfaction ($\hat{\beta}_{\mathrm{AVOID}} = -0.078$, $z = -2.410$, $p = 0.016$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{AVOID}} = -0.149$), anxious attachment and need satisfaction ($\hat{\beta}_{\mathrm{ANX}} = -0.150$, $z = -3.994$, $p < 0.011$, $\hat{\beta}^{\mathrm{standardized}}_{\mathrm{ANX}} = -0.215$), and secure attachment and need

[1]To generate these values, the latent path model was re-estimated using a maximum likelihood estimator.

TABLE 1 | Descriptive statistics and correlations for avoidant attachment, anxious attachment, secure attachment, need satisfaction, and thriving.

		1	2	3	4		
S. No.	**Variable**	***r* (95%CI)**	***r* (95%CI)**	***r* (95%CI)**	***r* (95%CI)**	***M***	***SD***
1.	Avoidant attachment	–				3.55	1.38
2.	Anxious attachment	0.171* [0.026, 0.317]	–			2.45	1.03
3.	Secure attachment	−0.050 [−0.194, 0.093]	−0.271*** [−0.389, −0.154]	–		4.96	1.32
4.	Need satisfaction	−0.208** [−0.341, −0.075]	−0.362*** [−0.459, −0.265]	0.513*** [0.420, 0.607]	–	4.32	0.72
5.	Thriving	−0.165* [−0.317, −0.013]	−0.251*** [−0.375, −0.127]	0.296*** [0.173, 0.419]	0.525*** [0.406, 0.645]	6.61	1.01

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

satisfaction ($\hat{\beta}_{SECUR}$ = 0.245, z = 6.710, p < 0.001, $\hat{\beta}^{standardized}_{SECUR}$ = 0.447). Significant, indirect effects were found for each of the attachment styles on thriving, with avoidant attachment (−0.052, p = 0.033, B-C 95% CI [−0.120, −0.013]) and anxious attachment (−0.100, p = 0.005, B-C 95% CI [−0.193, −0.044]) shown to have negative effects, and secure attachment to have a positive effect (0.163, p < 0.001, B-C 95% CI [0.094, 0.268]). As such, the results suggest that need satisfaction fully mediates the effects of attachment styles on thriving. However, the variance explained in need satisfaction (R^2 = 33.9%) and thriving (R^2 = 28.4%) suggests that unmeasured variables are likely to exist which also contribute to the prediction of these constructs. The final model is shown in **Figure 1**.

STUDY 2

Methods

Participants

A sample of 40 (female n = 34; male n = 6) Swedish gymnasts aged between 11 and 25 (Mage = 14.30, SD = 2.62) volunteered to take part in the study. The participants described competing across junior (5%), senior (12.5%), regional (67.5%), or 'other' (15%) levels, and trained on average for 11.28 h per week (SD = 4.37).

Procedure

A prospective design was employed for Study 2 using a purposeful sampling technique. Following approval from the Regionala Etikprövningsnämnden i Umeå, the Swedish Gymnastics Federation were contacted by email and telephone outlining the aims and objectives of the study and were asked to participate by providing contacts for and access to clubs across Sweden that they thought suitable for this project. Suggested gymnastic clubs were then contacted by email and/or telephone and a date and time for the first author to visit and discuss the project with coaches, athletes, and parents were arranged. Upon contact, the purpose and voluntary nature of the study were explained. Informed consent was obtained from participants willing to participate, and parental consent was obtained from those who were under the age of 18. Upon receiving informed and parental consent, an additional visit during a standard training session was arranged at least two weeks prior to an upcoming national competition, where participants were asked to complete a questionnaire containing demographic information and questions relating to their attachment relationship with their mother and father. Participants were asked to complete the questions independently from their parents and peers. To reduce potential problems associated with understanding and readability in the sample, participants were encouraged to ask questions to the research team present if they were unsure of the meaning of any items. At the time of their respective competitions, participants were required to complete measures of well-being 45 min before their performance and provide an indication of subjective performance within 30 min of competing. Each competition routine was video-recorded by a member of the research team.

Measures

Parental Attachment

Athletes' attachment relationship with their parents, including both mother and father, was measured with the Swedish version of the Inventory of Parent and Peer Attachment (IPPA; Armsden and Greenberg, 1987). The IPPA contains 25 items across three subscales that evaluates the degree of mutual trust (10 items; e.g., "my mother/father respects my feelings"), quality of communication (nine items, e.g., "I tell my mother/father about my problems and troubles") and prevalence of anger and alienation from mothers and fathers (six items; e.g., "I feel angry with my mother/father"). These questions are repeated for each attachment relationship (e.g., mother, father). Participants are asked to rate each item using a five-point Likert scale (1 = *almost never or never* to 5 = *almost always or always*) to indicate the degree to which the items are true. Secure attachment is indicated by a combination of trust and communication; therefore, a secure attachment score was derived from averaging trust and communication ratings. Insecure attachment is indicated by high ratings of alienation. Sound psychometric properties have been demonstrated within the initial validation of the IPPA scale and have since been used in an extensive number of studies including with sport samples (Li et al., 2016). Cronbach's alpha scores for mother secure and insecure attachment were 0.59 and 0.62 and for father secure and insecure attachment 0.65 and 0.50, respectively.

Thriving

Participants were asked to provide evaluations of their subjective performance and well-being to assist in identifying sport performers who thrived in the present study (Brown et al., 2017a). The scales for both subjective performance and well-being have

been described within the measures section of Study 1; however, the subjective performance measure was amended in this study to ask participants how they felt they performed during their routine, rather than over the past month. As such, the pre-routine well-being assessment provided a general indication of how participants were feeling when arriving at the competition (i.e., overall well-being over the past month) and the post-routine performance assessment offered a specific evaluation of the performance delivered during that competition. These ratings have been used together to provide a general indication of levels of thriving at the competition.

Competition Performance

Participants' competitive routines were video-recorded by the first author during a national competition selected by the participants' gymnastics club. In light of the fact that not every gymnast had competed at the same event, with the same set of judges, the gymnasts' routines were marked by a consistent panel of professional judges certified with the Swedish Gymnastics Federation and the International Gymnastics Federation (FIG). Specifically, in line with FIG's code of point's guidelines and scoring system, two male judges were selected to mark the male gymnasts' routines and two female judges were selected to mark the female gymnasts' routines. Marks were awarded for both execution on a scale between 0 (*did not perform*) to 10 (*perfect and faultless*) and for difficulty on a scale between 0 (*not difficult*) to 6 (*high difficulty*). Mean judge scores were calculated for each participant, which represented each participant's overall performance score. All judges were blind to the nature of the study and provided their scores independently of the other judges.

Data Analysis

Owing to the relatively small sample size, separate analyses were conducted to examine the effects of mother and father attachment. As with Study 1, SPSS 25 and Mplus 8.4 were used to conduct the data analysis, with the MLR estimator used to account for any non-normality and missing values within the data. Data were screened for cases with a high proportion of missing data (> 10%), univariate and multivariate outliers using the same criteria as Study 1. Prior to checking for multivariate outliers, averaged values were computed for mother/father trust, mother/father communication, mother/father alienation (i.e., insecure attachment), subjective vitality, and positive affect; values for trust and communication were then averaged to create a composite score for mother/father secure attachment. To derive a singular score for thriving, FScores were computed in Mplus from a measurement model including subjective performance, subjective vitality, and positive effect as indicators of a latent, thriving variable (see, Brown et al., 2020a). Manifest path models were then specified with competition performance and thriving regressed on mother/father secure attachment and mother/father insecure attachment. Regression paths were interpreted using the unstandardized and standardized factor loadings, and statistical significance ($p < 0.05$ and confidence intervals did not cross zero).

RESULTS

Data Screening

Six cases were removed from the mother attachment analysis due to high levels of missing data; no univariate or multivariate outliers were identified. The final sample size for this analysis was 34. Seven cases were removed from the father attachment analysis due to high levels of missing data; no univariate or multivariate outliers were identified. The final sample size for this analysis was 33.

Manifest Path Analysis

Descriptive statistics and correlations between variables for the mother attachment and father attachment analyses are displayed in **Table 2**. These results suggest that competition performance was not related to any of the other variables in either the mother or father attachment data sets. Path models were drawn to examine the predictive effects of mother/father secure and insecure attachments on thriving and objective performance (see **Figures 2, 3**). The results suggest that thriving was predicted by mother secure attachment ($\hat{\beta}_{MSECUR} = 1.501$, $z = 3.182$, $p = 0.001$, $\hat{\beta}^{standardized}_{MSECUR} = 0.466$), while controlling for the effect of mother insecure attachment. Mother insecure attachment did not predict thriving, and neither secure nor insecure attachment predicted competition performance. The path model for father attachment suggested that, when controlling for the effects of insecure attachment, secure attachment was a positive predictor of thriving ($\hat{\beta}_{FSECUR} = 1.415$, $z = 3.316$, $p = 0.001$, $\hat{\beta}^{standardized}_{FESCUR} = 0.532$). No other predictive paths were statistically significant. Readers are encouraged to interpret these results cautiously, given the large confidence intervals and associated standard errors.

DISCUSSION

The overarching aim of this paper was to contribute to the emerging research area of thriving in sport by examining "if" and "how" relationships with significant others, such as parents and/or sports coaches, enable (or hinder) athlete thriving. As such, this paper presents the findings from two studies. Study 1 aimed to: (1) examine the relationship between coach–athlete attachment and thriving across a variety of sports; and (2) examine the mediating effects of basic psychological need satisfaction on the relationship between coach–athlete attachment and thriving. Study 2 examined the predictive effects of parental attachment (mother and father) on thriving and in-competition performance within the sport of gymnastics.

Specifically, in Study 1 it was hypothesized (H1) that a secure coach–athlete attachment relationship would have a positive association with thriving, while an insecure (anxious and avoidance) coach–athlete attachment relationship would have a negative association with thriving. In line with these hypotheses, positive associations were found between athletes' secure attachment and thriving and a negative association between athletes' anxious attachment and thriving.

TABLE 2 | Descriptive statistics and correlations for secure attachment, insecure attachment, competition performance, and thriving.

		1	2	3	4		
S. No.	**Variable**	***r* (95%CI)**	***r* (95%CI)**	***r* (95%CI)**	***r* (95%CI)**	***M***	***SD***
	Mother attachment						
1.	Secure attachment	–				3.94	0.26
2.	Insecure attachment	−0.388** [−0.638, −0.138]	–			1.70	0.57
3.	Competition performance	−0.049 [−0.407, 0.310]	−0.047 [−0.377, 0.284]	–		7.69	2.84
4.	Thriving[a]	0.559*** [0.364, 0.754]	−0.422** [−0.714, −0.129]	0.176 [−0.173, 0.525]	–	0.00	0.83
	Father attachment						
1.	Secure attachment	–				3.90	0.30
2.	Insecure attachment	−0.483*** [−0.721, −0.246]	–			1.63	0.49
3.	Competition performance	0.100 [−0.260, 0.461]	−0.038 [−0.407, 0.330]	–		7.65	2.88
4.	Thriving[a]	0.643*** [0.434, 0.853]	−0.487** [−0.793, −0.181]	0.153 [−0.203, 0.510]	–	0.00	0.81

[a]*Subscales for thriving were standardized when computing the FScores, resulting in the mean value of 0.00.* $^{**}p < 0.01$; $^{***}p < 0.001$.

Contrary to our expectations, no significant associations were found for athletes' avoidant attachment and thriving. This suggests that athletes who perceive their coach–athlete relationship to be characterized by emotional closeness, trust, and support and possess positive IWMs of their coach (i.e., optimistic expectations, thoughts, and feelings) as well as themselves (i.e., positive self-image), were found to thrive. On the other hand, those athletes who perceived their relationship with their coach to be characterized by uncertainty and a fear of rejection do not thrive. Working models of attachment are central to social perception processes (Collins et al., 2006), which may explain why athletes with varying attachment styles experience differential outcomes associated with thriving, which is measured subjectively.

Working models of attachment are highly accessible cognitive–affective structures that shape how individuals construe their social experiences (Collins and Allard, 2001). For example, secure individuals have positive self-images and optimistic expectations of others, this allows them to remain positive about themselves and interpret their relational experiences and associated outcomes in relatively favorable ways (Collins et al., 2006). In consideration of the findings of the present study, the positive IWMs may provide the mechanism underlying athletes' positive subjective experiences of performance and well-being when participating in their sport. In contrast, insecure working models represent a cognitive vulnerability that predisposes individuals to perceive their relationship and associated outcomes less favorably (Collins et al., 2006). In the present study, athletes with an insecure anxious attachment to their coach may have also possessed negative IWMs that inhibit positive subjective experiences of performance, as well as well-being. As for the nonsignificant findings with avoidant attachment, this is in contrast to previous research in sport whereby an avoidant attachment style toward a sports coach was found to be linked with greater dysfunctionality and lower levels of well-being (Davis and Jowett, 2010, 2014).

Taken together, these findings point to the importance of identifying specific needs and goals of individuals with different attachment styles and exploring their role in shaping intra- and interpersonal experiences. As such, the second hypothesis of Study 1 (H2) proposed that basic psychological need satisfaction would mediate the association between coach–athlete attachment (i.e., secure, anxious, and avoidant) and thriving. In support of the hypothesis, findings from Study 1 provide initial evidence that avoidant and anxious coach–athlete attachment are associated with limited thriving via a perceived lack of need satisfaction. That is, athletes with an avoidant or anxious attachment style who perceive their needs (i.e., autonomy, competence, and relatedness) are not being satisfied are likely to experience a less thriving in their sport. On the contrary, the findings outline that a secure coach–athlete attachment is associated with thriving via greater perceived need satisfaction.

Overall, these findings appear to suggest that athletes can thrive when their coach is engaging in coaching behaviors that create an environment in which the athlete feels their needs are being satisfied (Mageau and Vallerand, 2003). This is of particular importance, especially for those athletes with an anxious or avoidant attachment style, as basic needs satisfaction may alleviate some levels of dysfunctionality and promote thriving. Further, previous research highlights that basic need satisfaction can mediate the relationship between an athletes' avoidant attachment to their coach and well-being (Felton and Jowett, 2013). The findings also lend support to the contention that basic psychological needs satisfaction is an underpinning process variable through which social-contextual factors (i.e., coaches) can impact thriving (Brown et al., 2017a).

The social factors examined in Study 2 centered on the role of parents, whereby it was first hypothesized that gymnasts' secure attachment toward their mother and/or father would positively predict the experience of thriving at a competition, while an insecure attachment toward a mother and/or father would negatively predict thriving. The findings partially supported our hypothesis, as thriving was predicted by mother and father secure attachment only; mother and father insecure attachment did not significantly predict thriving. Therefore, perceived security in the mother–child and father–child relationship emerges as being particularly important for athletes' optimal functioning and is reflected in athletes' subjective well-being (i.e., positive affect and subjective vitality) and performance. Moreover, these findings sit well alongside research

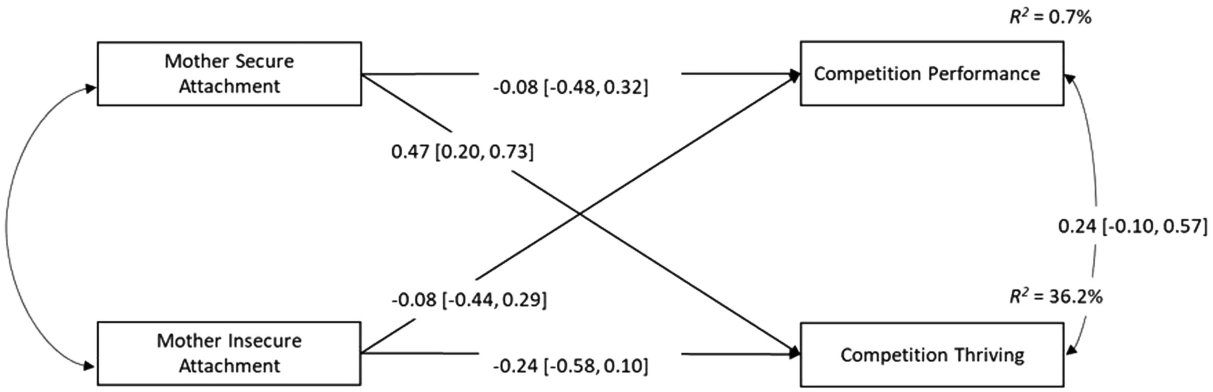

FIGURE 2 | Manifest path model displaying the relationships between mother secure attachment, mother insecure attachment, competition performance, and competition thriving. Standardized parameter estimates are displayed with the 95% confidence interval in parentheses.

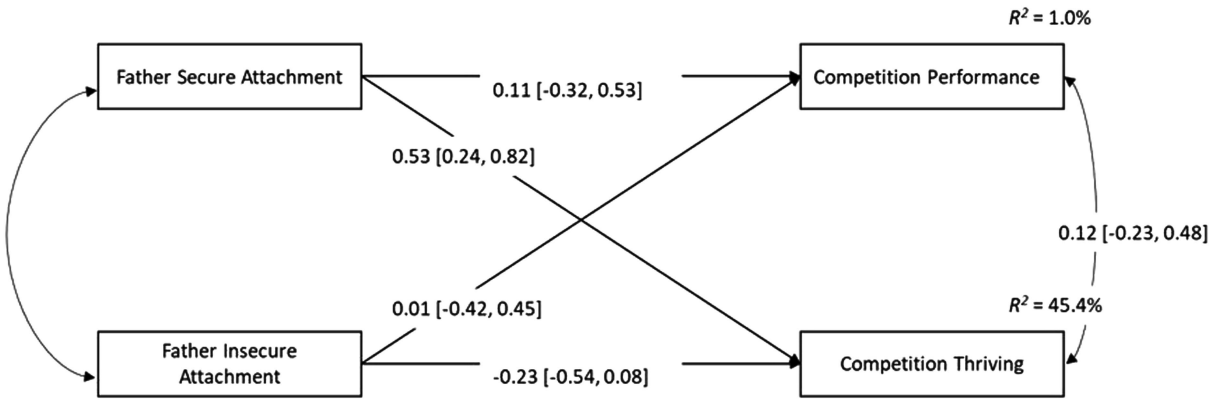

FIGURE 3 | Manifest path model displaying the relationships between father secure attachment, father insecure attachment, competition performance, and competition thriving. Standardized parameter estimates are displayed with the 95% confidence interval in parentheses.

highlighting that a secure attachment relationship to parents is associated with subjective and psychological well-being (e.g., happiness and growth; Felton and Jowett, 2013, 2017). It also extends research that has identified the significant role that parental attachment plays in sport by focusing on identifying athletes' attachment relationship to their mother and father independently of their global attachment representations. It is noteworthy, however, that the association between an athlete's insecure attachment to their mother and father and thriving was nonsignificant. A potential explanation of the finding may relate to the observations noted in Study 1 where other potential variables (e.g., basic psychological needs satisfaction) serve as mechanisms by which an athletes' insecure attachment to their mother or father is linked to thriving. That said, this conjecture warrants further investigation.

Finally, it was hypothesized that a gymnast's secure attachment with their mother and/or father would positively predict competition performance, while an insecure attachment would negatively predict competition performance. Our findings suggest that competition performance was not related to either mother or father attachment. One possible explanation for this could be that gymnasts' attachment to their parents was measured on a global level, rather than on a contextual level. Research indicates that individuals are capable of developing context specific attachment bonds with parents, especially when the context elicits parental belief systems in regard to their child's ability, success, and failures (Ames, 1992; Lai and Carr, 2018). In particular, within achievement contexts such as sport, parents may demonstrate maladaptive parenting practices. Specifically, parents have been observed offering either more or less affection, accessibility, and recognition, depending upon how the child performs and meets their expectations. This is known as parental conditional regard (PCR; Assor et al., 2014). Parents' subjective evaluation of their children's successes and failures has the potential to serve as influential "contextual cues" that shape children's IWMs, and therefore their attachment beliefs within a given context (Lai and Carr, 2018). As such, it is possible that within the present study gymnasts held contextual attachment representations toward their parents that were not evident through the measurement of attachment on a global level. This potential

explanation warrants further investigation in future research using more refined measurement techniques.

Taken collectively, the findings from both studies provide initial evidence that secure close attachment relationships in sport are fundamental to athletic thriving. Moreover, our findings align with Feeney and Collin's (2015a) conceptual suggestion that humans can thrive through secure (close, caring) relationships both during adversity (e.g., stress of competition) and in the absence of adversity (e.g., during training). Moreover, this is the first study that has attempted to explore athletes' attachment relationships as contextual enablers of thriving within the context of sport. Similarly, the present study is the first to extend the attachment research literature by examining the role of parental attachment in relation to athletes' objective performance in a competitive environment. Examining multiple relationships enables the development of a more comprehensive picture outlining how relationships with significant others both in general and within an intense competitive environment influence athletes' thriving.

Notwithstanding the studies' strengths, limitations are inevitable and should guide future research. The first limitation stems from the cross-sectional nature of Study 1, which introduces common method variance/bias and prevents inferences of causality. Although the research extends beyond a cross-sectional design in the prospective research design of Study 2, the nature of the observational data (i.e., limited control) precludes the investigation of cause and effect relationships. Further research is warranted to examine the model proposed within Study 1 from a longitudinal perspective, to determine the temporal precedence and causal nature of the proposed relationships. Although Study 1 provides initial information for the development of interventions aiming to enhance athletic thriving through the satisfaction of basic psychological needs, it remains unclear as to whether a specific need may be more important than another. Future research should consider examining the sub-domains of basic needs satisfaction separately as well as potential interactions of combined individual needs. Furthermore, in the present study, athletes' basic psychological needs were assessed in respect to sport in general. Future research could also consider assessing satisfaction of basic psychological needs with respect to the coach. In the present study, this would have complimented other measures (e.g., attachment relevant to the coach). Finally, in regard to Study 1, the sample was comprised of both individual and team sports, as well as a wide range of ages and levels of participation. This potentially creates issues with biased estimates and generalizability of the findings. To address potential limitations regarding heterogeneity of the sample, the subsequent study chose to focus on a sample of greater homogeneity.

Second, Study 2 examined the relationship between parent–child attachment and thriving within the context of gymnastics given the heightened experiences of stress experienced by these athletes. In doing so, we recognize that the findings may not be applicable to all youth sport contexts and encourage readers to reflect on the relevance of these findings to their sporting environments. Third, the reliability scores for secure and insecure attachment to mother and father did not quite meet the criteria (>0.7), although this may be relative to the sample size and the research design. Fourth, purpose of Study 2 was to provide preliminary data within a specific sport and situating the experience of thriving within a competition, where we could also record objective performance via judges' scores. In doing so we have made steps in addressing a limitation of previous thriving literature pertaining to the need to consider the role of match/competition outcome with thriving (see, Brown et al., 2021a). That said, to improve power in future work and to reduce the risk of false positive and false negative findings, we encourage researchers to consider additional sports beyond gymnastics, where access to larger groups of participants within a particular performance category and/or age groups is feasible.

Lastly, the relationship between coach–athlete attachment and thriving, as well as parent–child attachment and thriving, was examined separately; therefore, it was not possible to draw inferences regarding the hierarchy of these attachment relationships. To elaborate, while adolescents and adults maintain attachment bonds with multiple figures (e.g., parents, coaches, peers), they also have a consistent order of preference for whom they would seek out during times of need and/or stress (Bowlby, 1969/1982). Future research would benefit from measuring coach–athlete and parent–athlete relationships simultaneously while identifying an order of preference, particularly during an intense and potentially stressful environment, such as competition where the attachment system is likely to be activated (Ainsworth et al., 1978). Furthermore, by studying multiple relationships simultaneously, we can also identify if athletes' attachment styles toward their coach are relatively independent of the attachment style an athlete reports toward their parent(s). This is an important question, given that the adolescent and attachment research literature outlines critical arguments surrounding the stability of attachment across domains (Weiss, 1982; Zimmermann, 2004).

The findings presented in this study offer a number of important practical implications. First, the current study may guide the development of interventions that facilitate thriving by targeting coaches with the aim of systematically and deliberately implementing coaching strategies that address and satisfy athletes' basic psychological needs. This is especially important to help support athletes with an insecure anxious or avoidant attachment style. As such, it is possible that sport psychologists and organizations at a local level could work with coaches to create environments which are underpinned with greater autonomy supportive behaviors versus controlling behaviors. Coaches displaying controlling behaviors are likely to induce athletes' experience of feeling fearful, upset, nervous, and hostile; controlling behaviors have the potential to interrupt a secure attachment bond that is required for thriving to occur (Bartholomew et al., 2011; Felton and Jowett, 2015). Secondly, if coaches are able to satisfy their athletes' basic psychological needs through implementation of more autonomy supportive behaviors, it is possible that this could provide a buffer against neglectful parent–athlete relationships (insecure attachments) and support the athlete to thrive during adversity in the context of competition (Feeney and Collins, 2015a). The findings from the current studies highlight the potentially important role of the parent and

coach, in athlete thriving. Future interventions could aid the development of sport specific education programs that guide parent and coach behavior that also acknowledges the importance of positive relations (secure attachments), in which parents and coaches consistently communicate trust, reassurance, support, and acceptance (Feeney and Collins, 2015b). While an athlete with an insecure attachment may be difficult to coach due to their lack of connection (avoidant) or too much needed connection (anxious), attempting to deliberately enhance the athletes trust, respect, and commitment overtime may facilitate changes in their internal working models (IWMs) that allow the athlete to develop a positive relationship. Afterall, the aim of sport is also to provide equal opportunities, whereby all athletes' get the same quality of training (Jowett and Felton, 2014).

CONCLUSION

The two studies presented shed light on a relatively unexplored area of thriving in athletes by providing significant evidence on the role of attachment relationships to significant others (e.g., parents and/or sports coaches) in influencing thriving. Further, the role of basic psychological needs satisfaction in facilitating thriving, especially for those with an insecure anxious or avoidant attachment style, forwards an important consideration for coaches, parents, and practitioners. These findings can inform the development of interventions that optimize the contextual enablers of thriving within sport.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Regionala Etikprövningsnämnden i Umeå. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

LD designed Study 1 and Study 2, worked with HG on data recruitment, collected data and prepared the manuscript for publication. DB analysed the data for both Study 1 and Study 2 and together with LD prepared the manuscript for publication. RA worked together with LD and HG in designing Study 1 and Study 2 and contributed to the writing of the manuscript. HG worked together with LD and RA in designing Study 1 and Study 2. HG was also responsible for the Ethics application, translation of questionnaires and informed consent as well as data recruitment. All authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at https://www.frontiersin.org/articles/10.3389/fpsyg.2021.694599/full#supplementary-material

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Motivational Processes Influencing Mental Health Among Winter Sports Athletes in China

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This study examined the association between motivational processes, psychological distress (depression, anxiety, and stress), and burnout among winter sports athletes within the Hierarchical Model of Intrinsic and Extrinsic Motivation (HMIEM). A total of 685 winter sport athletes participated in this study (377 males, 308 females, age range 18–25 years), from three sport universities across nine winter sports. They completed five psychometric inventories related to motivational factors and mental disorders. Overall, a task-oriented climate showed a positive association with basic psychological needs, eliciting a positive pathway to autonomous and controlled motivation. In contrast, an ego-oriented climate showed a negative association with basic psychological needs, eliciting a negative pathway to amotivation. Autonomous and controlled motivation were negatively associated with symptoms of psychological distress and burnout, while amotivation was positively associated with symptoms of psychological distress and burnout. These findings highlight the complex relationships between various motivational factors and mental health disorders among winter sport athletes, and support the essential requirement for adding mental health factors to the outcomes of the HMIEM sequence.

Keywords: motivational processes, psychological distress, burnout, self-determination theory, modeling

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INTRODUCTION

Mental health is vital for athletes' overall health. Athletes are pressured to be physically superior and perform both in front of opponents and spectators alike. Over time, these athletes become more concerned about their strong physical appearance and athletic performance, and they tend to place less emphasis on, or even ignore their mental health needs. Furthermore, a previous study showed that serotonin levels, which are associated with happiness, in the body are markedly decreased while the chemical associated with mental health crises are increased during winter months (Gupta et al., 2013). This highlights the need to conduct a study on mental health among winter sports athletes, especially in view of the upcoming 2022 Winter Olympics that will be held in China.

In the present research, psychological distress was conceptualized as an overarching construct representing negative states that may affect athletes' mental health such as depression, anxiety, and stress (Reardon et al., 2019). In addition, three relevant factors of athlete burnout, which included exhaustion, sport devaluation, and reduced sense of personal accomplishment, were used to measure the level of burnout among winter sports athletes (Raedeke and Smith, 2001).

Longstanding evidence supports that motivation is an important predictor of mental health (Deci and Ryan, 2000). Furthermore, previous studies in sports were mainly focused on summer sports, such as golf, rugby, basketball, swimming, and football (Barcza-Renner et al., 2016; Schaefer et al., 2016; Sheehan et al., 2018; Vella et al., 2020). Unfortunately, there are not many studies available which have linked mental health to motivation in winter sports. Therefore, the main purpose of the current study was to examine winter sports athletes' psychological distress and burnout in the motivational processes within the Hierarchical Model of Intrinsic and Extrinsic Motivation (HMIEM) (Vallerand, 1997). This study provides practical applications for enhancing the motivation and mental health of winter sports athletes.

Theoretical Integration of SDT and HMIEM

The Self-Determination Theory (SDT) is a broad framework for the study of human motivation (Deci and Ryan, 2000). It is an important concept that refers to people's ability to make choices and manage their behavior, and this ability plays an important role in mental health. According to SDT, there are primary forms of motivation, intrinsic and extrinsic, which have a significant influence on how people act (Deci and Ryan, 2000). Extrinsic motivation is derived from external factors, while intrinsic motivation is derived from internal factors, and each type of motivation has a different effect on human behavior (Di Domenico and Ryan, 2017). Intrinsic motivation is the most self-determined modality in terms of satisfaction and enjoyment. For example, we are intrinsically motivated to participate in a given exercise because we are fond of it and get personal satisfaction from it.

Extrinsic motivation is considered to be a behavior that is driven by external incentives, such as grades, praise, fame, and other material rewards. This form of motivation is comprised of four types of regulation: integrated regulation is a form of extrinsic motivation which is the most autonomous, where people participate in an activity that is of personal importance to them and aligns to their personal values (e.g., a skier who continues training because that behavior aligns with his values system, even if he doesn't have an enjoyable feeling during the training.); identified regulation is a form of extrinsic motivation where individuals are free to choose unenjoyable behaviors in order to achieve meaningful results (e.g., a skater who recognizes that hard training is important for becoming a successful athlete.); introjected regulation is a form of extrinsic motivation where people engage in activities, because they feel they should in order to avoid feeling guilty or ashamed, or to maintain their sense of self-worth (e.g., a curling player who persist with his training because he fears a negative reaction from his peers if he does not behave like that.); and external regulation, the purest form of extrinsic motivation, where individuals perform behaviors in order to obtain a reward or avoid punishment (e.g., an ice hockey player who continues training hard in order to obtain praise or avoid punishment from his coach or team leader).

While extrinsic and intrinsic motivation are usually recognized as separate, the reasoning behind a given behavior is often complicated, and people are seldom driven to act by a single source of motivation. When people are in pursuit of a goal, they often draw on multiple types of motivation. For example, in the case of a person who is training to compete in skiing, they might be intrinsically motivated by the satisfaction achieved from the activity of skiing itself as well as extrinsically motivated by a desire to earn approval from coaches or parents. Overall, autonomous motivation incorporates intrinsic motivation, identified regulation, and integrated regulation, which come from internal and external resources for athletes who identify with a value of behavior and how it aligns with their self-worth. On the other hand, controlled motivation includes introjected and external regulations, which stem from external resources. Amotivation represents a lack of intention to participate in an activity, characterized by a lack of perceived ability or a failure to value the behavior and its results. At present, SDT is the most widely accepted theory in the motivation of competitive sport (Clancy et al., 2016), and is a highly appropriate conceptual framework from which to understand sport motivation.

HMIEM is an extension of the SDT, which posits that a thorough analysis of motivation outcomes (affect, cognition, and behavior) is needed in order to consider the whole motivational process (Vallerand, 1997). This model addresses the determinants and outcomes related to the different types of motivation at situational, contextual, and global levels. The most abstract level of the three levels is the global level, which considers an individual's personality or usual way of engaging in life activities in a typically intrinsic or extrinsic way. Following the global level is the contextual level, which is the least abstract level within the HMIEM model. It depicts specific life contexts, such as work, sport, and education. This level indicates the possibility that an individual may develop a different motivational orientation within the individual under different contexts. For example, an individual may learn history in a more internal way, but participate in sports with a greater emphasis on external motivation. Therefore, in order to make accurate predictions about motivations and consequences, it is vital to consider the type of activities people are engaged in. Finally, the most specific level is the situational level, which refers to the motivation of the individual in the specific moment. For instance, someone who is diligently training at skiing at 4 o'clock on Friday morning is operating with intrinsic motivation. This is the state of motivation that a person experiences when participating in an activity at a specific time (Vallerand and Lalande, 2011).

The HMIEM model is a powerful argument in favor of motivational processes that include four stages. In short, HMIEM includes the following motivational process sequence: Social Factors→ Basic Psychological Needs→ Motivation→ Consequences. The current research predominantly focuses on the above-mentioned motivational sequence at the contextual level because individual motivational behavior is included in this level in a particular life area, such as sport.

Determinants of Motivation in Sport

HMIEM takes into account social factors because they are assumed to have a profound effect on athletes' motivation. In this model, the social-environment factor is called the

motivational climate, and the framework of motivational climate is developed from the Achievement Goal Theory (AGT) (Ames, 1992). Regarding specific viewpoints of AGT, the motivational climate is affected by the teammates, coaches, leaders, or sport structures. Although many factors in the context of sport may have an influence on athletes 'motivation, such as scholarships or financial bonuses, the perception of coaching behavior is regarded as one of the most crucial factors within the sport motivational climate (Amorose, 2007). The AGT was used as a guiding framework and has been largely concerned with two different factors: task-oriented climate (also known as mastery orientation), and ego-oriented climate (also known as performance orientation) (Duda and Balaguer, 2007). In sport research, the AGT is the most widely used theory in the conceptualization of motivational climate (Lindahl et al., 2015). Perceptions of a task-oriented climate were connected with outcomes deemed to be more vigorous, such as hard training, increased competence, and skill improvement. In contrast, perceptions of an ego were related to less positive results and more maladaptive motivation, such as amotivation, training avoidance, and trait anxiety. Furthermore, previous research demonstrated that the task-oriented climate can develop the levels of satisfaction, enjoyment, and overall interests of athletes in participating in sports, whereas an ego-oriented climate tends to increase stress, tension, and performance anxiety (Harwood et al., 2015).

The concept of basic psychological needs is a crucial factor within the construct of HMIEM, as motivation is influenced by the motivational climate's impact on basic psychological needs (Vallerand, 1997). According to Ryan and Deci, there are three forms of basic psychological needs, which are innate rather than acquired human tendencies: autonomy, competence, and relatedness (Ryan and Deci, 2000). Autonomy represents the feeling that people need to feel that they are in control of their behavior. Competence refers to building their capability and improving their mastery over tasks that are crucial to them. Finally, relatedness indicates that people need to have a sense of connection and belonging with others (Deci and Ryan, 2008). Within a task-oriented climate, the coach likes to offer enough choices (autonomy support) to their athletes, trust in the abilities of their athletes (competence support), and takes their feeling into consideration (relatedness support). In contrast, within an ego-oriented climate, a coach's behavior does not support basic psychological needs because they often use pressure and control to influence the athlete's behavior (Harwood et al., 2015). According to Vallerand, these basic psychological needs are the critical link between social environment and human motivation in the HMIEM.

Motivational Outcomes

On the importance of motivation as a whole, much evidence has shown that motivational research is well-established across numerous domains, including education, business, medicine, and physical activity. As such, it has been demonstrated that it is important to find ways to boost motivation because it helps individuals to improve habits (Gardner and Rebar, 2019), be creative (Bhakti et al., 2018), boost engagement (Yun et al., 2020), and emphasize physical rehabilitation (Maclean et al., 2000). SDT claims that the more self-determined the motivation, the more favorable the results (Vallerand, 1997). In sports, self-determining motivation is linked to a series of results, such as dropout (Pelletier et al., 2001), effort (Pope and Wilson, 2012), engagement (Podlog et al., 2015), persistence (Rottensteiner et al., 2015), enjoyment (Russell et al., 2017), burnout (Fagundes et al., 2021), perceived performance (Almagro et al., 2020), and mental health (Sheehan et al., 2018). These studies supported that the direct or indirect relationships between motivation and mental health during physical exercise are of great importance, and this complex association continues to arouse the interest of researchers.

On the one hand, elite athletes experience various specific pressures during their individualized sporting competitions. However, they also need to contend with the training strategy of coaches and the relationships with their teammates. As a whole, sport participation alone cannot reduce the incidence of mental disorders when it comes to elite athletes. What is more serious and relevant to this current study is the fact that as an athlete's symptoms of mental disorders intensify, their performance may be affected, thus making them frightened and further exposed to additional signs and further symptoms of common mental disorders (Souter et al., 2018). It is worth noting that these mental disorders have been related to various elements of the HMIEM model, such as motivational climate were related to anxiety and fear of failure (Gómez-López et al., 2020), basic psychological needs were related to life satisfaction and burnout (Chen et al., 2015; Kent et al., 2018), and various types of motivation were related to anxiety, depression, mood disturbance, and sleep quality (Sheehan et al., 2018). Therefore, according to available research, studies demonstrate that mental health is capable of playing a part in the motivational process of HMIEM.

Motivational Processes and Mental Health

The research has shown that anxiety, depression, stress, and burnout still occur among athletes, and most stakeholders are interested in these mental symptoms because they affect the performance of athletes. Previous studies support that these mental disorders have been linked to various components of the HMIEM model. One of the recent studies reported that higher levels of anxiety were linked to an ego-oriented climate, while a task-oriented climate was related to lower levels of anxiety (Castro-Sánchez et al., 2019). The satisfaction of basic psychological needs is considered a mediator between motivational climate and motivation (Deci and Ryan, 2000). Notable, basic psychological needs have also been found to be a robust predictor of a variety of mental health indicators, including burnout components (Morano et al., 2020), depression (Cordeiro et al., 2016), anxiety (Haraldsen et al., 2020), and stress (Li et al., 2019). Furthermore, there has been previous evidence for an association between motivation and various types of mental health (Stenling et al., 2017; Sheehan et al., 2018), specifically when testing for depression or anxiety as part of the HMIEM. Overall, the HMIEM is a potentially useful model for comprehending the depression, anxiety, stress, and burnout of winter sport

athletes, as these mental disorders are directly associated with athletic performance. The present research focuses on the expansion of existing theories, and provides suggestions for maintaining mental health through motivational processes in sport.

THE PRESENT STUDY

The purpose of this present research was to test the motivational sequence of the four-stage in the realm of sport within the HMIEM. In particular, the objective of the current research was to adopt structural equation modeling to incorporate athletes' mental disorders into motivational processes within the HMIEM: motivational climate in sport→ basic psychological needs in sport→ sport motivation→ athletes' mental disorders. Our hypotheses are based on the HMIEM and related SDT literature, which are: (1) an ego-oriented climate would have a negative association with basic psychological needs; a task-oriented climate would have a positive association with basic psychological needs. (2) basic psychological needs would have a negative association with amotivation; basic psychological needs would have a positive association with autonomous motivation; basic psychological needs would have a positive association or have no association with controlled motivation. (3) amotivation would have a positive association with psychological distress and burnout; autonomous motivation would have a negative association with psychological distress and burnout; controlled motivation would have a positive association or have no association with psychological distress and burnout.

METHODS

Participants

A total of 685 college winter sports athletes (55% male, 45% female) participated in this study. **Table 1** showed their gender, age, and training characteristics. They came from three sport universities across 9 winter sports, including alpine skiing (N = 167, 24.4%), ice hockey (N = 152, 22.2%), speed skating (N = 122, 17.8%), curling (N = 85, 12.4%), figure skating (N = 78, 11.4%), snowboarding (N = 46, 6.7%), freestyling (N = 15, 2.2%), biathlon (N = 11, 1.6%), and cross-country skiing (N = 9, 1.3%). Participants ranged in age from 18 to 25 (M = 20.5, SD = 1.5), and 86.6% of them had more than 5 years of training experience. Of the athletes, 41.6% had a low competence level (national second-level), 46.4% had a medium competence level (national first-level), 9.0% had a high competence level (national master-level), and 3.0% had a top competence level (international master-level). Of the total, 58.8% were individual event athletes and 41.2% were team event athletes. 33.0% of participants trained for 2–3 sessions per week, and 33.6% of participants trained 4–5 sessions per week, while every participant engaged in training consisting of an average duration of 120 min/session.

Data Collection Procedure

After being granted approval from the Ethics Committee from the researchers' institution and obtained permission for conducting surveys from the respective universities in northeastern China, data collection phase commenced. The researchers approached participants' institutional leaders and team coaches first before handing out the survey questionnaires to the selected participants. Participants completed the pen-and-paper surveys in the absence of their coaches at their respective sporting club, aided by a research assistant. Prior to the distribution and completion of questionnaires, the researchers provided standardized written and verbal instructions to participants to enable them to better understand the meaning of the questions and manage their answering time. Participants answered five questionnaires, and took approximately 25 minutes to complete. Data distribution and collection took place from the middle to the end of the winter sports season.

Measures

Perceived Motivational Climate in Sport Questionnaire-2

Athletes completed a 33-item questionnaire designed to assess perceptions of their team was using the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2; Newton et al., 2000). The PMCSQ-2 assigns scores on the perceived task and ego-oriented climates, with the following stem (sample item: "on this team, the coach gets mad when a player makes a mistake"; "on this team, players feel good when they try their best"). This subscale was measured on a five-point Likert scale. Cronbach's alpha coefficients of the task-oriented (0.88) and ego-oriented climates (0.87) were acceptable for each (Newton et al., 2000). According to the meta-analysis by Harwood et al. (2015), the PMCSQ-2 is the most widely used measurement for the assessment of motivational climate.

Basic Need Satisfaction in Sport Scale

Athletes completed a 20-item scale, the Basic Need Satisfaction in Sport Scale (BNSSS; Ng et al., 2011), which is designed to assess perceptions of their competence, autonomy, and relatedness. This subscale asks athletes how the athletes feel when they are participating in sports (sample item: "in my sport, I feel I am pursuing goals that are my own") and it was measured on a seven-point Likert scale. Cronbach's alpha of the scale between 0.61 and 0.86 for the five subscales as considered reliable with range (Ng et al., 2011).

Sport Motivation Scale-2

Athletes completed the 18-item Sport Motivation Scale-2 (SMS-2; Pelletier et al., 2013) to assess motivation in line with the HMIEM model. The SMS-2 provides questions for athletes to answer concerning why they practice sports (sample item: "because it is very interesting to learn how I can improve"). This subscale was measured on a seven-point Likert. Cronbach's alpha of the scale between 0.73 and 0.86 was considered reliable with range (Pelletier et al., 2013). The SMS-2 subscales were considered a valid tool for sports motivation.

TABLE 1 | Gender, age and training characteristics of the sample of winter sports athletes analyzed in the study.

	Male (n = 377)	Female (n = 308)	Total (n = 685)
Age			
18–19	105 (27.9%)	88 (28.6%)	193 (28.2%)
20–21	158 (41.9%)	138 (44.8%)	296 (43.2%)
22–23	63 (16.7%)	59 (19.1%)	122 (17.8%)
24–25	51 (13.5%)	23 (7.5%)	74 (10.8%)
Training time			
<5 years	38 (10.1%)	54 (17.5%)	92 (13.4%)
5–7 years	169 (44.8%)	119 (38.6%)	288 (42.0%)
8–10 years	152 (40.3%)	104 (33.8%)	256 (37.4%)
>10 years	18 (4.8%)	31 (10.1%)	49 (7.2%)
Training volume (120 min per session)			
1 session/ week	73 (19.4%)	63 (20.5%)	136 (19.8%)
2–3 sessions/ week	119 (31.6%)	107 (34.7%)	226 (33.0%)
4–5 sessions/ week	125 (33.1%)	105 (34.1%)	230 (33.6%)
6 sessions/ week	60 (15.9%)	33 (10.7%)	93 (13.6%)
Sport modality			
Individual	232 (61.5%)	171 (56%)	403 (58.8%)
Team	145 (38.5%)	137 (44%)	282 (41.2%)
Level of competition			
National second-level	178 (47.2%)	107 (34.7%)	285 (41.6%)
National first-level	166 (44.0%)	152 (49.4%)	318 (46.4%)
National master-level	27 (7.2%)	35 (11.4%)	62 (9.0%)
International master-level	6 (1.6%)	14 (4.5%)	20 (3.0%)
Sport items			
Alpine skiing	93 (24.7%)	74 (24.0%)	167 (24.4%)
Ice hockey	102 (27.0%)	50 (16.2%)	152 (22.2%)
Speed skating	66 (17.5%)	56 (18.2%)	122 (17.8%)
Curling	32 (8.5%)	53 (17.2%)	85 (12.4%)
Figure skating	31 (8.2%)	47 (15.3%)	78 (11.4%)
Snowboard	29 (7.7%)	17 (5.5%)	46 (6.7%)
Freestyling	11 (2.9%)	4 (1.3%)	15 (2.2%)
Biathlon	7 (1.9%)	4 (1.3%)	11 (1.6%)
Cross-country skiing	6 (1.6%)	3 (1.0%)	9 (1.3%)

Depression, Anxiety and Stress Scale (DASS-21)

The Depression, Anxiety and Stress Scale—21 Items (DASS-21) is a series of three self-report scales designed to assess the emotional states of anxiety, depression, and stress (Lovibond and Lovibond, 1995). This subscale was measured on a four-point Likert scale. Cronbach's alpha values of 0.82, 0.83, and 0.80 for the subscales of stress, depression, and anxiety, respectively (Wang et al., 2016). DASS-21 shows good reliability and is widely used in mental health measurement.

Athlete Burnout Questionnaire

The Athlete Burnout Questionnaire (ABQ) is a 15-item questionnaire that presents three dimensions: emotional/physical exhaustion, reduced sense of accomplishment, and sport devaluation (Raedeke and Smith, 2001). This subscale asks athletes how they feel when they are participating in sport, with the following stem (sample item: "I feel extremely tired from the sport participation") and was measured on a five-point Likert scale. Cronbach's alpha of the scale of 0.92, 0.86, and 0.92 for the three dimensions were considered reliable with range (Raedeke and Smith, 2001).

Translation Procedures

Due to the fact that the majority of the measures in the survey were originally developed in English, the questionnaires were translated and validated in Chinese before the data were collected. Although the PMCSQ-2 (Cai, 2016), BNSSS (Ng, 2008), SMS-2 (Li et al., 2016), DASS-21 (Gong et al., 2010), and ABQ (Chen and Zhou, 2007) had already been translated and validated in Chinese speaking samples, we included them in the translation process. Translation and back-translation of five questionnaires have been done by two academic language experts who are fluent in both English and Chinese. To verify the validity of scales, the Chinese version of the questionnaires were submitted to three experts, and modifications were made on the basis of feedback obtained from them.

Data Analysis

To analyze the research data, SPSS Statistics 26.0 and Amos 26.0 were used in this research, and descriptive statistics were used to summarize the athletes' scores of lists. The correlation coefficients of Pearson were used to measure the relationships between variables: 0.50 is large, 0.30 is moderate, and 0.10 is small (Cohen, 1988). To examine internal consistency,

Cronbach's alpha coefficients were calculated, and the acceptable cut-off score was determined to be 0.70 (Nunnally, 1978). Finally, structural equation modeling was used to evaluate and specify a conceptual model (**Figure 1**) describing the four-stage integrated sequence within HMIEM. CFI and TLI values >0.90 and 0.95 are usually considered to indicate reasonable and excellent fit, while RMSEA and SRMR values <0.08 indicate the boundaries of acceptable fit (Hu and Bentler, 1999). AMOS was used to complete all SEM analyses in this investigation. In further testing the SEM, we used a standardized regression coefficient to quantify the association between variables and interpreted results according to effect size criteria: 0.50 is large, 0.30 is moderate, and 0.10 is small (Cohen, 1992).

RESULTS

Preliminary Analysis

The result shows that 31% of subjects suffered from varying degrees of psychological distress. On average, the college winter sports athletes had low depressive, anxiety, and stress symptoms. When categorized as specific symptoms, 21.0% had mild to moderate depressive symptoms (23.6% males, 17.9% females), 6.0% had severe depressive symptoms (5.8% males, 5.8% females), 9.1% had mild to moderate anxiety disorders (10.1% males, 7.8% females), 6.9% had severe anxiety disorders (8.0% males, 5.5% females), 10% had mild to moderate stress disorder (9.0% males, 11.4% females), and 5.0% had severe stress disorder (5.0% males, 4.9% females). Additionally, 15.9 % had moderate to severe burnout symptoms (18.0% males, 13.3% females).

Descriptive Statistics and Correlations

The means and standard deviations of the variables in this study are shown in **Table 2**. The motivational climates were measured by the Perceived Motivational Climate in Sport Questionnaire, with the task-oriented climate in sport presenting the highest mean (M = 4.35), whereas the lowest mean referred to the ego-oriented climate in sport (M = 2.93). Basic Need Satisfaction in Sport Scale was used to measure the basic psychological needs, with relatedness presenting the highest mean (M = 5.71), competence presenting the second highest mean (M = 5.47), and autonomy presenting the lowest mean (M = 5.11). Additionally, we used the Sport Motivation Scale to measure motivation, with controlled motivation (M = 3.25) and amotivation (M = 2.55) presenting with a lower mean than autonomous motivation (M = 5.56).

It can also be observed in **Table 2** that most of the Pearson correlations between factors had statistically significant values. The strongest relationship was observed between autonomy and competence (β = 0.76, P < 0.01), and the weakest relationship

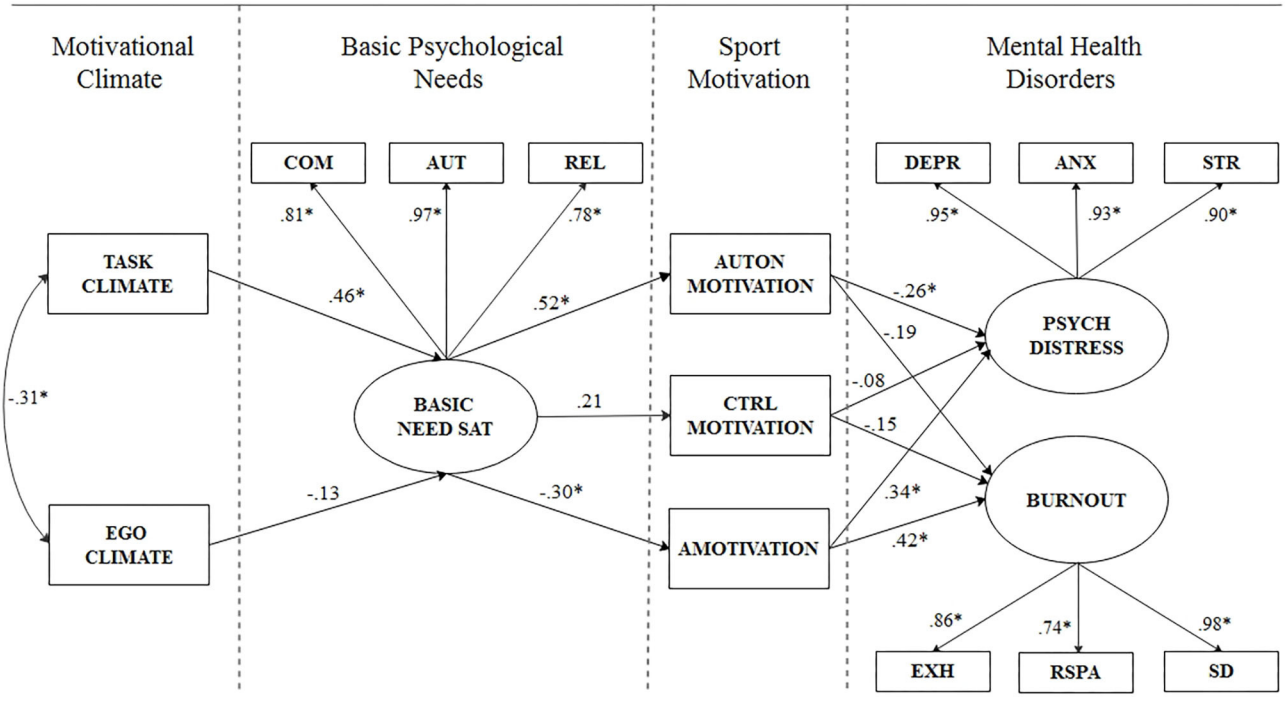

FIGURE 1 | Standardized path coefficients from the SDT structural models. BASIC NEED SAT, basic needs satisfication; PSYCH DISTRESS, psychological distress; COM, competence; AUT, autonomy; REL, relatedness; AUTON, autonomous; CTRL, controlled; DEPR, depression; ANX, anxiety; STR, stress; EXH, exhaustion; RSPA, reduce sense of personal accomplishment; SD, sport devaluation.

TABLE 2 | Descriptive statistics and bivariate correlations between study variables.

			Correlations among scales												
Variables	**M**	**SD**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Task climate	4.35	0.76	–													
Ego Climate	2.93	1.05	**−0.31**	–												
Competence	5.47	1.34	**0.48**	**−0.26**	–											
Autonomy	5.11	1.29	**0.50**	**−0.27**	**0.76**	–										
Relatedness	5.71	1.29	**0.47**	**−0.20**	**0.61**	**0.64**	–									
Autonomous Motivation	5.56	1.34	**0.50**	**−0.32**	**0.29**	**0.34**	**0.27**	–								
Controlled Motivation	3.25	1.25	**0.11**	0.04	**0.16**	0.09	**0.17**	**0.28**	–							
Amotivation	2.55	1.74	**−0.34**	**0.38**	**−0.13**	**−0.19**	**−0.15**	**−0.46**	**0.35**	–						
Depression	0.99	1.24	**−0.43**	**0.35**	**−0.25**	**−0.30**	**−0.23**	**−0.49**	−0.02	**0.53**	–					
Anxiety	0.81	1.10	**−0.32**	**0.25**	**−0.22**	**−0.29**	**−0.22**	**−0.35**	−0.03	**0.37**	**0.74**	**–**				
Stress	0.88	1.25	**−0.33**	**0.24**	**−0.17**	**−0.21**	**−0.18**	**−0.38**	−0.05	**0.36**	**0.70**	**0.74**	**–**			
Exhaustion	1.81	0.84	**−0.31**	**0.23**	−0.09	**−1.35**	−0.08	**−0.27**	−0.03	**0.35**	**0.45**	**0.39**	**0.43**	–		
RSPA	2.43	0.84	**−0.24**	**0.24**	**−0.13**	−0.05	−0.06	**−0.34**	**−0.13**	**0.32**	**0.32**	**0.17**	**0.29**	**0.53**	–	
Sport Devaluation	1.92	0.96	**−0.34**	**0.30**	**−0.19**	**−0.22**	**−0.17**	**−0.40**	−0.09	**0.45**	**0.53**	**0.41**	**0.47**	**0.66**	**0.57**	–

RSPA, Reduced Sense of Personal Accomplishment; Correlations significant at $p < 0.05$ have been bolded.

was observed between controlled motivation and task-oriented climate ($\beta = 0.11$, $P < 0.05$).

Reliability of the Scales

Cronbach's alpha coefficient for the SMS-2 subscales ranged from 0.81 to 0.96, autonomous motivation (a = 0.92), controlled motivation (a = 0.81), and amotivation (a = 0.86); task-oriented climate (a = 0.96) and ego-oriented climate (a = 0.93); competence (a = 0.93), autonomy (a = 0.89), and relatedness (a = 0.85); depression (a = 0.84), anxiety (a = 0.85), stress (a = 0.85), and burnout (a = 0.85), with all values above the threshold of 0.70.

SEM Model

In conjunction with the formulate hypotheses, a model was specified with basic needs satisfaction, psychological distress, and burnout as three latent variables, and five manifest variables, including task-oriented climate, ego-oriented climate, autonomous motivation, controlled motivation, and amotivation. The SDT-based model including mental disorders outcomes showed acceptable fit to the data (**Figure 1**): $\chi 2 = 239$ ($p < 0.001$), df = 66, CFI = 0.92, TLI = 0.89, RMSEA = 0.07, 90% confidence interval [0.05, 0.09], SRMR = 0.04.

Hypothesis 1

A task-oriented climate had a moderate to large positive association ($\beta = 0.46$) with basic psychological needs, and an ego-oriented climate had a small negative association ($\beta = -0.13$) with basic psychological needs.

Hypothesis 2

Basic psychological needs had a large positive association ($\beta = 0.52$) with autonomous motivation, a small to moderate positive association ($\beta = 0.21$) with controlled motivation, and a moderate negative association ($\beta = -0.30$) with a motivation.

Hypothesis 3

Autonomous motivation had a small to moderate negative association ($\beta = -0.26$) with psychological distress, and a small negative association ($\beta = -0.19$) with burnout. Controlled motivation had a small negative association with psychological distress ($\beta = -0.08$) and burnout ($\beta = -0.15$). Amotivation had a moderate positive association ($\beta = 0.34$) with psychological distress and a moderate to large positive association ($\beta = 0.42$) with burnout.

DISCUSSION

The objective of the present study was to evaluate a sequence of motivational processes originally proposed by Vallerand and extending previous motivational research. Specifically, the main purpose of the current research was to test a model with hypothesized associations between motivational climate, basic psychological needs, sport motivation, psychological distress, and burnout among Chinese winter sport athletes within the HMIEM model. Overall, the athletes reported high level (above the midpoint) of task-oriented climate, basic need satisfaction, and autonomous motivation, and low level (below the midpoint) of psychological distress and burnout. The findings of this research showed that depression, anxiety, stress, and burnout can be components of the motivational sequence in HMIEM. It is reasonable to conclude that athletes' motivational processes play an important role in mental health maintenance. This study reveals the relationship between three original factors in HMIEM and mental disorders variables, filling a gap in Chinese research in this area by investigating Chinese winter sports athletes. Importantly, there are not many studies on motivation and mental health of winter sports athletes, and this research may have significant implications for improving their overall motivation and mental health.

Motivational Climate and Basic Psychological Needs

The outcomes of this research provided substantial support for the proposed model. With respect to the first part of the hypothesized sequence, the outcomes indicated college winter sports athletes' perceptions of a task-oriented climate to be positively related to their basic need satisfaction of the needs concerning competence, autonomy, and relatedness. The observed positive association between task-oriented climate and basic psychological needs is consonant with previous research (Reinboth and Duda, 2006). In particular, a coach who creates a task-oriented climate will instill beliefs in athletes, respect athletes' autonomy, and maintain a good relationship with athletes, which leads to the satisfaction of basic needs. On the contrary, an ego-oriented climate had a negative association with basic need satisfaction, as similarly indicated in a previous study (García-González et al., 2019), Clearly, when college winter sport athletes train in an atmosphere that emphasizes intra-team competition, comparing themselves to each other and recognizing only the most capable athletes, it is likely to reduce the sense of belonging and intimacy among team members. Given these findings, this means that an ego-oriented climate on a team may not be appropriate for college winter sport athletes who need to be encouraged, appreciated, and accepted by those whose views are particularly important. However, this result differs from the findings of Reinboth and Duda (2006), who found that the ego-oriented climate was not associated with the basic need satisfaction of competence and autonomy. The differences in the findings may be due to the different respondents. High level athletes were more confident than average athletes, and they may be able to get more autonomy from their coach. As such, when they are engaging in a more ego-oriented climate, this would not be expected to have a negative effect, or possibly even no impact, on basic psychological needs. It can be understood that the level of perceived ability may play a moderating role in the relationship between ego-oriented climate and basic psychological needs.

Basic Psychological Needs and Motivation

In the second part of this study, based on the sequence assumed in the Vallerand (2007), the expected interaction between the satisfaction of basic psychological needs and more self-determined reasons for participation were verified, and the results showed that the basic psychological needs

were significantly and positively associated with autonomous motivation. This finding is in line with previous research revealing that basic psychological needs are important predictors of autonomous motivation (e.g., Hollembeak and Amorose, 2005). Secondly, the positive effect of basic psychological needs on controlled motivation was relatively modest by comparison. According to the developers of SDT (Deci and Ryan, 2008), all three basic needs have a positive impact on autonomous motivation, with only competence and relatedness have a positive effect on controlled motivation, while autonomy does not. As such, this may be the reason why the basic psychological needs have a greater positive effect on autonomous motivation than on controlled motivation, while others have reported a negative relationship between basic psychological needs and controlled motivation (Bartholomew et al., 2018). Finally, it is unsurprising that the observed negative association between basic psychological needs and amotivation may be reflecting discouragement, helplessness, and disengagement, as this finding is consonant with previous research (Haerens et al., 2015; Jang et al., 2016; Bartholomew et al., 2018).

Motivation and Mental Health Disorders

In the third part of this study, the findings show that both autonomous and controlled motivation were negatively associated with psychological distress and burnout, which is somewhat different from previous studies. There is no denying that considerable research in sport that demonstrates a strong positive association between autonomous motivation and some positive outcomes, such as effort, persistence, good performance, and high level of psychological well-being (Vallerand, 2007). On the other hand, much evidence supports that controlled motivation had a positive association with mental disorders, such as burnout (Jowett et al., 2013) as well as mood disturbance and anxiety (Sheehan et al., 2018). In the present study, this was not the case among the athletes, as controlled incentives, had a negative association with mental disorders. Although autonomous incentives seem to be more positively associated with mental health in sport, no doubt, this does not mean that we should abandon external rewards. Controlled motivation is a good performer in its own right. When used properly, it can still have a positive effect on mental health.

Furthermore, winter sports have their own special characteristics. For college athletes, not only it is generally colder and the days are shorter, but the dual-pressure of athletic competitions and academic exams by this time of the year without much rest. It is not uncommon for college winter sport athletes to wake up when it is dark, then go to training, only to not return back home until it is dark again. These factors may be contributing to the lack of motivation for college athletes to train. With these in mind, for winter sports athletes, controlled incentives are as important as autonomous incentives when it comes to boosting motivation. It is possible that the Chinese college winter sports athletes were conditioned by controlled motivation for a long period of time. When they have become accustomed to this way and have achieved good competitive results or satisfaction with training performance, this approach may have a positive impact on mental health. Therefore, a negative relationship between controlled motivation and mental health disorders was found in this research, and it is worth noting that the satisfaction of competition performance or training performance may act as a mediating variable between controlled motivation and mental health.

Finally, it is unsurprising that the observed positive relationship between amotivation and mental health disorders is consistent with the main principle of SDT (Deci and Ryan, 2008). According to the developers of HMIEM (Vallerand, 1997), psychological maladjustment may occur when athletes lack intentionality about their act. On the other hand, lack of motivation or diminished drive to complete goal-directed activities is a common and concerning characteristic in people with mental disorders (Remington et al., 2016). In a similar study, amotivation was found to be associated with burnout in a survey of NCAA Division 1 swimmers (Barcza-Renner et al., 2016). In conclusion, most of the relationships between motivational processes and the outcomes of mental disorders in present study were consistent with previous studies and theories.

Practical Implications

This is a study examining the association between motivational processes, psychological distress (depression, anxiety, and stress), and burnout among winter sports athletes in HMIEM. Therefore, it has made an important contribution to the study of motivation and mental disorders, revealing how motivational processes influence mental health, particularly where winter sports athletes are concerned. In addition, these findings have also provided overall support for the association between motivation and mental disorders and expanded the sequence of the HMIEM. For athletes, mental health is as important as competitive performance, and this research on motivational processes plays an important role in the study of athletes' mental health, both on and off the playing field. Based on these findings, it is essential to consider the various factors in motivational processes of athletes when their mental health status changes.

In this study, mental disorders were found to be positively associated with amotivation and negatively associated with autonomous and controlled motivation, while the negative association between controlled motivation and mental disorders was different from previous studies, perhaps related to the motivational characteristics of winter sports athletes and the behavior of their coaches. It is worth noting that given the relationship between motivational sequences and mental disorders in the HMIEM, the coaching style may have a positive impact on enhancing athletes' motivation and psychological well-being in regard to training and competition. In addition, the findings of this study could make a theoretical contribution to the psychological monitoring and treatment of college and professional sports teams as a whole.

Limitations

There are several limitations of this research. The first limitation was the location and the structure of the sample. The specific location and sample of the research may limit the generalization of the research results. Therefore, the results of this study may depend on the characteristics of college winter sports athletes

in China and may not be generalized to others. The second limitation was the research method. This study was limited by the cross-sectional design through which causal effects could not be determined. Specifically, the current study captured the preferred factors of motivation and mental health for specific groups in a certain period of time. Therefore, a longitudinal study is necessary for future research. The final limitation is the use of correlation. Correlation is a research method that shows the relationship between variables and is not as strict as experimental design (Creswell and Creswell, 2017). Especially for research on athletes' mental health, self-report measures may be biased. Considering causality may require further research, future studies can be supplemented with other methods, such as interviews and experiments.

CONCLUSION

To the author's best knowledge, this is the first study to examining the depression, anxiety, stress, and burnout of winter sports athletes within HMIEM, thus providing novel practical implications and addressing a gap in the literature. The sequence in this model shows the associations between motivational factors of HMIEM and mental disorders. Therefore, this research expands earlier investigations in sports psychology. More specifically, a task-oriented climate showed a positive association with basic psychological needs, whereas an ego-oriented climate was negatively associated with basic psychological needs. Basic psychological needs showed a positive association with autonomous and controlled motivation, while there was a negative association with amotivation. Psychological distress and burnout were negatively associated with autonomous and controlled motivation, while being positively associated with amotivation. Autonomous motivation has a greater effect on mental disorders than controlled motivation, while amotivation has the greatest effect. In conclusion, this study shows a relationship between various motivational factors, psychological distress, and burnout among winter sport athletes and provides substantial support for adding mental health factors to the outcomes of the HMIEM sequence.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of Malaya. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

XW: conceptualization, formal analysis, data curation, and writing-original draft preparation. XW, NZ, and RA: methodology, validation, resources, writing-review and editing, and project administration. NZ and RA: supervision. All authors have read and agreed to the published version of the manuscript.

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The Acceptability and Appropriateness of a Collaborative, Sport-Centered Mental Health Service Delivery Model for Competitive, and High-Performance Athletes

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The purpose of this study was to evaluate the acceptability and appropriateness of a sport-centered, collaborative mental health service delivery model implemented within the Canadian Center for Mental Health and Sport (CCMHS) over a period of 16 months. The study is situated within a larger Participatory Action Research (PAR) project to design, implement and evaluate the CCMHS. Primary data were collected from CCMHS practitioners (n = 10) and service-users (n = 6) through semi-structured interviews, as well as from CCMHS stakeholders (n = 13) during a project meeting, captured *via* meeting minutes. Secondary data derived from documents (e.g., clinical, policy, procedural; n = 48) created by the CCMHS team (i.e., practitioners, stakeholders, board of directors) during the Implementation Phase of the project were reviewed and analyzed to triangulate the primary data. The Framework Method was used to organize, integrate and interpret the dataset. Overall, results indicate that both practitioners and service-users found the model to be both acceptable and appropriate. In particular, practitioners' knowledge and experience working in sport, a robust intake process carried out by a centralized Care Coordinator, and the ease and flexibility afforded by virtual care delivery significantly contributed to positive perceptions of the model. Some challenges associated with interprofessional collaboration and mental health care costs were highlighted and perceived as potentially hindering the model's acceptability and appropriateness.

Keywords: sports psychology, mental health care, acceptability, appropriateness, sport

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INTRODUCTION

In September 2017, a group of stakeholders from the sport and mental health domains, including the two authors, commenced a Participatory Action Research (PAR) project to design, implement and evaluate a novel sport-focused mental health service delivery model applied within a national center that became the "Canadian Center for Mental Health and Sport" (CCMHS; Van Slingerland et al., 2019). Stakeholders critically examined the Canadian sport and mental healthcare landscapes to identify strengths and gaps, finding a dearth of opportunities for competitive and

high-performance athletes to access acceptable, and appropriate mental health care informed by a sport lens (Van Slingerland et al., 2019). This finding was in line with an accruing body of evidence demonstrating the value and need to provide sport-informed mental health services and resources to address the unique needs and demands of the athletic population (Henriksen et al., 2019, 2020; Reardon et al., 2019). In response, the group designed a specialized collaborative, sport-centered mental health service delivery model (Van Slingerland et al., 2020a) and implemented it over a period of 16 months as part of a larger three-phase research project (i.e., Design Phase, Implementation Phase, Evaluation Phase; Van Slingerland et al., 2019). This study is linked to the Evaluation Phase of the project and its purpose was to evaluate the acceptability and appropriateness of the mental health service delivery model implemented within the CCMHS during the implementation phase based on service-user and practitioner perspectives, as well as CCMHS documentation.

TABLE 1 | Components of acceptability within healthcare interventions (Sekhon et al., 2017).

Component	Definition
Affective attitude	How one feels about the care process
Burden	The perceived amount of effort required to participate in the care process
Ethicality	The extent to which care has a good fit with one's value system
Intervention coherence	The extent to which one understands the care process and how it is designed to work
Opportunity cost	The extent to which benefits, profits, or values must be given up to engage in the care process
Perceived effectiveness	The extent to which care is perceived to have achieved its purpose
Self-efficacy	The level of confidence one has to perform the behaviors required to participate in the care process

ACCEPTABILITY AND APPROPRIATENESS

Within the context of health care, the constructs of acceptability and appropriateness provide valuable insight into the quality of services provided. According to the World Health Organization (2021), quality health care is safe, effective, patient-centered, timely, efficient, and equitable, and results in more benefit than harm to patients. More specific to mental health, high quality mental health care services provide "accepted and relevant [syn. appropriate] clinical and non-clinical care aimed at reducing the impact of the disorder and improving the quality of life of people with mental disorders" (World Health Organization, 2003, p. 2). Thus, the quality of mental health service delivery is underpinned by notions of what is *acceptable* and *appropriate* care according to recipients and providers.

Acceptability is "a multifaceted construct that reflects the extent to which people delivering or receiving a healthcare intervention consider it to be appropriate, based on anticipated or experiential cognitive and emotional responses to the intervention" (Sekhon et al., 2017, p. 95). According to Sekhon et al. (2017), seven components inform service-user and provider assessments of acceptability: (a) affective attitude, (b) burden, (c) ethicality, (d) intervention coherence, (e) opportunity costs, (f) perceived effectiveness, and (g) self-efficacy. Definitions of each component are provided in **Table 1**.

The acceptability of an intervention for service-users and providers is a key indicator of both the effectiveness and the success of implementation of healthcare services (Diepeveen et al., 2013). When service-users consider the care they receive to be acceptable, they are more likely to adhere to treatment protocols and benefit from improved clinical outcomes (Hommel et al., 2013). Regarding success, when practitioners deem a health care model or protocol to be acceptable, they are more likely to deliver it as it was designed (Proctor et al., 2009).

Appropriateness is another construct shedding light on the quality of healthcare interventions. According to the Canadian Medical Association (2015), appropriate care is "the right care, provided by the right providers, to the right patient, in the right place, at the right time, resulting in optimal quality care" (p. 2). Appropriateness has also been described as the perceived fit or relevance of a healthcare intervention in a particular context for a particular target audience (Peters et al., 2013). In the context of the current study, appropriateness was employed to reflect the fit or relevance of the collaborative, sport-centered mental health service delivery model implemented within the CCMHS for competitive and high-performance athletes.

The constructs of acceptability and appropriateness were put forward to the stakeholder group by the first author during the design phase of the larger PAR project mentioned above. The stakeholder group approved the use of these constructs to guide the evaluation phase of the research.

THE CCMHS SERVICE DELIVERY MODEL

Health service delivery models or frameworks are sets of abstract concepts that, together, create a vision to guide health care practice (Alligood, 2002; Fawcett and Desanto-Madeya, 2013). Models vary across disciplines and according to clinical contexts. The CCMHS service delivery model was designed by 20 stakeholders through a collaborative process that translated stakeholders' thoughts and the relationships between these thoughts into an objective, visual representation using Group Concept Mapping (see Kane and Trochim, 2007; Van Slingerland et al., 2020a; GCM). The GCM exercise was informed by focus group discussions in which stakeholders critically examined the Canadian sport and mental health care systems to evaluate the availability and effectiveness of mental health care for competitive and high-performance athletes (Van Slingerland et al., 2019, 2020a). Stakeholders concluded that a number of factors (e.g., lack of practitioners with dual competencies in sport and mental health, stigma, perceived lack of trust and confidentiality, inadequate funding, unclear eligibility criteria, and intake/referral processes, geographical constraints) contributed to low help-seeking and access to care among Canadian athletes.

The GCM exercise resulted in the generation of 106 unique statements describing what elements ought to be included in a sport-specific mental health service delivery model and team operating in the Canadian context. Statements were organized into a six-cluster solution (i.e., Service Delivery, Business, Policy and Operations, Communications and Promotion, Education and Training, Partnerships, and Research) that provided a framework to develop the service delivery model and CCMHS (Van Slingerland et al., 2020a). The *Service Delivery* cluster included 41 statements that informed stakeholders' conceptualization of the CCMHS service delivery model (e.g., "practitioners in the CCMHS should have dual competencies in clinical psychology *and* sport," "establish standardized eligibility criteria to access services within CCMHS and a referral plan for those who don't meet the criteria"). Additionally, the *Business, Policy, and Operations* cluster ($n = 20$ statements), outlined foundational infrastructures (e.g., legal, administrative, technological) required to establish and operate the CCMHS and included 11 statements that directly influenced the development of the model (e.g., "use an electronic health records system," "retain clinic manager and other human resources as necessary"). The remaining clusters provided guidance to further develop the Center itself, and to support service provision.

Following the GCM exercise, the stakeholders formed working groups based on their expertise to further delineate the service delivery model, addressing statements associated with defining service-user eligibility criteria, identifying an electronic health records (EHR) system, establishing a physical location for the CCMHS, and developing a payment structure for service-users. The project leads (i.e., two manuscript authors), in collaboration with the established board of directors, addressed the other statements that did not fall within the scope of the aforementioned working groups, such as incorporating the CCMHS as a not-for-profit organization, creating a website, outlining characteristics of the service delivery model, developing the intake and referral process, establishing a hiring process, and securing a team of mental health care practitioners (Van Slingerland et al., 2020a). At the completion of the implementation phase of the three-phase project, 81% ($n = 86$) of the 106 statements resulting from the GCM exercise were fulfilled, including 83% ($n = 34$) of the 41 statements in the *Service Delivery* cluster and 90% ($n = 18$) of the 20 statements in the *Business, Policy and Operations* cluster. The remaining statements (e.g., "create educational program and standards to train specialists to have competencies in both sport and mental health," "create alumni program that engages recovered athletes in peer-to peer-mentoring") will be addressed in the future.

Following are key characteristics of the CCMHS service delivery model emerging from the Design and Implementation Phases of the research project that are of particular relevance for the current study focused on evaluating the acceptability and appropriateness of the model (i.e., Evaluation Phase). Should readers be interested in better understanding the process of care provision (e.g., intake, referral, care provision, outcomes), they are invited to consult Van Slingerland et al. (2020b) and Durand-Bush and Van Slingerland (2021).

Sport-Centered Care

The availability for Canadian athletes to receive care from mental health providers with expertise in sport remains limited (Van Slingerland et al., 2019, 2020a). This is a significant gap because evidence suggests that there are unique interactions between sport, mental health, and mental illness necessitating specialized expertise (Reardon and Factor, 2010; Reardon et al., 2019; Henriksen et al., 2020). For example, competitive and high-performance sport can uniquely compromise athletes' mental health (e.g., disturbed sleep due to travel schedules, overtraining and burnout; Meeusen et al., 2013; Drew et al., 2018) and trigger or exacerbate mental illness (e.g., due to concussion, cessation of sport due to injury, maltreatment, pressure to conform to body norms; Neal et al., 2013; Reardon et al., 2019). Moreover, correct diagnosis of mental illness can be compromised by sport (e.g., adaptive eating for an endurance athlete may present as an eating disorder to a clinician who does not have sport experience), and traditional treatment modalities (e.g., psychopharmacological interventions) may have adverse effects on performance (e.g., due to ataxia or weight gain), or be a banned substance under World Anti-Doping Association regulations (Reardon and Factor, 2010; Reardon et al., 2019).

Research has shown that athletes may greatly benefit from working with mental health practitioners who understand the competitive sport context (Gavrilova and Donohue, 2018; Moesch et al., 2018; Jewett et al., 2020; Van Slingerland et al., 2020b). For example, Jewett et al. (2020) found that high-performance athletes who perceived their mental health challenges to be inextricably linked to their sport experience (e.g., sport was a significant stressor, trauma was sustained in sport, symptoms impaired performance), also expressed the need for a mental health practitioner who understood the intricacies of sport. This mounting body of evidence was the impetus for developing a 'sport-centered' service delivery model including practitioners with knowledge and experience working in sport. This knowledge and experience were deemed essential to tailor therapeutic approaches to meet sport-specific demands and concerns such as competitive pressure, year-round training, injuries, transitions, peak and recovery periods, diet restrictions, team culture, traveling schedule, and anti-doping regulations (Reardon et al., 2019; Van Slingerland et al., 2019). To this end, job postings to hire practitioners for the CCMHS care team were explicit in asking about applicants' knowledge and competencies in sport. For example, postings denoted that experience in sport (e.g., as an athlete, coach) or working with athletes or other high-performing populations (e.g., physicians, military, lawyers) was an asset, and applicants were invited to complete an appendix outlining the nature of their sport experience (e.g., work with individuals and teams, skills employed).

Collaborative Care

In the current Canadian context, there are several types of professionals educated and trained to provide services in the areas of mental health, mental illness, and mental performance (Van Slingerland et al., 2019). As such, multiple professions were targeted in the CCMHS service delivery model to provide mental health care in competitive and high-performance sport contexts. At the time of the implementation phase, CCMHS

practitioners included clinical and registered psychologists, counselors, psychotherapists, mental performance consultants, a family physician, and a psychiatrist (Van Slingerland et al., 2020a). Collectively, these team members complemented each other's scope of practice and had the competencies to diagnose, treat, and prevent mental illness, manage and improve mental health, and address sport performance-related concerns with individuals, teams, and families. The CCMHS Care Coordinator played a central role within the model by completing intake assessments, assigning clients to care teams, serving as a neutral touch-point for clients, assisting practitioners in applying CCMHS policies and procedures, and managing data to support ongoing research and evidence-based practice (Van Slingerland et al., 2020b).

A standard feature of CCMHS care included the assignment of a *lead* and a *support* practitioner to each client's care team (Van Slingerland et al., 2020b). The rationale for this practice was to offer varied approaches and areas of specialization to guide care planning and decision-making, ensure availability in the event of a crisis, accommodate for different time zones and provincial restrictions to care provision, distribute workload and emotional burden, and encourage peer-to-peer learning and professional development (Durand-Bush and Van Slingerland, 2021). This interprofessional approach necessitates collaboration on the part of CCMHS practitioners. Collaboration is central to integrated, patient-centered care delivered by multidisciplinary health teams who apply their complementary expertise, knowledge, and skills to positively impact care outcomes (Sicotte et al., 2002; Nancarrow et al., 2013). Collaborative approaches to service delivery are also commonly applied in sport settings in order to optimize athletes' physical health and mental and athletic performance (Reid et al., 2004). Interprofessional collaboration requires (a) shared values, ethics, consciousness, and vision, (b) clearly defined roles and responsibilities fostering interaction and interdependence, and (c) consistent and coordinated processes and communication to facilitate teamwork (Enderby, 2002; Interprofessional Education Collaborative, 2016).

The collaborative aspect of the CCMHS service delivery model was critical in overcoming the siloed decision-making that can be characteristic of health services offered within the sport and general healthcare systems (Tinetti et al., 2016; Ekstrand et al., 2019). CCMHS policies and procedures that were created and adapted based on ongoing feedback facilitated collaboration, communication, and shared decision-making amongst CCMHS practitioners. These pertained to eligibility criteria, consent to access services, referrals, intake assessments, a web-based EHR system, a virtual care platform, session and team consult notes, and regular team meetings, to give some examples. The amount of collaboration between the practitioners assigned to a care team ranged on a continuum from independent parallel practice to interdependent co-provision of care (Jones and Way, 2006), depending on factors such as symptom severity and complexity as well as practitioners' availability, personal characteristics, and geographic location.

Nationwide Service Provision

Pan-Canadian service provision was another important feature of the CCMHS model. Athletes are located all over Canada and they often travel across the country and abroad for both competition and training purposes. They must also relocate at times to work with different coaches and teams. As such, identifying a network of practitioners able to consistently and reliably provide inclusive and equitable services across provinces and territories in Canada was a priority in the development of the model. This was also deemed important to overcome interjurisdictional restrictions to the practice of psychology. This wide "network" approach has been adopted by high-performance sport systems around the world to service national team athletes (e.g., Moesch et al., 2018; Australian Institute of Sport, 2021; English Institute of Sport, 2021).

Virtual and In-Person Care

Given the increase in popularity and availability of virtual mental health care services (Palylyk-Colwell and Argáez, 2018; Van Slingerland et al., 2020b) as well as the sheer size of Canada, the CCMHS model encompassed both in-person and virtual care options, enabling Canadian athletes to obtain services in a cost-effective, timely, and convenient manner, particularly when traveling. To this end, a secure and legally compliant[1] videoconferencing software was purchased, and training was provided to practitioners prior to the implementation phase to provide safe and confidential services. While this modality is an ideal solution to meet face-to-face with athletes who are unable to attend in person, it requires an acceptable internet connection, technological literacy, and a living space that provides privacy. It may not be suitable for clients with severe mental illness (Madigan et al., 2020; Van Slingerland et al., 2020b).

In sum, collaborative models of care have been applied for decades to integrate mental health supports into primary care settings (Eghaneyan et al., 2014). Likewise, collaborative practice is commonly applied in sport settings as a strategy to provide integrated support to optimize athletes' physical health and performance (Reid et al., 2004). Until the current research was undertaken, a collaborative model to address the mental health needs of competitive and high-performance athletes had yet to be empirically designed, implemented and evaluated. Furthermore, a model centered on sport to increase the appropriateness and acceptability of care (Gavrilova and Donohue, 2018; Van Slingerland et al., 2019; Jewett et al., 2020) did not exist in the literature. The CCMHS sport-centered, collaborative service delivery model guiding nationwide in-person and virtual mental health care represents a first-of-its kind in the world. Assessing the acceptability and appropriateness of this novel model is thus imperative and was the purpose of the current study.

METHODOLOGY

Participatory Action Research

This study, one of three in a larger multi-phase project, was guided by a PAR framework. PAR is an approach to inquiry that mixes elements of participatory research (Chevalier and Buckles, 2013) and action research (Costello, 2003) to collaboratively

[1]Electronic health interventions in Canada must comply with regulations set out in the Personal Information Protection and Electronic Documents Act (a federal law relating to data privacy) and Health Information Protection Act (provincial legislation introduced to protect individuals' personal health information).

create and apply knowledge to affect positive change in a community (Borg et al., 2012). The group of stakeholders who collaboratively designed the mental health service delivery model and CCMHS (Van Slingerland et al., 2020a) participated in the entire 48-month project at varying levels (e.g., consultation, arrival at group consensus, joint decision and action; Chevalier and Buckles, 2013). Through a *Collective Agreement* signed by stakeholders, the group agreed upon and operated under shared principles of engagement (e.g., respect and open communication, consensus decision-making). Importantly, the stakeholder group included current and former competitive and high-performance athletes ($n = 12$), mental health care service providers ($n = 6$), and service-users ($n = 10$; i.e., people who identify themselves as present or past users of mental health services) whose diverse perspectives created rich and meaningful dialogue. While action researchers facilitate the production and application of knowledge from the position of an "outsider," participatory researchers are seen as stakeholders and participants themselves with valuable experiences to contribute to the pursuit of collaborative knowledge generation and change to the status quo (Herr and Anderson, 2005). In line with the PAR approach, the two manuscript authors, both active participants in the sport and mental health domains as researchers, practitioners and/or service-users, were included as participants in this study (see Van Slingerland et al., 2020b for an in-depth description of the authors' ties to sport and mental health) along with the CCMHS practitioners, stakeholders, and Board of Directors described in the next section. Notably, the two authors were also part of the stakeholder group that guided the larger project; thus, their interpretation of the data was infused with important contextual and experiential understanding accumulated throughout the larger project.

The process of doing PAR is complex, multi-facetted and outside the scope of this paper to fully address. Readers wishing to learn more about the processes followed to undertake this particular project are invited to consult previous articles stemming from the project (e.g., Van Slingerland et al., 2019, 2020a).

Data Collection and Analysis

Ethical approval was obtained from the researchers' university Ethics Board to conduct this study. An overview of the data collection and analysis process is depicted in **Figure 1**. Both primary and secondary data were collected, using a three-step process (data collection A, B, C). Primary data were first collected sequentially from three sources: (1) CCMHS practitioners (see Van Slingerland et al., 2020b for a description of the full team), (2) CCMHS service-users (i.e., athletes), and (3) CCMHS stakeholders (see Van Slingerland et al., 2019 for details). Semi-structured interviews (data collection A, August—November 2019) served as the principal means to examine practitioner and service-user experiences and perceptions of the acceptability and appropriateness of the mental health service delivery model (Malson, 2010; Cheng and Clark, 2017). The results of a preliminary analysis of the interview data were then presented to CCMHS stakeholders during a meeting, held virtually due to the COVID-19 pandemic. Stakeholders' impressions and reflections were captured *via* meeting minutes (data collection B, April 2020).

Finally, to complement and triangulate interview data and stakeholder feedback, secondary data were also gathered (data collection C, May 2020) *via* documents ($N = 86$) produced by CCMHS team members (e.g., practitioners, stakeholders, board of directors) during the Implementation phase (August 2018—December 2019) of the larger project. The Framework Method (Ritchie and Spencer, 1994), an analytic approach that involves sorting and charting qualitative data into key themes and codes using a five-step process [(1) familiarization, (2) identification of a thematic framework, (3) indexing, (4) charting, (5) mapping and interpretation] was used to organize, integrate, and interpret the data.

Although the Framework Method provides a clear procedure, researchers are free to revisit steps to reconsider or rework ideas as the analytical process unfolds (Ritchie and Lewis, 2003). Likewise, PAR directs researchers and stakeholders to undertake a continuous and cyclical process of planning, action, observation, and reflection (Kemmis and McTaggart, 1988). An iterative approach was taken to move through the data collection and analysis processes in which data were collected, preliminarily analyzed, presented for collaborative reflection and feedback and then further analyzed. The pacing of this process is enumerated in **Table 2**.

Data Collection A—Interviews

A total of 16 one-on-one semi-structured interviews (Brown and Lloyd, 2001) were conducted by the first author with CCMHS practitioners ($n = 10$) and service-users ($n = 6$) between August and November 2019. Interviews were conducted as participants were available, thus no particular order was followed. The sample of practitioners included registered/clinical psychologists ($n = 3$), certified counselors/psychotherapists ($n = 4$), and mental performance consultants ($n = 3$). Nine of the 10 practitioners were also professional members of the Canadian Sport Psychology Association. To be eligible to participate in the interviews, CCMHS practitioners had to have consented to do so, and were required to have delivered a minimum of three sessions of care to one or more service-users in order to have sufficient experience upon which to draw. Collectively, the practitioners had delivered 151 sessions of care to 45 athlete service-users at the time the interviews began.

In order for service-users to be eligible to participate in an interview and have adequate experiential data from which to draw, they had to have completed 3 or more care sessions with a CCMHS practitioner. Twenty-eight service-users met this threshold and were contacted to participate. However, only five female and one male athlete ($M_{age} = 22.8$ years) volunteered to be interviewed even though they had originally consented to be included in the study if they met criteria. This was not surprising given the busy schedule of athletes and the sensitivity of the topic being investigated (i.e., mental health care). Service-user participants competed at the provincial ($n = 1$), collegiate ($n = 2$), and international ($n = 3$) levels and sought CCMHS services to address symptoms associated with a variety of mental health disorders (e.g., depression, anxiety, ADHD, eating disorder).

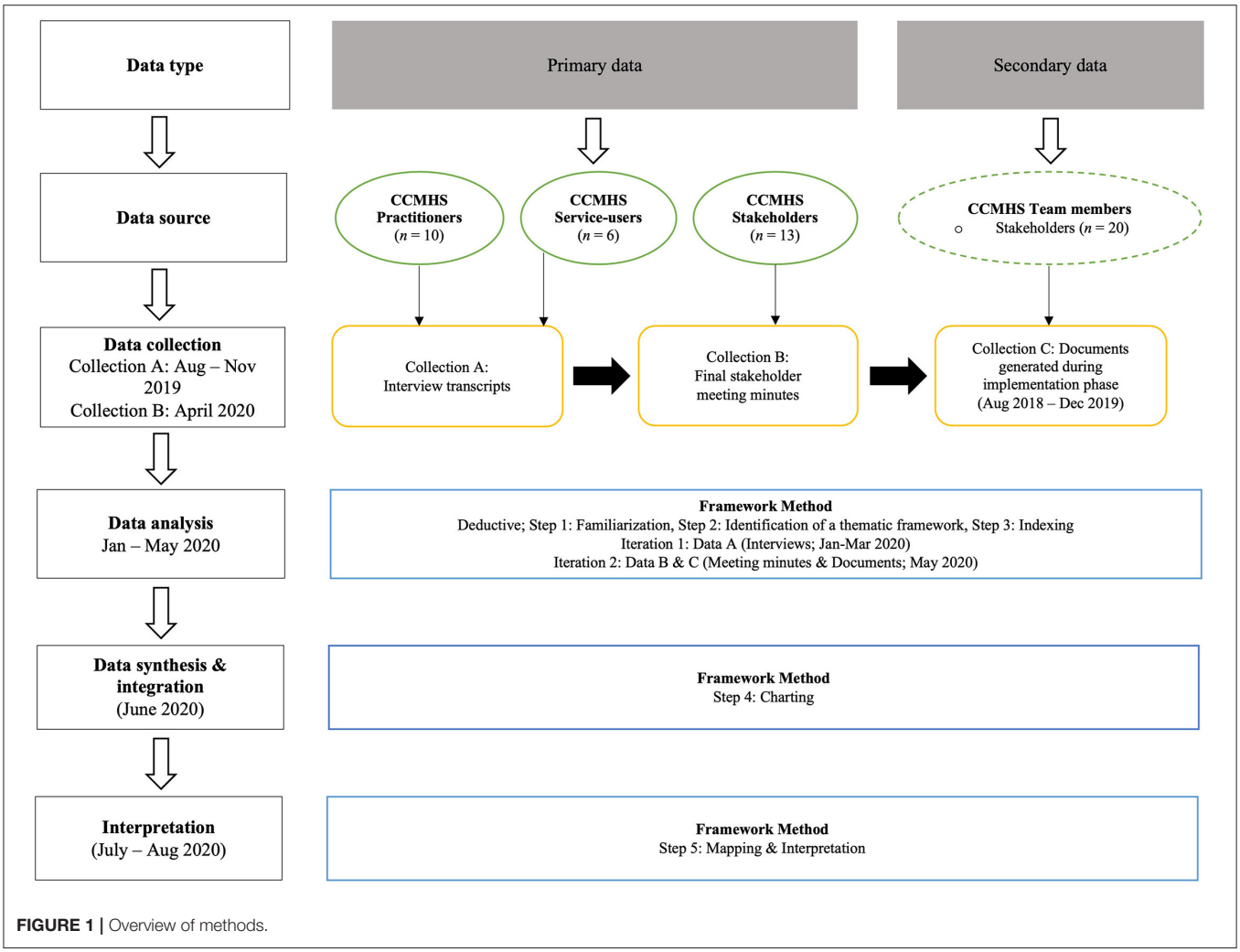

FIGURE 1 | Overview of methods.

At the time of their interview, they had completed an average of 5 sessions with CCMHS practitioners. Five of them were still actively receiving care while one had completed the care program. A summary of service-user characteristics is presented in **Table 3**.

The interviews were informed by an interview guide, which was developed based on the components of Sekhon et al. (2017) framework of acceptability (see **Table 1**), and the elements of appropriate care enumerated in the Canadian Medical Association (2015) definition (i.e., (1) service characteristics ["right care"], (2) provider characteristics ["right provider"], (3) client characteristics ["right patient"], and (4) contextual characteristics ["right place and time"]). The first part of the interview was designed to elicit participants' perspectives on the seven components of acceptability in the context of the care they delivered or received through the CCMHS. As an example, practitioners were asked to describe any burden or opportunity cost they perceived to be associated with delivering care within the CCMHS model (e.g., *"As a member of the CCMHS care team, how much effort did you have to invest to provide adequate mental health care to athletes? To what extent did this team/context energize you and/or burden you?"*). Service-users were asked a similar question (e.g., *"As an athlete receiving services at the CCMHS, how much effort did you have to invest to get adequate mental health care? To what extent did the team of practitioners/context energize you and/or burden you?"*).

The second part of the interview guide was designed to gather participants' perspectives on the extent to which the care delivered/received was appropriate. For example, practitioners were invited to address contextual characteristics [e.g., *What impact (if any) did the setting (physical location or e-platform) in which care was provided have on athlete outcomes (e.g., therapeutic alliance, adherence to the program, effectiveness of care?*]. Service-users responded to a similar question [e.g., *"What impact (if any) did the setting in which care was provided have on service delivery (e.g., therapeutic alliance, adherence to the program, effectiveness of care)?"*].

Although an interview guide was used, discussions remained flexible, allowing the first author to ask follow-up questions and participants to articulate their viewpoints in their own words, based on their experienced realities (Galletta, 2016). The interviews were conducted in-person ($n = 3$) and *via* a secure

virtual platform ($n = 13$). They were audio-recorded and lasted 32 min on average.

Data Analysis—Iteration 1

A preliminary analysis of the interview data was undertaken in order to present findings to CCMHS stakeholders ($n = 13$) at a project meeting held virtually in April 2020. The data were examined using the first three steps of the Framework Method: (1) Familiarization, (2) Identification of a thematic framework, and (3) Indexing. Analysis began with a verbatim transcription of the interviews. Next, the first author familiarized herself with the interview transcripts, reading each one multiple times and re-listening to the audio recordings as necessary. The memo function in *NVivo* 12 was used to note initial thoughts and impressions, including any individual differences (e.g., geographic location) observed among participants that might influence their perspectives. Given the frameworks adopted to guide the study, a deductive approach to analysis was followed. The seven components of the acceptability framework (Sekhon et al., 2017) and four tenets of appropriateness (Canadian Medical Association, 2015) served as a thematic framework to organize the data. To index the data, the researcher used NVivo to code passages from the transcripts that spoke to one or more of the principal themes, while also allowing nuances within the broad themes to emerge (Gale et al., 2013). For example, *positive affect* and *negative affect* were codes relating to the broader category of *Affective Attitude* (Sekhon et al., 2017), which captured participants' feelings and emotions evoked by delivering or receiving care within the CCMHS model. Likewise, differences in the affective experiences of practitioners compared to service-users were noted.

Data Collection B—Stakeholder Meeting

To account for stakeholders' perspectives in the evaluation of the model, the broad themes, supported by quotes from participants, were presented to a subset ($n = 13$) of the original twenty-member stakeholder group (Van Slingerland et al., 2019), who met to share final reflections and close out the larger PAR project. Seven of the original stakeholders were unable to attend the meeting ($n = 4$) or were no longer engaged in the project ($n = 3$). Changes in the level of participation, including attrition, among stakeholders is common in PAR research as the conditions necessary for participation (e.g., time, trust amongst group members, professional obligations) fluctuate (Chevalier and Buckles, 2013). Stakeholder unavailability and attrition were unsurprising given the length of the larger project (32 months) within which this study was situated. The feedback provided by stakeholders during the meeting was captured within detailed minutes taken by the first author and confirmed by listening back to an audio recording of the proceedings, which lasted 150 min. The analysis of this data is described below (Data analysis—Iteration 2).

Data Collection C—Documents

A significant number of physical and electronic documents were produced by members of the CCMHS during the implementation phase of the larger PAR project. These documents (e.g., policy and procedural documents, electronic communications) provided valuable insight into processes and interactions between different groups involved within the CCMHS, successes, and challenges encountered (e.g., meeting minutes), and the outcomes of care (e.g., clinical documents) as the novel service delivery model was implemented. During *Data collection C*, documents that met the following eligibility criteria were identified and gathered for further analysis (Data analysis—Iteration 2): (a) they were created by a CCMHS team member (i.e., practitioners, stakeholders, members of the board of directors), (b) they were contained within the CCMHS' electronic database, (c) they were created during the implementation phase of the project (August 2018—December 2019). Eighty-six documents met these criteria. In addition to practitioners and stakeholders, members of the CCMHS Board of Directors ($n = 7$) contributed to document creation (e.g., policies/procedures). This group met quarterly to oversee the Centre's activities, develop organizational strategy, and ensure the organization complied with applicable legislation. While documents analyzed within the Framework Method are not typically written by researchers conducting an investigation (Bowen, 2009), many of the texts analyzed in the current study were written or influenced by the authors given that these individuals served as stakeholders commiserate with the PAR approach. These documents, along with the other documents produced by the CCMHS team, are labeled accordingly in **Table 4**.

Data Analysis—Iteration 2

In the next phase of the data analysis, steps 1 and 3 of the Framework Method were applied to the documents gathered, which included the minutes produced from the stakeholder meeting (i.e., Data collection B and C). The first author first familiarized herself with the documents (step 1), determining if they met the following criterion to be further analyzed in this phase of the analysis: they triangulated the data provided by the practitioners and service-users who were interviewed for the study (i.e., confirmed or expanded the findings; Carter et al., 2014). Any clinical documents included (i.e., session and team consult notes, intake summaries) from this point on pertained to the service-users that were interviewed for the study only. Step 2 of the Framework Method (identification of a thematic framework) was unnecessary to repeat in this second iteration given the deductive approach used in the first iteration and the aim to triangulate the data rather than to produce new codes. In the end, 48 documents (55%) were included in the final analysis (**Table 4**). Excerpts from these documents were coded (step 3) using *NVivo* in light of the existing thematic framework. In addition to triangulation, the integration of data derived from CCMHS documents served to honor the PAR approach by including the ideas, actions, and voices of the CCMHS practitioners, stakeholders, and members of the board of directors who created them.

Data Analysis—Synthesis and Integration

In step 4 of the Framework Method, the coded passages (from interviews) and excerpts (from documents) were charted into a framework matrix in which each column represented a theme,

and each row represented a source of data (e.g., practitioners, service-users, stakeholders, etc.). Organizing data in this way assisted the first

author in reducing the data by clearly summarizing it categorically and identifying quotes and excerpts that were most illustrative of the theme (Gale et al., 2013).

Data Analysis—Interpretation

Once the matrix was populated, the first author was able to observe the "bigger picture" in step 5 of the Framework Method to identify convergence and divergence in the data, compare and contrast the responses of distinct groups, and corroborate interview findings with data gleaned from the documents. In this way, the entirety of the dataset was used to fulfill the purpose of the study. The first author shared her interpretation of the data with the second author and five other research colleagues who offered critical feedback and encouraged reflexivity (Smith and McGannon, 2018).

RESULTS

Results are organized according to the seven conceptual components of acceptability (Sekhon et al., 2017) and four conceptual components of appropriateness (Canadian Medical Association, 2015). The data gathered from the semi-structured interviews with practitioners and service-users provide the bulk of the evidence, and excerpts from or reference to CCMHS documents serve to triangulate these data.

Acceptability

Results indicate that all facets of acceptability were satisfied by the CCMHS model. Practitioners and service-users gave examples of positive affect (e.g., trust), high self-efficacy (e.g., assisted by the care coordinator), and low burden (e.g., afforded to service-users through virtual care delivery). Furthermore, the care delivered was regarded as ethical (e.g., confidential), effective (e.g., due to sport focus), and coherent (e.g., service-users understood and applied the skills they learned in therapy). On the other hand, the model's acceptability was challenged by a certain level of negative affect (e.g., apprehension), burden (e.g., communication required between practitioners), and intervention coherence (e.g., collaboration among practitioners).

Affective Attitude

Affective attitude reflects how practitioners and service-users felt about the CCMHS care process. Participants reported experiencing a range of positive and negative feelings (e.g., feelings of trust, support, pride, uncertainty, apprehension, frustration) as a result of delivering or receiving care within the CCMHS service delivery model. For example, trust was addressed by both practitioners and service-users. Practitioner 2 shared: "I think [my experience] would have been different had I not known anybody [on the team]. I don't know if I would have felt as comfortable reaching out." The team-based model decreased feelings of isolation and enhanced feelings of connectedness, comfort, and confidence in providing quality care: "It was helpful to feel part of a bigger system that we're all working toward the same goal and all working within the same population…that collaborative piece for me made it feel less isolating as a practitioner" (Practitioner 7).

Likewise, service-users discussed feelings of trust related to service provision. For example, Service-User 5 mentioned, "I trusted her because she has a sport background herself and has worked with other athletes. I felt that she just gets it." Conversely, two service-users described feelings of trepidation since the CCMHS was a relatively unknown entity in the Canadian sport ecosystem: "[Seeking help] was like jumping off a cliff…I think that's always intimidating, but also because [the CCMHS] is so new and I had only really heard of the organization" (Service-User 6). Despite having initial apprehension to seek services, three of the six service-users described the CCMHS Care Coordinator as contributing to their level of trust and comfort:

> "[The Care Coordinator] was so awesome! I was nervous. I had no idea what to expect with the intake interview. She was so friendly, and I felt like she was really approachable…In the past, it had been just myself and the mental performance coach and there wasn't really an unbiased middleman to help if I needed it. So, right off the bat I was like, okay this is legit!" (Service-User 5)

Burden

Burden refers to practitioners and service-users' perceptions of the amount of effort required to participate in the care process. The implementation of the new CCMHS service delivery model placed more burden on practitioners (e.g., upload session notes to the EHR system; CCMHS Care Policies and Procedures, Document 9) than on the service-users. Burden for practitioners was mainly related to respecting policies and procedures for communication (e.g., through the EHR system and virtual platform) and collaboration. For instance, Practitioner 1 indicated: "[The CCMHS] asked for practitioners to communicate when a client has exited care and I haven't been…it's not part of my process. I don't even think about it until we talk about it in a meeting" (Team Meeting 3, Document 4).

Similarly, virtual care provision challenged practitioners to develop novel skills, as discussed by Practitioner 7: "[Establishing a therapeutic alliance across a digital platform] was a challenge, but it was one that I had embraced, and I found it to be authentic." Interactions *via* a screen required effort to capture service-users' full attention: "I'm hearing phones; they're stopping in the middle [of the session] because their texts are coming through. It's like "Okay, this is our therapy time, are you on do not disturb mode?" (Practitioner 3).

Three practitioners perceived the collaborative aspect of the model to create burden at times, as indicated by Practitioner 5: "Should I [collaborate] even though I don't need to? We don't want to overload people who have very heavy practices … when we chat it has to be for a reason." Practitioner 1 also shared: "It's on us to create those links and use each other in that way to build relationships. I do think that's one of the weaknesses [of the model] versus if we were all in the same building." Despite these challenges, practitioners demonstrated flexibility, patience and resilience throughout the implementation phase and nine

TABLE 2 | Pacing of data collection and analysis.

Activity	Timing	Description
Data collection A—Interviews	August—November 2019	Semi-structured interviews were conducted with practitioners and service-users.
Data analysis—Iteration 1	January—March 2020	Interview data were analyzed using the first three steps of the Framework Method, resulting in a thematic framework.
Data collection B—Stakeholder Meeting	April 2020	Results of *Data analysis—Iteration 1* were presented to stakeholders who reflected and provided commentary, captured in Meeting Minutes (Document 1).
Data collection C—Documents	May 2020	All documents included in the CCMHS electronic database and produced by CCMHS team members during the Implementation Phase (Aug 2018—Dec 2019) of the larger research project were identified ($N = 86$)
Data analysis –Iteration 2	May 2020	Documents identified in *Data collection C* were reviewed and excluded ($n = 38$) if they did not triangulate the data provided by participants interviewed for the study.[a] Included documents ($n = 48$) were coded using the thematic framework (Steps 1 and 3 of Framework Method).
Data analysis—Synthesis and Integration	June 2020	Data were charted into a framework matrix in which each column represented a theme and each row represented a source of data (Step 4 of Framework Method).
Data analysis—Interpretation	July—August 2020	Data were examined using a "bigger picture" lens and interpreted based on convergence and divergence between sources and links across themes (Step 5 of Framework Method).

[a]*Any clinical documents included (i.e., session and team consult notes, intake summaries) from this point on pertained to the service-users who were interviewed for the study only.*

TABLE 3 | Summary of service-user characteristics.

	Service-User 1	Service-User 2	Service-User 3	Service-User 4	Service-User 5	Service-User 6
Age	19	27	22	18	26	25
Gender	Female	Female	Male	Female	Female	Female
Sport type	Team	Team	Team	Team	Individual	Individual
Level	Collegiate	Provincial	International	Collegiate	International	International
Region	Atlantic Canada	Atlantic Canada	Central Canada	Central Canada	Western Canada	Western Canada
# of sessions	4+ intake	5+ intake	5+ intake	3+ intake	5+ intake	9+ intake

out of ten perceived the value of working with the CCMHS team to outweigh the burden they experienced.

Service-users perceived very little burden associated with the care process. They described that engaging in therapy required work, however, the effort they invested was worthwhile because of the benefits they derived: "The level of care [has been] awesome. Sometimes you think it's going to be work, and it *is* work, but I enjoy doing it" (Service-User 6). Virtual care delivery was perceived by four of the six service-users as reducing the effort required to participate in care, as indicated by Service-User 3: "A lot of it's done virtually and that has its issues, but it also gives room for tons of flexibility, like being able to do things from the comfort of your own home."

Ethicality

Ethicality refers to the extent to which care was perceived to have a good fit with practitioners and service-users' value system. None of the practitioners raised any ethical concerns; rather, they described elements of the model that heightened ethicality. For example, three practitioners discussed the care team assignment process as enhancing ethicality compared to other models of care provision:

> There's really a lot of consideration that goes into the process. [The Care Coordinator] took the time to get to know this client ... and thinks that this client can be a really great match with my approach and my values. I mean, you can't really get anything better than that. (Practitioner 1)

Similarly, the care team assignment process ensured that ethicality and duty of care with respect to client safety were met, as indicated by Practitioner 6: "I felt that we needed to continue [care] and [the client] needed more than a few sessions…but I would [need] a colleague physically located there so having a supporting practitioner locally helped remedy that [ethical dilemma] for me." Ethical questions (e.g., "Is it appropriate to use virtual care for complex cases?," Team Meeting 5, Document 6) were discussed with the practitioner team at meetings throughout the Implementation Phase.

All service-users indicated that CCMHS practitioners were able to facilitate psychologically safe, secure, and person-centered

TABLE 4 | Documents analyzed.

Document number	Name	*n*	Type	Author(s)	Year written	Document Purpose	Coding units/ meaning assigned
1	Meeting notes –Stakeholder Meeting #5	1	Meeting	N/A—Audio and visual recording of Zoom meeting	2020	Capture the content of a meeting with stakeholders where results of participant interviews were presented and analyzed	Burden
2-8	Meeting minutes—CCMHS Practitioner meetings	7	Meeting	N/A—Audio and visual recording of Zoom meeting	2018-2019	To capture the discussions that occurred within meetings	Affective Attitude; Intervention coherence; Perceived effectiveness
9	CCMHS Policies and Procedures	1	Policy/ procedural	CCMHS Board of Directors; CCMHS Practitioners	2018	Articulate the processes and procedures to be undertaken by CCMHS practitioners when delivering care	Burden; Intervention coherence
10	Authorization Form to Release Confidential Information	1	Policy/ procedural	Care Coordinator	2019	Allow clients to give consent to CCMHS practitioners to share information with other members of their circle of care (e.g., team physician)	Intervention coherence
11-42	Session and Team Consult Notes of the service-users interviewed	31	Clinical	CCMHS Practitioners	2018-2019	Summarize care sessions and consultations with CCMHS team members	Intervention coherence
43-48	Intake summaries of the service-users interviewed	6	Clinical	Care Coordinator	2018-2019	Summarize clients' presenting concerns, including scores on mental illness screening tools completed at intake	Intervention coherence; Perceived effectiveness

care that aligned with their values. For example, Service-User 3 shared: "There was never really any cause for concern with information that was being exchanged." As a neutral entity operating independently from Canadian sport governing bodies, the confidentiality and safety of CCMHS services were highlighted, as explained by Service-User 5:

> A lot of [health care providers in high-performance sport] have a hand in making decisions that could affect our career, like finding spots on the team or traveling. So, I don't want to go to these people and show them that I'm struggling and that I'm not strong enough to be on the team.

Four service-users discussed the significance of having a practitioner who understood and shared sport as a fundamental value:

> was definitely more helpful than past providers…they were more realistic in terms of managing the issues that were going on with staying in sport. Because every time I've had an issue, I've had providers be like 'Oh why don't you just take a step back?' (Service-User 2).

Intervention Coherence

Intervention coherence reflects the extent to which participants understood the care process and how it was designed to work. Three practitioners discussed initially feeling uncertain about implementing the novel model, however, this changed as they became more familiar with policies and procedures. For example, Practitioner 6 reported: "I think it's easier now that I feel more confident with the technology we're using. I'll be honest, it was stressful for me at the start." Practitioners were reminded of procedures and given additional clarity about how to follow them in practice in each of the team meetings (e.g., "Remember to fill out the team consult notes form in the EHR after you have meetings/calls."; Team Meeting 7, Document 8). Furthermore, the team was given the opportunity to provide ongoing feedback and suggest adjustments as new challenges arose (e.g., Authorization to Release Confidential Information form created to work with third party practitioners, Document 10). Overall, all 10 practitioners took steps to learn, understand, and contribute to refining CCMHS policies and procedures over time to optimize care. For example, Practitioner 7 explained how she learned to adapt to digital care provision: "Just using little gestures, I make sure I'm using eye contact, waves at the beginning [I try] to project warmth across the platform."

Service-users' understanding of the care model, particularly the collaborative aspect, was less than that of practitioners, as Service-User 3 explained: "I'm not exactly sure how my [care] team was structured." Even though the Care Coordinator explained the care model during each intake (e.g., Intake Summary 3, Document 45), service-users' lack of knowledge was not surprising given the variability in collaboration across practitioner teams and the focus on client needs during care. This did not appear to impact care outcomes, as captured in the following session note: "The client continues to note improved awareness of internal states" (Document 23).

Opportunity Cost

Opportunity cost reflects what practitioners and service-users had to give up (e.g., benefits, profits, values) in order to engage in the care process. Time and money were the two most prevalent elements given up by participants in order to deliver/receive care through the CCMHS. For example, the collaborative component of care, which was unremunerated, was an opportunity cost identified by some practitioners: "One of the challenges is the time and the money that it costs to have that collaborative conversation...With running your own business and having a seven-year-old and trying to stay healthy yourself…those 20 mins count!" (Practitioner 9).

However, nine of the 10 practitioners emphasized that the benefits exceeded the costs of being involved in the collaborative care team, as summarized by Practitioner 5: "I don't think there's a cost to it, I think it's an advantage! I think that the opportunities to collaborate, to share knowledge, to work together, and remove the barriers, are important." The one practitioner, however, who did not perceive the return to be commiserate with the investment she made shared: "I put a lot of front-end time to train and attend meetings and get up to speed on everything. For the number of clients in return, I wouldn't say it was quite equal in terms of the effort out" (Practitioner 9).

Three service-users identified fees-for-service as an opportunity cost: "Just thinking about paying for services… You want to be better so you're investing all of this money… but the extra 200 dollars is actually a lot for athletes…especially, non-carded athletes" (Service-User 6). Data from the stakeholder meeting supported this, showing that 7% of referred service-users dropped out before care commenced, citing financial difficulties (Stakeholder Meeting 5, Document 1). This aligns with the findings of other researchers whose studies revealed that low socio-economic status is significantly related to psychotherapy dropout rates (Wierzbicki and Gene, 1993). Furthermore, ∼2.3 million Canadians reported having unmet or partially met mental health care needs during the most recent census, most frequently citing not knowing where to access support, being too busy, or being unable to afford care as the reason they did not get help (Statistics Canada, 2018).

Perceived Effectiveness

Perceived effectiveness is the extent to which care was perceived to have achieved its purpose. Participants reported a high level of effectiveness regarding the service-delivery model. For example, Practitioner 7 shared: "I just had an athlete text me that they were able to meet their goal of increasing their mental performance and got accepted to the National Team!." All practitioners reported being able to deliver effective services, three of them highlighting the collaborative component: "When my first client was someone who required more than just my support, a psychiatrist was brought in. And that certainly was a strength of the model" (Practitioner 2). Practitioner 3 explained the increased accessibility of care: "A plus of the Center is that [clients] do circumvent a long… probably 12 to 16 month wait list." Four practitioners underscored that their sport background enhanced effectiveness: "I think [sport-specific knowledge] was critical. When we started to explore what options there were for ADHD, it was much more inspiring for him to know that [the team member] had the sport background as well." (Practitioner 9).

Nonetheless, some challenges were noted including time zone management (e.g., "It has been difficult to schedule a meeting with one particular client because of the time zone difference and because that client is a high school student," Team Meeting 4, Document 5) and interjurisdictional barriers to practice (e.g., "Discussed the idea of collaborative care between members residing in different provinces to work with limitations.," Team Meeting 3, Document 4).

Service-users provided several examples of successes they experienced as a result of receiving care. For instance, Service-User 6 discussed learning to manage symptoms of anxiety: "So [we've been] working on how to get into the right mindset and if I'm really nervous, how I bring that back… It's helped a lot up front in terms of feeling more confident. Service-User 3 shared: "The biggest changes I've incorporated is working on managing stress levels, lowering anxiety levels and finding a balance."

Self-Efficacy

Self-efficacy is the level of confidence practitioners and service-users had to perform the behaviors required to participate in the care process. Overall, self-efficacy was high amongst participants. From the practitioners' perspective, self-efficacy increased over time as they became more familiar with the collaborative care process. The physical distance between team members sometimes challenged their efficacy to work together: "[If] I knew people better or they knew me, I think it would probably make the collaborative piece work even better" (Practitioner 1). Technological difficulties also sometimes affected confidence, as reported by Practitioner 9: "You need to break up the session [when technological difficulties occur] …that's the only problem I think with distance."

All six service-users consistently reported being able to apply the skills and tools they gained in therapy to both sport and life: "There's been tons of opportunities that I have been able to take [a skill] and put it into a workplace situation or a schooling situation" (Service-User 3). Nonetheless, one athlete shared how stigma still impedes the application of strategies learned in therapy: "I'm not really comfortable with my coach. I wouldn't be open enough to say 'yeah I'm struggling with depression"' (Service-User 5).

Appropriateness

Taken as a whole, the care provided or received through the CCMHS was perceived as appropriate [the right care (service characteristics), provided by the right practitioner (provider characteristics), to the right patient (client characteristics), in the right place, at the right time (contextual characteristics)].

Service Characteristics

For every service-user, the sport-specificity of care surfaced as a reason the CCMHS offered the "right care": "The sport-focus was a big component for me. It definitely allowed it to be relatable… Now I can take those skills and apply them to real life" (Service-User 3). Service-users perceived practitioners' sport background

as enhancing their understanding of athletes' environment and the expectations placed upon them. This, in turn, enhanced trust in the provider and skill transfer because practitioners were able to give relevant examples when imparting strategies and tools to enhance mental health and mental performance.

Provider Characteristics

Similarly, practitioners' knowledge, and understanding of what it means to be a competitive athlete, made them the "right provider": "They eat, sleep, live that [sport] environment. And they don't have balance. So, a practitioner who doesn't understand that high-performance environment, I think would have unrealistic recommendations or expectations around balance" (Practitioner 7). The intake process, which allowed clients and practitioners to be "matched" based on a number of factors (e.g., client needs, symptom severity, location) also contributed to perceptions of being the "right provider" (Team Meeting 4, Document 5).

Client Characteristics

Clients' athletic identity, coupled with the recognition that mental health challenges were impacting sport performance made them the "right client" for the CCMHS: "What I'm doing with my sport is everything and—yeah, it's probably causing me some issues right now, but I would rather work through those issues than not be in sport" (Service-User 2). The "right client" was also associated with service-users who had the means to pay for care through private insurance or family support. This is the only factor that practitioners and service-users described as hindering the appropriateness of care: "I'm really sorry we lost that one [to financial difficulties] he so needed the Center… it breaks my heart because we want [to help] these people" (Practitioner 5).

Contextual Characteristics

Four service-users discussed why the "right place" for care to be delivered was virtually, in their own home: "I spend so much time training… I love that I can just sit at home and be eating or be stretching and chatting with [my practitioner] at the same time in the comfort of my own home" (Service-User 5). One service-user discussed the stigma attached to seeking mental health support in sport, noting how the social climate has changed recently, making it the "right time" for the CCMHS to offer its services: "I think with the Bell Let's Talk stuff and a lot of athletes coming out and being like, 'It's okay" [to seek help]'. I was like, 'Why not, we'll see what they say"' (Service-User 6).

DISCUSSION

The purpose of this study was to evaluate the acceptability and appropriateness of a sport-informed mental health care model implemented within the CCMHS. Overall, results demonstrate that care provided and received within the CCMHS service delivery model was acceptable and appropriate, and that each component of the model contributed uniquely to practitioner and service-user experiences. Some areas of improvement emerged, which have implications for further research and practice.

Collaborative Care

Results indicated that the involvement of multiple professionals with complementary expertise, knowledge and skills in care provision was acceptable and appropriate to practitioners, and service-users. Specifically, the collaborative interdisciplinary approach contributed to the ethicality of the model, promoted the professional development of team members, and enabled Pan-Canadian service provision. Tools such as the EHR and clinical note templates as well as regular team meetings facilitated continuity of care amongst team members. According to research on interdisciplinary health teams, continuity of care is key to providing coherent and connected healthcare experiences for patients (e.g., Anderson and Helms, 1993; Busari et al., 2017). This is particularly important in sport as athletes frequently travel and can change teams during their career, potentially necessitating them to work with different health practitioners every time they relocate if there is no centralized or integrated service provision approach (e.g., Nikolić, 2020).

Research also shows that collaborative care provides organized opportunities for practitioners to learn from colleagues with diverse skillsets (e.g., *via* team meetings, grand rounds), leading to increased cooperation, communication, and comfort in implementing health interventions as a team (Feather et al., 2016; Horsley et al., 2016). Results of this study confirm this. Although there was a steep learning curve for practitioners at the beginning of the implementation phase, they shared that they valued the exchange of information, ongoing support, decreased sense of isolation, and unity in pursuit of high-quality patient care, made possible through the collaborative care model. The model provided a community of practice in which peer learning and support could occur. This has been shown to be beneficial in both healthcare (e.g., Markowski et al., 2021) and sport (e.g., Bertram et al., 2017) settings.

The collaborative component of the CCMHS model was also perceived to enhance the effectiveness and quality of care and ensure the "right provider" was accessible to service-users. A significant body of evidence has demonstrated that collaborative care models result in high-quality care and improved outcomes for patients with mental illness and substance use disorders (Mental Health Commission of Canada, (n.d.); Siobhan et al., 2013). A central role in the effectiveness and quality of care reported by participants was fulfilled by the CCMHS Care Coordinator. The Care Coordinator reportedly enhanced practitioners' understanding and ability to implement the model, promoted and ensured ethical service-provision, and increased service-users' trust in the quality, legitimacy and safety of services provided. This supports previous research showing that the care coordinator position is integral to mental health service provision within interdisciplinary settings and can positively impact patient recovery (Haggerty et al., 2003; Henriksen et al., 2020). Having a centralized Care Coordinator to manage care in a secure and confidential manner and serve as a neutral conduit between practitioners and service-users is novel in the provision of mental health services in sport in Canada. Readers

who are interested in learning more about the robust intake-process implemented at the CCMHS are invited to consult the work of Van Slingerland et al. (2020b). Given the several benefits highlighted by participants, more research should specifically examine the Care Coordinator role so that this type of position can be leveraged in the future to facilitate the delivery of mental health care in sport.

Despite the aforementioned benefits, the collaborative component of the model was associated with some administrative burden as well as time and financial cost for some practitioners. The fact that practitioners were not remunerated for collaboration posed a challenge for some of them. This issue was highlighted by other researchers who noted that fee-for-service models disincentivize collaboration amongst practitioners by failing to remunerate interactions that do not directly involve patients (Wranik et al., 2017). An adequate funding model is required in the future so that practitioners can be compensated for their time spent engaging in collaborative care with both clients and the practitioner team. Another burden highlighted by some practitioners pertained to logistics or administrative tasks (e.g., learning how to use the EHR). Interestingly, administrative burden was found to be a significant source of stress for medical professionals and linked to burnout (National Academies of Sciences Engineering Medicine, 2019). Given the novelty of the current collaborative care model and the potential for mental health practitioners to experience burnout (Statistics Canada, 2021), the efficiency of CCMHS processes should be explored to minimize the administrative burden placed on practitioners without compromising ethical and professional obligations.

Sport-Centered Care

Findings show that the specialized sport-centered nature of CCMHS services significantly contributed to perceptions of acceptability and appropriateness. This was perceived by participants to enhance affective attitude (e.g., trust, comfort), the ethicality of services (e.g., sport values aligned between practitioners and service-users), and the effectiveness of care. While research has shown that athletic identity can prevent athletes from seeking help for their mental health struggles (Gulliver et al., 2012), this study revealed that athletic identity may also contribute to help-seeking when sport-centered resources are available. Indeed, confidentiality and trust in mental health providers are known to facilitate help-seeking amongst young people (Gulliver et al., 2010). Consequently, integrating practitioners with knowledge and experience in sport, which is a unique feature of CCMHS's sport-centered mental health care model, may be a way to build the trust required amongst young athletes to seek help when in need.

According to a recent study with high-performance athletes, the sport knowledge of mental health care providers may be vital for not only help-seeking but also recovering from mental health challenges or disorders (Jewett et al., 2020). Given the salience of this component of care, further investigation is warranted to shed more light on the value and necessity of having a sport background when providing care to athletes and to determine if this varies across athletic populations and mental health disorders experienced. Furthermore, given the limited number of mental health practitioners specializing in sport in Canada (Van Slingerland et al., 2019), efforts should be made to provide adequate education and training to increase the network of available practitioners. This was a statement highlighted in the concept mapping activity that was performed to create the CCMHS (Van Slingerland et al., 2020a), and remains an outstanding endeavor.

Nationwide Service Provision

The nature of nationwide service provision was perceived to have both benefits and drawbacks. While the pan-Canadian model facilitated the delivery of care to athletes across the country, it also contributed to practitioner burden and sometimes challenged their self-efficacy to collaborate at a distance. Previous research has highlighted the barriers that geographical distance poses to effective communication and collaboration amongst healthcare teams, underlining that proximity to coworkers impacts familiarity, ease of communication and cooperation (Cramton, 2001). One way to circumvent this is by increasing trust within collaborative teams. Indeed, trust in colleagues was found to be a key component of the successful implementation of collaborative care models (World Health Organization, 2016), and this was also highlighted by several practitioners in the current study. Further research on factors facilitating successful at-distance collaboration and trust without overly increasing practitioner burden is imperative, especially in light of the COVID-19 pandemic during which many health professionals are providing virtual care and experiencing exhaustion (Statistics Canada, 2021).

Although distance created challenges for practitioners, the dispersion of team members across the country was seen to enhance the ethicality of remote care provision to service-users experiencing more acute symptoms (e.g., self-harm or suicidal ideation). The collaborative and interdisciplinary aspects of the CCMHS model allowed lead practitioners to safely provide care from a distance while having a support practitioner on the care team who could provide in-person care if necessary. Some severe and complex mental health conditions are best addressed in person (Madigan et al., 2020; Van Slingerland et al., 2020b) and the deliberate care team structuring and coordination gave athletes living in both urban and rural communities the opportunity to quickly access their practitioner team based on their evolving needs. This type of ethical and convenient service delivery would likely not have been possible for athletes accessing care through the Canadian public health system given the excessively long wait times (Canadian Mental Health Association, 2017).

Virtual and In-Person Care

As introduced in the previous section, results revealed that virtual care delivery was acceptable and appropriate to service-users who shared that receiving care *via* a secure online platform was effective and relieved some burden associated with participating in therapy. Likewise, other studies have revealed that virtual care can be effective in the treatment of mental illness (Langarizadeh et al., 2017; Palylyk-Colwell and Argáez, 2018; Van Slingerland

et al., 2020b). While virtual care was appraised positively by service-users in the present study, it should be noted that these service-users were fortunate to have a safe and private space in their home in which to engage in therapy; this may not be the case for all athletes. Indeed, athletes could face privacy issues when traveling and sharing their room with others. Interestingly, a recent study demonstrated that athletes strategically use their smartphone to stay connected and effectively communicate with others (DesClouds and Durand-Bush, 2021). Consequently, the smartphone may be an effective tool for athletes to leverage to safely engage in virtual care, particularly when they are on the road.

Practitioners agreed that creating an authentic and successful therapeutic alliance over a digital platform was possible, however, they also noted that virtual care delivery created additional burden compared to face-to-face care, and that technological difficulties sometimes challenged their self-efficacy to deliver effective care. Given the exponential increase in online service provision as a result of the pandemic, researchers should more carefully examine the mechanisms and tools (e.g., smartphone) allowing mental health practitioners and service-users to successfully work together and achieve desired outcomes. Given that some service-users reported services to be cost prohibitive for them, attention should be focused on finding mechanisms to make care more affordable. Unfortunately, coverage (e.g., *via* private insurance and athlete assistance programs) for mental health care remains limited in Canada (Durand-Bush and Van Slingerland, 2021). Thus, lobbying the government as well as private donors and corporate sponsors to help subsidize care is essential. Langarizadeh et al. (2017) reported that "while being comparable to in-person services, telemental health care is particularly advantageous and inexpensive through the use of current technologies and adaptable designs, especially in isolated communities" (p. 240). It seems logical then to continue building on the current study findings to develop affordable virtual care options using the most effective and efficient available technologies.

STRENGTHS, LIMITATIONS, AND FUTURE DIRECTIONS

The qualitative approach guiding the current study allowed for an in-depth investigation and understanding of the acceptability and appropriateness of the CCMHS service delivery model. It brought to light the experiences of practitioners and service-users and honored these experiences as true and legitimate evidence of the mental health service delivery process, as per the PAR approach. Furthermore, three types of triangulation means were employed [i.e., involvement of multiple researchers, data sources (practitioners, service-users, documents), and methods (analysis of interviews and documents through framework method); Carter et al., 2014] to ensure the reliability and trustworthiness of the findings.

Although efforts were made to recruit as many practitioners and service-users as possible, the sample was limited. It was difficult to recruit service-users to share their experiences, yet this was not surprising given that high-performance athletes have extremely busy schedules. Furthermore, stigma remains a barrier and it is common for athletes to want to keep their struggles private. Interestingly, this was a common reason that the service-users sought services *via* the CCMHS. As a third-party entity operating at arm's length of sport governing bodies with no political or financial influence, the confidentiality of service-users was a priority and was guaranteed. The need for confidentiality and the challenges inherent in discussing painful mental health-related experiences may help explain why service-users were reluctant to participate in the current study.

Since the larger PAR project began, the CCMHS model has been extended to include sport coaches and support staff, as well as performing artists (e.g., competitive dancers). Future studies should therefore include these populations as well. Given the novelty of the service delivery model and the expectation that it will evolve over time along with the team of practitioners, the model should be periodically evaluated using mixed methods and multiple sources of data. For example, a quantitative component could be introduced to track symptom remediation and other measurable therapeutic outcomes.

CONCLUSION

The present study to evaluate the acceptability and appropriateness of a sport-informed collaborative mental health care model makes several significant contributions to research and practice. This model was the first of its kind to be systematically designed, implemented and evaluated to provide care to athletes experiencing mental health challenges and disorders. Overall, findings show that the model was acceptable and appropriate and features of the model (i.e., collaborative, sport-centered, nationwide, virtual and in-person care) should be maintained. Nonetheless, some aspects of the model can be improved, including remuneration for collaboration, subsidization of care for service-users, and efficiency of processes (e.g., use of the EHR, remote collaboration between practitioners who are not as familiar with the model and team).

Results of this study can be used to inform the provision of athlete mental health services in other competitive and high-performance contexts. For example, services provided at multisport events such as the Olympic or Paralympic Games can be set up to incorporate a collaborative mental health care team with expertise in sport, as well as both in-person and virtual care options. This is particularly salient for events in which a restrictive "bubble" is created to protect the health of athletes and staff as a result of the pandemic. Given that centralized coordination of care emerged as an important element of the model, allocating resources to hire a care coordinator to facilitate the management of information, staff, and mental health care is highly recommended, particularly within large sport systems and countries like Canada.

Evidence supporting the effectiveness of integrated mental health care models in sport is practically non-existent. This novel study significantly contributes to not only science

but also the professional fields of sport and mental health. Results can be used as an incentive to invest funding and resources in (a) mental health services for sport participants, (b) education and training to ensure there is an adequate network of mental health practitioners with expertise in sport, and (c) research to examine the impact of specialized care on help-seeking, mental health, and performance outcomes.

DATA AVAILABILITY STATEMENT

The datasets presented in this article are not readily available because the data includes Personal Health Information and cannot be shared. Requests to access the datasets should be directed to Krista J. Van Slingerland, krista.vanslingerland@uottawa.ca.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of Ottawa Research Ethics Board. The patients/participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

AUTHOR CONTRIBUTIONS

KV conceived and carried out the research project in consultation with ND-B, and wrote the manuscript. ND-B supervised the project, provided critical feedback, and edited the manuscript. All authors contributed to the article and approved the submitted version.

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CONCEPTUAL ANALYSIS
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An Evidence-Informed Framework to Promote Mental Wellbeing in Elite Sport

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Elite athletes, coaches and high-performance staff are exposed to a range of stressors that have been shown to increase their susceptibility to experiencing mental ill-health. Despite this, athletes may be less inclined than the general population to seek support for their mental health due to stigma, perceptions of limited psychological safety within sport to disclose mental health difficulties (e.g., selection concerns) and/or fears of help-seeking signifying weakness in the context of high performance sport. Guidance on the best ways to promote mental health within sporting environments is increasing, though current frameworks and position statements require greater focus on a *whole of system* approach, in which the needs of athlete, coaches and high-performance staff are considered within the context of the broader ecological system in which they operate and perform. This paper synthesizes existing research, reviewed for translatability by mental health professionals working in elite sport, to provide an evidence-informed framework with real world utility to promote mentally healthy environments for all stakeholders in elite sporting organizations, from athletes through to administrators. Recommendations are provided to positively impact the mental wellbeing of athletes and support staff, which may in turn influence athletic performance. This framework is intended to provide sporting organizations with evidence-informed or best practice principles on which they can develop or progress their policies to support mental health promotion and prevent the onset of mental health difficulties. It is intended that the framework can be adapted or tailored by elite sporting organizations based upon their unique cultural, contextual and resourcing circumstances.

Keywords: athletes, sport, mental health, wellbeing, psychological, promotion, prevention

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INTRODUCTION

Athletes in elite sport are exposed to a range of stressors that have been shown to increase their susceptibility to experiencing mental ill-health, including serious physical injury, poor performance, maladaptive perfectionism and competition for selection (Reardon et al., 2019). This is in addition to general stressors such as adverse life events (Gouttebarge et al., 2019), financial

uncertainty, discrimination, or inadequate social support (Purcell et al., 2020; Walton et al., 2021). A recent systematic review suggested that approximately one third of currently competing athletes report experiencing common symptoms of mental ill-health, such as depression and anxiety (Gouttebarge et al., 2019). Retired athletes also report significant mental health concerns (Mannes et al., 2019), often in the context of managing major psychosocial adjustments at the end of their sporting careers, including lifestyle changes, issues regarding their personal and social identity, and financial challenges (Park et al., 2013; Brown J. C. et al., 2017; Sanders and Stevinson, 2017).

Although elite athletes' susceptibility to mental health concerns appear to be comparable to the general population (Rice et al., 2016), they may be less inclined to seek support for their mental health, citing reasons such as increased stigma and poor mental health literacy (Gulliver et al., 2012; Kaier et al., 2015). Athletes also report fearing potential consequences should they seek help, including loss of selection or even loss of their career (Gulliver et al., 2012; Castaldelli-Maia et al., 2019).

Though there is a rapidly developing evidence-base on mental health in elite athlete populations (Rice et al., 2016; Gouttebarge et al., 2019; Reardon et al., 2019; Küttel and Larsen, 2020; Poucher et al., 2021), mental ill-health can impact other individuals working within high-performance sport (Olusoga et al., 2009). Coaches also experience distinct sport-related stressors such as pressure to succeed, excessive work load, lack of job security, frequent travel, and isolation (Kim et al., 2020; Baldock et al., 2021; Hill et al., 2021), with rates of depression symptoms similar to the general population (Kim et al., 2020).

High-performance environments, by definition, focus heavily on outcomes of success and achievement. This focus can contribute to cultures that do not equally acknowledge and resource athlete, coach and support staff mental health and wellbeing. High-performance environments must be scrutinized for their impacts on individuals, given growing evidence that mentally unhealthy environments can increase the risk for developing mental ill-health more generally (Harvey et al., 2017; Memish et al., 2017). Taking steps toward creating mentally healthy environments for all stakeholders in elite sports organizations will likely have a positive impact on the wellbeing of athletes, coaches and staff, which in turn may positively contribute to athletic performance (Smittick et al., 2019).

EXISTING MENTAL HEALTH GUIDELINES AND FRAMEWORKS

Several major sports organizations have published or made publicly available frameworks related to supporting elite athlete mental health, which primarily emphasize the need to build awareness of, and support for, mental wellbeing and/or respond to athletes identified as being "at risk" of a mental health condition (e.g., Australian Football League Players' Association, 2014a,b; Queensland Academy of Sport, 2014; NCAA Sport Science Institute, 2016; Australian Football League, 2020). The International Olympic Committee (IOC) recently published a comprehensive toolkit to assist Olympic stakeholders (including International Federations and National Olympic and Paralympic Committees) to develop and implement initiatives to protect and promote the mental health of elite athletes (IOC, 2021). Other sporting bodies or associations have published consensus or position statements regarding athlete mental health and wellbeing (Moesch et al., 2018; Schinke et al., 2018; Henriksen et al., 2019, 2020; Reardon et al., 2019; Van Slingerland et al., 2019; Chang et al., 2020), many of which again highlight the need for mental health literacy in athletes as a way to improve help-seeking attitudes and behaviors. A recent systematic review of 13 mental health position statements indicated convergent themes surrounding athlete mental health, athlete support systems, mental health plans, provision of mental health care and managing high risk events (Vella et al., 2021). However, the authors reported that consistency between statements and quality of development (e.g., stakeholder engagement) were low.

Existing guidelines, frameworks and toolkits are vitally important in building the capacity of elite sporting organizations to respond to mental health, but the broader influencing systems or ecological factors are not always considered and rarely addressed in detail. In order for elite sporting organizations to provide optimal mental health support to their athletes, coaches and support staff (e.g., sports medicine practitioners), consideration must be given to individual, contextual *and* systemic needs (Taylor et al., 2012; Rice et al., 2020b).

Current elite sport guidelines identify specific areas that can be addressed to bolster athlete wellbeing, such as the sport's duty of care to athletes and sport staff, considerations of different stages in an athlete's career (e.g., junior level to retirement) as well as privacy, confidentiality and ethical issues pertaining to an athlete's mental health (such as if or how disclosure occurs within the sport as part of a clinical management plan). However, to our knowledge, no framework has utilized peer-reviewed evidence and stakeholder engagement to develop actionable recommendations that sporting organizations can use to promote mental wellbeing in their sporting context, inclusive of environmental or culture factors that can hinder or promote mental wellbeing.

CREATING AN EVIDENCE-INFORMED FRAMEWORK FOR MENTAL HEALTH PROMOTION IN ELITE SPORT: FOUNDATIONAL CONCEPTS

An Ecological Systems Approach

Sporting organizations should aim to address the needs of athletes, coaches and support staff, and the factors that impact upon their mental wellbeing, while simultaneously striving to optimize the environment in which these individuals work, train and compete (Reardon et al., 2019). Recognizing that the mental health of athletes exists within the context of the wider sports system (Coyle et al., 2017), our framework is grounded in an ecological system approach (Bronfenbrenner, 1992) recognizing that the athlete is inseparable from their teammates/colleagues, coaches and support staff, and family or primary supports, as

well as their sporting organization. To some extent, this also extends to the relevant national or governing sporting body (see **Figure 1**). This model, originally described by Purcell et al. (2019) focuses on the transactional relationships between an individual athlete and the broader social and cultural contexts that they inhabit.

Flourishing, Languishing, and Thriving

Our framework is also predicated on the view that mental health and mental illness should be considered as discrete but related constructs (Keyes, 2002, 2005). Through this lens, an athlete, coach or staff member could maintain good mental health (flourishing) even while living with a mental illness, or conversely, experience poor mental health (languishing) in the absence of mental illness (see **Figure 2**). The terms "flourishing" and "languishing" refer to the presence or absence of a range of factors relating to both wellbeing (positive mood, life satisfaction) and positive functioning (e.g., self-acceptance, personal growth, purpose, autonomy, social connection, among others) (Keyes, 2002, 2005). For example in general clinical populations, "flourishing" has been reported amongst 22% of individuals experiencing substance use disorders (McGaffin et al., 2015) and 28% of those with schizophrenia spectrum disorders (Chan et al., 2018). Therefore it is possible for an athlete with a diagnosed mental disorder to still engage with their sport and experience positive states of wellbeing, such as having positive self-regard, continued personal and professional growth, and meaningful social connections. This framework has been proposed as a useful conceptualization of the full range of mental states that exist within elite sport (Uphill et al., 2016; Lundqvist and Andersson, 2021) and highlights the need for both the promotion of high wellbeing in addition to the prevention of mental ill-health. In elite sport settings, athletes who identify that their sporting environments are less supportive are more likely to be categorized as languishing (Küttel et al., 2021). We posit that the concepts of flourishing and thriving are important for underpinning stigma reduction strategies in elite sport, and ensuring that athletes or staff who are experiencing mental health symptoms remain engaged and connected to the sporting environment, if so desired.

Flourishing, as described above, relates to the presence of hedonic wellbeing (e.g., positive affect) and factors of positive life functioning. The term "thriving" is often used in the sporting context to describe a combination of high wellbeing (i.e., flourishing) and a sustained high level of performance (Brown et al., 2018). Specifically, athlete thriving has been characterized by positive attitudes, motivation, continuous holistic development and a sense of belonging (Brown et al., 2018). From a sample of athletes, coaches and sports staff, Brown et al. (2018) identified a range of contextual and personal factors to promote thriving. Contextual factors included (i) strong interpersonal relationships within the sporting organization, (ii) perceiving support from coaches, teammates, support staff and families, (iii) supportive training environments (e.g., appropriately challenging training), and (iv) experiencing appropriate levels of pressure. Personal factors that athletes, coaches and support staff identified as facilitators of thriving included (i) desire and motivation, (ii) trust and commitment

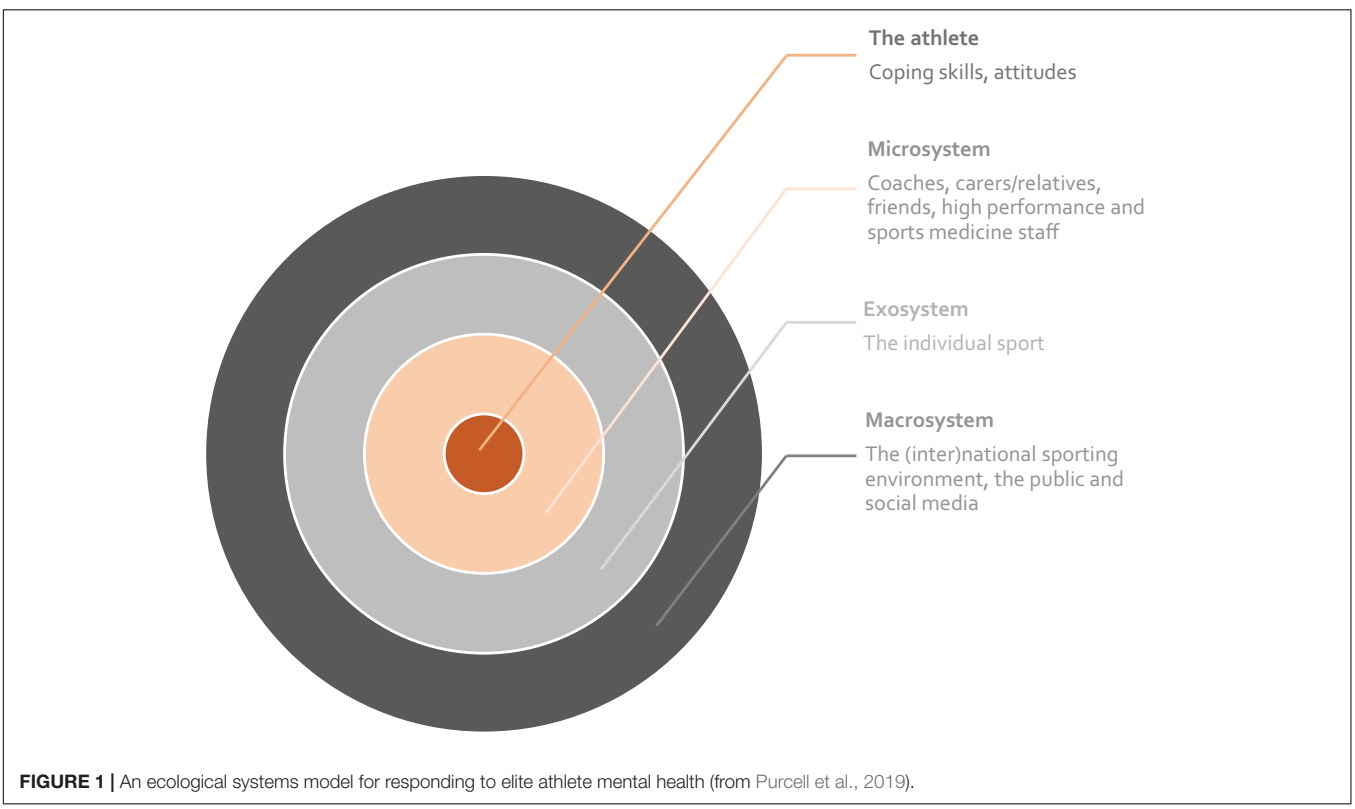

FIGURE 1 | An ecological systems model for responding to elite athlete mental health (from Purcell et al., 2019).

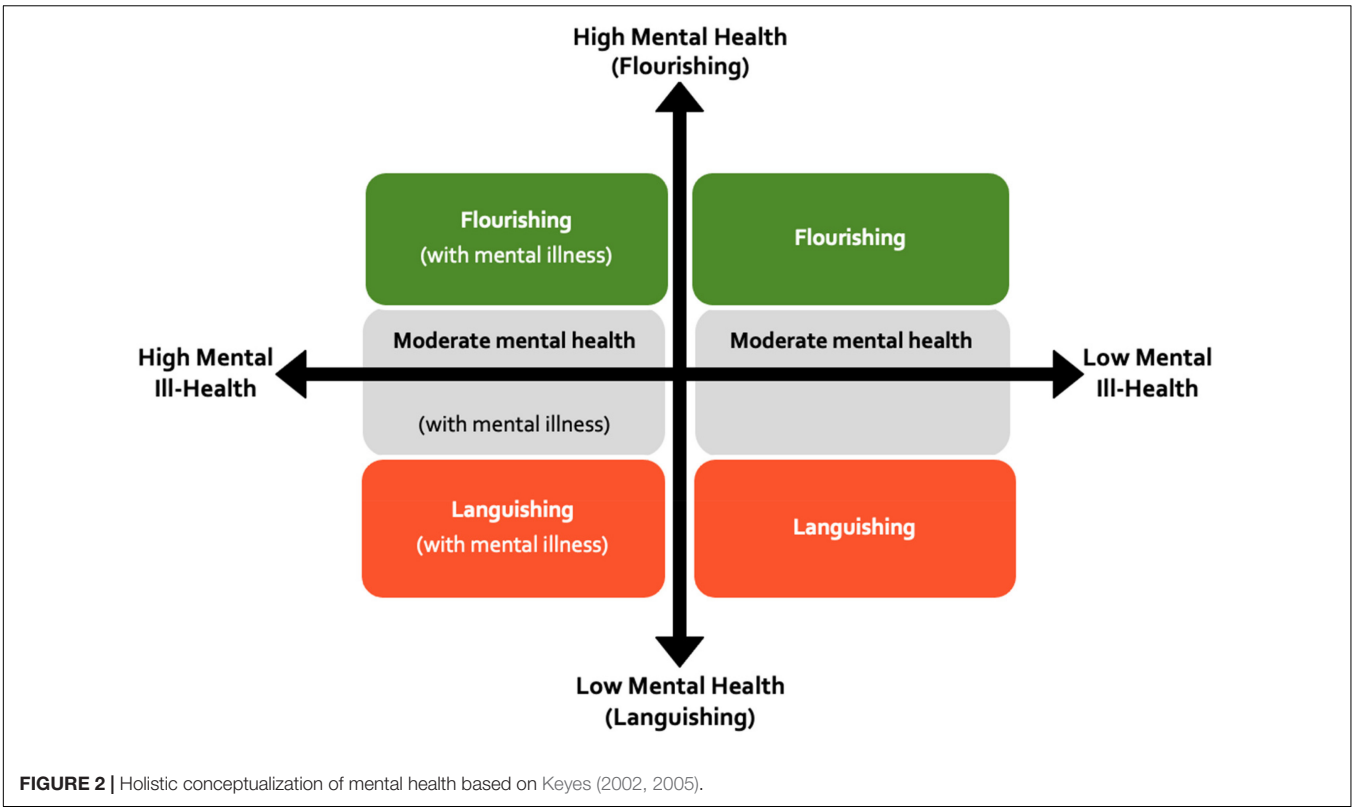

FIGURE 2 | Holistic conceptualization of mental health based on Keyes (2002, 2005).

to developmental process, (iii) self-belief, (iv) goal setting, (v) understanding of both personal and sporting demands, (vi) ability to manage stressful situations and (vii) positive mental states (Brown et al., 2018). Several of these factors relate to the ability to promote or maintain self-directed motivation, commitment, understanding and self-regulation, aligning with principles of Self-Determination Theory (Deci and Ryan, 2012).

Self-Determination Theory

Self Determination Theory (SDT) posits that humans have basic psychological needs for *autonomy, competence and relatedness,* which must be met in order for the individual to experience optimal wellbeing (Deci and Ryan, 2012; Shannon et al., 2020). *Autonomy* refers to a perception of choice and self-directedness, *competence* refers to a feeling that one has ability and opportunity in sport, and *relatedness* is defined as a sense of caring, connectedness and safety with others (Hodge et al., 2008). Mental wellbeing and levels of intrinsic motivation to engage in health-related behaviors may vary in elite athletes according to the extent to which the environment in which they operate satisfies their basic psychological needs (Ryan and Deci, 2000; Deci and Ryan, 2012). SDT provides a useful framework for understanding how elite sport organizations can create an environment to meet these psychological needs (Ryan et al., 2008). Elite sporting environments that are supportive of, and nurture, stakeholders' needs for autonomy, competence, and relatedness are likely to promote self-development and wellbeing among their athletes (Bartholomew et al., 2011; Mahoney et al., 2014; Küttel and Larsen, 2020; Shannon et al., 2020). In one longitudinal study of a large and diverse sample of athletes assessed at three time-points, a predictive relationship was observed between athletes' experiences of autonomy, competence, and relatedness, and their subsequent reported levels of thriving (Brown et al., 2021), irrespective of characteristics such as age, gender, or competition level. This work replicates and builds upon Brown and colleagues' studies illustrating meaningful relationships between basic psychological needs and thriving in sport (Brown D. J. et al., 2017; Brown et al., 2020).

A PROPOSED ELITE SPORT MENTAL HEALTH PROMOTION FRAMEWORK

The current framework originated from a forum attended by 35 athlete wellbeing and sports medicine staff from a range of major Australian elite and professional sports, held in Melbourne in June 2019. Attendees emphasized the various and disparate ways that sports were approaching mental health promotion and lamented the lack of a "road-map," based on evidence or best practice principles, that could be adapted to improve mental health promotion and cultural change within their own contexts. The need for, and utility of, a road-map or framework for mental health in elite sport was unanimously endorsed by the attendees, and the authors committed to leading the development process, including conducting a literature review and stakeholder engagement on what constitutes best-practice principles in the absence of research evidence. The framework was developed using an iterative process, where gaps in the evidence-base were

augmented by stakeholder consensus on principles considered critical to promoting and supporting mental health in elite sporting contexts. The following sections outline the key guiding principles and supporting evidence of the framework, followed by actionable recommendations to promote mental health in elite sport. The guiding principles have been divided into two sections, where the first section discusses promoting mental health and supporting a cultural shift toward prioritizing mental health and wellbeing, while the second section discusses promoting mental health literacy and key protective factors for mental health.

1. PROMOTING MENTAL HEALTH AND WELLBEING (AND SUPPORTING CULTURAL SHIFT)

This section includes evidence and best practice related to the promotion of mental wellbeing, with an emphasis on promoting a *cultural shift* away from a "win at all costs" narrative, to supporting mental health in the high-performance context, and creating psychologically safe and mentally healthy environments that allow athletes, coaches and support staff to thrive.

1.1 Strive to improve the narrative toward mental health in elite sports settings, including conceptualizing mental health and physical health as inseparable

A fundamental principle for sporting organizations to strive for is that athletes, coaches and support staff should be *intrinsically valued*, separate to their sporting role, performance and success. Demonstrating this philosophy throughout decision-making processes will help sports organizations to proactively set the tone regarding their commitments to equally support both physical and mental health (Reardon et al., 2019). Indeed, factors associated with poor mental health (e.g., high stress, intrusive thoughts, impaired cognition) can lead to an increased risk of physical injury (Wiese-Bjornstal, 2010). Akin to physical health, mental health allows individuals to function, cope with stress, perform meaningful work and contribute to society (Gorczynski et al., 2020). As an extension of this philosophy, athlete support and development strategies should incorporate athletic, psychological, psychosocial, academic-vocational and financial components, in line with the Position Stand of the International Society of Sport Psychology (Schinke et al., 2018) (also see 2.2).

Since elite sports value mental toughness (and stoicism, to varying degrees), many individuals may feel reluctant to disclose their experiences of mental ill-health. Given that traditional organizational structures contribute to power imbalances within many sports, organizational processes and communications should be clearly led and supported via a top down approach, with ownership/governance, executive, and coaching staff all supporting a common goal of valuing the mental wellbeing of all individuals. To engage athletes and garner buy-in, any stigmatized narratives that surround mental health must be shifted. Stigma is one of the leading deterrents of help-seeking in elite sport (Gulliver et al., 2012; MacIntyre et al., 2017). Organizational efforts to normalize and validate mental health in elite sports are critical to reducing stigma and improving help-seeking behavior (Moesch et al., 2018). Leveraging openness may foster a non-judgemental environment where staff and athletes are able to engage in open discourse around mental health and wellbeing.

The role of the coach (and role models) in the sporting environment are critical here, as coaches have the potential to help shape team cultures that normalize, destigmatize and are supportive of mental health and help-seeking (Bissett et al., 2020). Coaches who successfully enhanced their teams culture reported doing so by clearly communicating their team's values (Schroeder, 2010). Coaches should explicitly communicate with athletes that their mental health is valued, promote help-seeking where indicated (including medical help-seeking for physical injuries or concerns) and proactively model this conduct by eliminating language or practices that stigmatize mental illness and mental health help-seeking (e.g., around "toughening up" or similar), including derogatory labeling (Bissett et al., 2020).

These principles support the recommendations (see **Table 1** following these sections) to develop and disseminate a Mental Wellbeing Declaration, design personalized development plans, and provide opportunities for a mental health practitioner to work within the sporting environment.

1.2 Create environments that foster wellbeing and strengthen protective factors for mental health

Supportive environments should be underpinned by a culture of "psychological safety" among stakeholders within the organization. Creating an environment that is perceived as being "psychologically safe" reflects a climate of interpersonal trust, mutual respect, acceptance and civility (Edmondson, 1999), where individuals can take interpersonal risks, such as ask questions or seek feedback without fear of negative repercussions, such as humiliation, rejection or criticism (Edmondson, 2004). Psychologically safe environments enable individuals to "be themselves," without the need to "mask" attributes, values or beliefs. While research is yet to investigate the role of psychological safety in promoting mental wellbeing in elite sport, emerging studies have reported a positive association between psychological safety and team performance (Smittick et al., 2019) and mediating effects of psychological safety between team identification and wellbeing through reduced burnout (Fransen et al., 2020). An abundance of research in non-sporting work contexts has reinforced the positive outcomes of psychological safety (Newman et al., 2017; Albritton et al., 2019). Creating climates that are perceived as psychologically safe facilitates active participation among stakeholders (Edmondson, 1999).

According to SDT, sporting organizations should aim to create and maintain an environment that supports autonomy, competence and relatedness (or connection/connectedness) amongst all individuals. Allowing individuals to take a greater position of autonomy will improve intrinsic motivation to engage in health-related behavior. An environment that supports autonomy provides athletes, coaches, and support staff with the rationale for tasks, opportunities for input and decision making, and acknowledges their perspectives and feelings (Mageau and Vallerand, 2003). Coaches are well-placed to provide athletes the opportunity for greater self-direction, which can lead to

TABLE 1 | Recommendations.

Recommendations	Framework references
Develop and disseminate through co-design principles*, an individual, team and/or organizational Mental Wellbeing Declaration that outlines how the organization will promote mentally healthy environments and details the wellbeing outcomes for athletes and personnel.	1.1–1.5 Promoting mental health
Establish and define outcome measurement for athlete mental health, and continuously monitor to improve organizational capacity to reach these outcomes.	1.2 foster wellbeing; 2.2 person-centered care
Design personalized athlete development plans to address the physical health and mental wellbeing needs of each individual athlete.	2.2 person-centered care; 1.5 respecting diversity
Ensure a workforce capacity plan is activated to increase mental wellbeing capabilities of sporting organizations. E.g., include minimum accreditation standards and qualifications for mental health practitioners**; ensure competency-based mental health literacy, help-seeking and diversity education is incorporated into minimum compliance education modules.	1.1 improve the narrative; 1.4 ensure basic safety; 1.5 respecting diversity; 2.1 tailoring psycho-education
Create safeguarding policy and procedure for appropriate behavioral conduct, confidential and supportive complaint processes, and dissemination of these policies	1.4 ensure basic safety
Provide opportunities for a mental health practitioner to be embedded within the organization to work with athletes and staff in improving narratives around mental health in sporting environments.	1.1 improve the narrative; 1.2 foster wellbeing; 2.3 opportunities for self-development
Promote healthy and diverse avenues for social support in athletes' and stakeholders' sporting and non-sporting lives.	1.3 promote social support
Prepare athletes (and coaches) for key transitions by promoting the development of a non-athletic identity among athletes throughout all stages of their career.	2.4 strengthening external identity; 2.5 support key transitions
Aid development of athletes' self-management and coping skills to prepare them for sporting (and non-sporting) challenges.	2.3 opportunities for self-development 2.5 support key transitions
Provide bespoke training to coaches surrounding mental health literacy, need-supportive coaching and diversity/cultural awareness, to assist in the promotion of mental wellbeing among their athletes/themselves.	2.1 tailoring psycho-education; 1.5 respecting diversity; 1.2 fostering wellbeing
Provide planned transition programs to support athletes through voluntary or involuntary retirement from sport.	2.2 person-centered care; 2.5 support key transitions
Ensure visibility of diversity to support minority groups by creating on open and inclusive environment that supports unique needs.	1.5 respecting diversity
Develop procedures for the provision of feedback (performance and wellbeing) to and from coaches, athletes and staff.	1.2 fostering wellbeing; 2.2 person-centered care

**Co-design refers to the process of bringing people with different perspectives, needs, knowledge and skills to collaboratively develop a response to a concern (Zamenopoulos and Alexiou, 2018).*

***A mental health practitioner refers to a qualified mental health professional such as a psychiatrist, psychologist, mental health nurse, occupational therapist or social worker.*

higher intrinsic motivation (Amorose and Anderson-Butcher, 2007; Gillet et al., 2010; Banack et al., 2011) and promote athlete wellbeing and prevent burnout (Langan et al., 2015). The interpersonal style employed by coaches is highly influential (Vallerand and Losier, 1999). Emotionally abusive behaviors, such as shouting, belittling, and using degrading comments and humiliation pose a threat to the mental wellbeing of athletes (Gervis and Dunn, 2004; Kavanagh et al., 2017). That this can include burnout and maladaptive coping calls into question the ethics of such approaches (Bartholomew et al., 2011; Balaguer et al., 2012; Stirling and Kerr, 2013). Conversely, interventions that promote positive coaching communication styles have led to improved athlete mental health (Smith et al., 1995, 2007) and maintain psychologically safe environments.

A sporting environment that supports competence should provide adequate challenges and feedback to athletes to bolster feelings of self-belief and accomplishment (Brown et al., 2018). Pressure on the athlete to perform, as well as pressure placed on coaches (and support staff) for success (from funders, governing bodies or boards) can hinder thriving and influence coaches into enforcing a controlling style that is not needs-supportive (Berntsen et al., 2019) and does not foster autonomy. Building autonomy and competence requires the use of appropriate feedback to offset the negative impacts of perceived pressure and maintain motivation (Cheon et al., 2015). Specifically, feedback that is factual, non-judgemental, concrete, formative, changeable and conveys high yet realistic expectations, is beneficial for building intrinsic motivation and creating competence support (Mageau and Vallerand, 2003). The use of these techniques should be applied when providing feedback to any member within the sporting environment (i.e., not just for athletes).

Lastly, leveraging social connection will promote feelings of relatedness in the elite sporting environment. Social support is among the most influential factors enhancing mental wellbeing in athletes (Küttel and Larsen, 2020; Purcell et al., 2020; Walton et al., 2021), while poor social connection is associated with low self-esteem, depressive symptoms and psychological distress (Baumeister and Leary, 1995; Gouttebarge et al., 2015). Within sports organizations, high quality, supportive relationships have been associated with several positive outcomes, including improved psychological health, adaption to stress and improved performance (Burns et al., 2019). Interestingly, Walton et al. (2021) demonstrated that athletes generally prioritize personal relationships outside sport for support, rather than turning to those within their sporting environment. While 7% of the elite athlete sample endorsed their sport psychologist as primary

source of support, less than 2% selected their coach. Instead, friends, family, and partners were much more readily relied on as main sources of support for athletes. This may support the view that athletes do not feel sufficiently safe to disclose mental health concerns within sporting environments, and instead turn to trusted and reliable personal relationships.

The principles of SDT and psychological safety uphold the recommendations (**Table 1**) to develop procedures for the provision of feedback, providing bespoke training for coaches (and/or other stakeholders where relevant) to create environments that are supportive of basic human needs (e.g., autonomy, competence, relatedness), and promote healthy and diverse avenues for social support. Combined, these elements facilitate mentally healthy environments by promoting socially safe interpersonal relationships and communication styles.

1.3 Promote healthy social support in stakeholders' sporting and non-sporting lives

There are various avenues for promoting relatedness, including peer support (from the team or fellow athletes), supervisor support (coaching/support staff), formal support (mental health clinicians), and external support (family, friends, partners). Coaching staff should strive to engage in genuine, personalized conversations with athletes where possible, since athletes feel more supported by coaches who relate to them in an empathetic way (e.g., asking about their lives and interests outside sport) than coaches who merely communicate technical knowledge (Burns et al., 2019). Developing relationships (coach-athlete and athlete-athlete relationships) in this way may also make an athlete feel more valued as a person, rather than only feeling valued for their skills and performance.

To strengthen external support networks, sporting organizations should aim to provide opportunities for athletes, coaches and support staff to integrate their family or peer network within the sport where possible. For example, social functions and events organized by sporting organizations should ideally include athletes' family or peer support network where possible, and sports organizations should facilitate the opportunity for family members to accompany athletes and coaches during extended periods of travel away from home where possible.

1.4 Ensure the basic safety of athletes and others in the sports setting, including protection from any risks to physical safety and creating cultures with zero tolerance toward known contributors to mental ill-health (including abuse, racism, and discrimination)

Abuse or maltreatment occurs in elite sporting environments, and contributes to impaired mental health. This includes acts of neglect and/or physical, sexual, and emotional abuse, and varying forms of bullying, harassment, exploitation, institutional maltreatment, and abuse or assault (Stirling, 2009). Central to the potential for athlete maltreatment (especially junior athletes) is the inherent power imbalance that exists between the athletes and those responsible for decisions that affect their careers, including selection, training priority and medical treatment. Coaches and support staff (including sports medicine practitioners) all hold positions of power and should be explicitly aware of the effect that this can have on athlete wellbeing.

Safeguarding strategies are crucial to ensure that athletes are not subject to such negative experiences (Mountjoy et al., 2015), and include developing safeguarding policies and clear procedures for responding to safeguarding concerns, communicating to athletes where they can seek advice and support, eliminating or minimizing risks to athletes, developing codes of conduct for behavior in the sport setting, ensuring appropriate recruitment and training processes and ongoing monitoring and evaluating of safeguarding compliance and effectiveness (International Safeguarding Children in Sport Working Group, 2016).

All individuals working within elite sporting organizations should be given information regarding complaints processes, which should be easily accessible to athletes of all ages and levels of competition. This should involve anonymous ("whistle-blower") avenues as well as confidential complaints. Policies and procedures should be developed and communicated about protecting complainants from negative consequences to their careers.

These basic safety principles designate the recommendations to create safeguarding policy and procedure for appropriate behavioral conduct, confidential and supportive complaint processes, and dissemination of these practices to all stakeholders.

1.5 Develop respect for diversity and individual differences within sport

Diverse and minority groups are likely to face a range of both sport-specific and culture-specific stressors that may impact their mental health (Ryba, 2017). For example, First Nations athletes have recounted the challenges associated with relocation to unfamiliar cultural communities (Schinke et al., 2006), while a lack of cultural understanding by coaches, teammates and staff can lead to alienation, marginalization, self-imposed retirement and depressive symptoms (Blodgett and Schinke, 2015; Schinke et al., 2018). Cultural factors can also act as barriers to help-seeking for mental health concerns, such as gender role beliefs (e.g., high masculinity and toughness in male athletes), religious beliefs (e.g., low acceptability of mental health concepts) and dependence on economic benefits from sport participation (Castaldelli-Maia et al., 2019).

Sports organizations should strive to create environments that are inclusive and supportive of diversity to reflect the varying needs of athletes. Mentally healthy sports environments are respectful and inclusive of cultural, identity (including sexuality and gender), religious and linguistic needs of individuals, whilst also recognizing how these factors intersect. Culture-specific support for athletes should be implemented where appropriate, such as access to culturally competent mental health providers, cultural spaces (e.g., a prayer room) and observance of cultural practices (e.g., kinship connections). While developing individual development plans for each athlete, cultural and identity differences should be considered. This requires an individualized approach to athletes that takes into account their own particular contextual needs.

At the organizational level, creating a capable workforce will enable identification of those contributing to, or experiencing, marginalization and discrimination. This allows for early identification and intervention to reduce or prevent mental wellbeing concerns. Further, "visibility" (seeing yourself in the environment) can be created via employment of staff from different cultures, races, genders, religions, and sexualities. Celebration of diversity directly opposes "denial of visibility," that pressures individuals to conform to the accepted or visible archetype (e.g., heteronormativity, hegemonic masculinity) by denying or prejudicing minority groups (Amodeo et al., 2020). This pressure can lead to distress, depressive symptoms, withdrawal, and shame (Symons et al., 2017). While there has been some recent progress in elite sports organizations in terms of recognizing the importance of diversity, sports should strive to embrace diversity in their organizations wherever possible.

The recommendations that accompany these principles include implementing bespoke training for diversity/cultural awareness, ensuring competency-based education is incorporated into minimum compliance modules and ensuring visibility of diversity to support minority groups by creating open and inclusive environments.

2. PROMOTING MENTAL HEALTH LITERACY AND PROTECTIVE FACTORS

This section focuses on promoting increased understanding about mental health, including enhancing knowledge about risk factors for mental ill-health and enhancing protective factors for mental health, which in turn can help to prevent the onset of mental ill-health.

2.1 Provide sports-specific mental health training that is tailored to the sporting context

Sporting organizations that strive to build mental health literacy are best placed to reduce stigma and enhance help-seeking (Gulliver et al., 2012). Poor mental health literacy is recognized as a notable barrier to help-seeking behavior in sport (Gulliver et al., 2012; Castaldelli-Maia et al., 2019). This can manifest as lack of ability to recognize symptoms of mental ill-health, lack of knowledge about available treatment options, and fear of stigma or negative consequences arising from disclosing a mental health concern. Participation in psychoeducation about mental health should be a minimum compliance requirement that will convey the organization's commitment to creating a cohesive understanding of mental wellbeing within the sporting environment.

Gorczynski et al. (2020) emphasized that mental health literacy interventions should be tailored to developmental, cultural, social and systemic considerations in elite sporting organizations (for example, factoring in age, type of sport and whether an individual or team sport). Athletes are likely to differ in their expression of poor mental wellbeing compared to the general population, and this needs to be incorporated into psychoeducation delivered by a skilled (e.g., experienced in elite sport) mental health clinician; for instance, differentiating burnout or overtraining from depression (Kreher and Schwartz, 2012).

Acknowledging the broader context in partnership with specific education regarding the sporting organization's current procedures, avenues to support and commitment to mental wellbeing will provide athletes, coaches and staff with the confidence and know-how to look out for the wellbeing of themselves and others.

This evidence base endorses the recommendations to provide bespoke (i.e., sports-specific) training for mental health literacy and help-seeking and to ensure training is part of minimum compliance modules.

2.2 Promote mental health and wellbeing strategies within sporting organizations that are person-centered and reflect an individual's changing needs

Sporting organizations that understand and acknowledge that each athlete is unique in their wellbeing support needs will avoid the trap of a "one-size-fits all" mentality or approach. In this regard, opportunities for individual development, support and care should be provided in a *person-centered* manner. Though definitions vary across disciplines (e.g., medicine, disability support), person-centered care relates to honoring the individual, engaging them in participation and facilitating their strengths (Waters and Buchanan, 2017). Person-centered approaches acknowledge that the individual is the expert on themselves and places decision-making in their hands where appropriate. In practice, each athlete, coach and staff member with mental health needs should have a personalized wellbeing care plan developed, where the individual has autonomy to communicate their unique risk and protective factors. Mental health outcomes that are monitored as part of a care plan will vary across individuals, which further helps to avoid a template or "tick-box" style care plan. Equally, an athlete's needs will change over time, and this should be reflected by updating their wellbeing care plan. Developing the athlete as an autonomous individual, and meeting this innate need, is a key value of the athlete talent development process in elite sports organizations (Henriksen et al., 2010). Furthermore, intrinsic (i.e., self-produced) goals nominated by athletes themselves are associated with greater health, wellbeing and performance (Vansteenkiste et al., 2004; Ryan et al., 2008).

Understanding when an athlete may be at risk of experiencing heightened distress requires both recognition of their unique risk factors *as well as* common contexts for challenges (e.g., serious injury, traveling overseas for competition, or training without adequate social support). In this sense, tailoring care to the individual's context also plays a role in *preventing* poor wellbeing or mental ill-health. For example, transitioning out of elite sport can often involve a loss of identity and purpose. Adequate self-management skills are crucial during periods of career transition (Bernes et al., 2009). Early intervention programs aimed at broadening the life skills of elite athletes may partially mitigate the risk associated with retirement (Anderson, 2012).

These principles and supporting literature underpin the recommendations to create personalized development plans and establish and define outcome measurements for mental health.

2.3 Provide ample opportunity for athletes, coaches and staff to develop effective self-management skills, with support from a mental health clinician

Sporting organizations, via engagement with mental health clinicians, medical teams or other support staff, can use appropriately shared information from tailored plans to recognize times when further support may be needed and help facilitate the development of athlete and coach self-management skills. Self-management skills such as managing stress and emotional regulation, optimal communication styles, or problem-solving techniques, are often under-developed in elite athletes as a result of the performance focused environments in which they typically operate (Anderson, 2012). Sporting organizations should assist athletes and coaches to develop a range of self-management and adaptive coping skills (such as cognitive or behavioral coping strategies, as opposed to avoidance as a coping style) particularly for use during periods of psychological distress (Purcell et al., 2019). Developing athlete use of adaptive coping strategies to overcome problems has a significant impact on the development of a resilient profile in elite athletes (Belem et al., 2014). The ways by which athletes appraise and cope with personal and athlete-specific stressors can be a powerful determinant of the impact the stressors have on both their mental health and their sporting success (Rice et al., 2016). The ability to manage stressful situations is a key indicator of thriving in elite sport (Brown et al., 2018).

These principles and supporting literature underpin the recommendations to aid development of self-management and coping skills.

2.4 Promote the development of a non-athletic identity among athletes and coaches throughout their career

Athletic identity represents the extent to which an athlete's conception of their self-identifies with their role as a sportsperson (Brewer et al., 1993). Self-concept can encapsulate a range of factors such as perceived values and social networks. Though certain aspects of an athletic identity may aid success (e.g., perfectionism), the same traits are often associated with poorer mental wellbeing (Chang et al., 2020). Furthermore, individuals with a unidimensional athletic identity are more susceptible to negative outcomes upon retirement, including psychological distress, symptoms of depression and poor vocational/employment and financial adjustment (Knights et al., 2016; Sanders and Stevinson, 2017).

Conversely, non-athletic factors have been associated with the quality of sport career transitions and adjustment to life after retirement from sport (Erpič et al., 2004). An athlete who has other leisure, education or career pursuits in which to participate and find meaning or purpose, will likely find career transitions to be easier (Anderson, 2012; Bennie et al., 2021). However, developing skills or acquiring qualifications often takes time and athlete retirement is frequently unplanned or involuntary. Considering this, the development of a *non-athletic* identity in preparation for the eventual end of competitive sport must occur at all phases of the sporting career, from junior levels, to elite on-boarding and throughout the career (Park et al., 2013). Additionally, sports organizations should assist athletes who are retiring from their sport with development of a comprehensive pre-retirement plan (Chang et al., 2020). Sports organizations should also assist coaching staff to develop a non-sporting identity, which may also provide a positive model of this behavior to athletes.

This evidence base supports the recommendation to promote non-athletic identity throughout all stages of athletes' (and coaches') careers.

2.5 Equip athletes and coaches with necessary skills and support them during key sport-related transitions, including during the transition into and out of elite sporting environments

A range of key "transitions" have been identified in elite sport that can lead to problems with mental wellbeing, including transitioning *into* elite sport (Bruner et al., 2008; Stambulova et al., 2020), following major injury (Putukian, 2016), trans-national or "cultural" migration (e.g., to a new team or organization) (Ryba et al., 2018) following major events (e.g., returning from the Olympics/Paralympics or other major events) (Howells and Lucassen, 2018; Bennie et al., 2021), as well as the transition out of sport into retirement. Each of these contexts requires careful consideration of both preventative and responsive measures.

Athletes should be prepared for, and supported through, a range of key sport-related transitions.

Stambulova et al. (2020) highlighted that understanding of each of these experiences – or their combination—requires a holistic lens, incorporating athletic, psychological, psychosocial, academic/vocational or financial factors or perspectives. Sporting organizations must endeavor to provide adequate career-long psychological support services for athletes and coaches, which acknowledges the many inter-related transitional stages likely to be experienced. Sporting organizations should ensure that athletes and others within elite sport environments are aware of the stressors they may encounter related to major career transitions and ensure support is available via appropriate referral pathways to mental health clinicians when appropriate (see for example, the NFL rookie career transition program and the AIS Mental Health Referral Network) (Rice et al., 2020a; NFL, 2021). This involves discussing the need to maintain mental and physical health and the resources available to players in order to support their wellbeing needs.

These principles and supporting literature underpin the recommendations to provide planned programs/support for key transitions.

ACTIONABLE RECOMMENDATIONS TO SUPPORT FRAMEWORK IMPLEMENTATION

Table 1 provides actionable recommendations that sporting organizations can adopt and tailor to meet their unique needs, that correspond to the sections within the framework.

The recommendations provided are specific yet flexible, in order to allow for relevant tailoring. For instance, we recommend that sporting organizations promote development of a non-athletic identity, yet we do not prescribe specific programs. Sporting organizations may opt to embed opportunities for further education, programs to develop vocational skills, or set aside time for athletes' personal interests/past-times. The organization's resources (e.g., funds, people, schedule availability, accessibility to facilities/experts, etc.) will also influence how these recommendations may be best implemented. The overarching principles that should be considered when translating these recommendations into practice is to collaborate with the key stakeholders, seek feedback, and continuously evaluate. Just as this framework was developed in collaboration with sporting staff, expert researchers and mental health practitioners, is it crucial that sporting organizations, coaches, athletes and sports staff be consulted and actively involved in the implementation process. When initiatives are in place, those involved should be provided avenues for feedback regarding what is and is not working. This process is crucial as it may highlight discrepancies and suggest areas that need further development. For instance, Moore (2016) found that athletic directors perceived mental health resources and psychosocial services for student athletes to be more readily available than the athletes' perceptions. Continual evaluation of how initiatives are perceived and how they may be influencing targeted outcomes is imperative to creating a thriving environment where stakeholders flourish.

DISCUSSION

This paper presents a collaboratively developed and evidence informed framework to guide best-practice in mental health and wellbeing promotion within sports settings. In high-pressure success-oriented environments, stakeholders can become caught up in the desire to win, losing sight of the wellbeing needs of themselves and others in order to achieve (Berntsen et al., 2019). Sporting organizations that proactively develop and implement strong policies and practices will not only create psychologically safe, thriving environments for their athletes, coaches and staff, they will lead the way for others to follow suit.

Recommendations listed above are underpinned by the extant evidence from elite and professional sporting contexts, although more research is needed to guide mental health supports in elite sport. For instance, there may be significant differences between team and individual sport environments. Preliminary research comparing individual and team sport athlete stressors and coping emphasize specific team-related stressors such as selection pressure and letting team-mates down (Nicholls et al., 2007), and a tendency for individual sport athletes to favor emotion-focussed coping in response to stressors, compared to the use of communication techniques in team-sport athletes (Nicholls et al., 2007). Our framework designates teammates as key elements of the sport "ecology," but this may not be as relevant for individual sport settings. Further research into the roles of connectedness, social support and cohesion in team and individual sport settings will enhance the way the framework may be tailored to each context.

The framework would also be advanced by the formulation of a unified definition of, and ability to accurately measure, athlete wellbeing (Giles et al., 2020). Within current sport psychology research, athlete wellbeing is an indeterminate and inconsistently defined construct, leading to an array of operationalized variables within the literature (Lundqvist, 2011). Frequently used measures of athlete wellbeing include life satisfaction, positive affect, self-esteem and subjective vitality (Giles et al., 2020). Though such concepts are inevitably linked with aspects of wellbeing, individually they may not encapsulate the entirety of the construct. Without a recognized and broadly accepted definition, ambiguity and incongruences may compromise understanding, subsequently impacting research and further policy development. Greater clarity of definitions would bolster recommendations within this framework (e.g., establishing and defining outcome measurement for athlete wellbeing, personal development and thriving) and their implementation.

Through the development of this framework, we call on elite and professional sporting organizations to augment policies created for *performance* agendas with policy that is guided by supporting and improving wellbeing (Diener and Seligman, 2004). Recognizing that athletes are "people first" is necessary to improving psychological safety within elite sport. Involving the people for whom the policies are created (e.g., athletes, coaches, high performance staff) in the co-design process will ensure that sporting organization's policies are best placed to suit their specific needs.

AUTHOR CONTRIBUTIONS

RP, SR, SC, and DR contributed to the concept for the framework and manuscript. All other authors contributed to the drafting of the manuscript and take responsibility for the work.

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Psychological Distress in Elite Sambo and Recreational Athletes

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Background: Previous studies suggest that engagement in any type of physical activity can be protective against mental health issues, whereas elite-level athletes can endure various mental health challenges. The aim of this study was to determine variations in the prevalence of psychological distress among elite sambo athletes and their recreational counterparts.

Methods: A sample consisting of 245 athletes (127 males and 118 females) was chosen. Out of the total sample, 105 were elite-level athletes while 140 were recreational athletes. Participants were accessed via the Depression Anxiety Stress Scales-21 to determine their stress in various domains at a given time.

Results: Data indicated that all tested differences between elite sambo athletes and recreational athletes were statistically significant; recreational athletes had a higher score on the depression scale, anxiety and stress, and a general distress score than sambo athletes. Although there are no gender differences in psychological distress in the total sample of athletes, elite sambo athletes achieve significantly lower scores in all tested variants than recreational ones. Women who engage in recreational activities have stood out as a vulnerable subsample in psychological stress.

Conclusion: Future epidemiological and interventional studies should explore optimal strategies to identify mental health needs based on specific sport activity, especially in terms of gender. There is a need to place special emphasis on psychological distress in the context of combat sports.

Keywords: psychological distress, athletes, elite sambo, recreational, prevalence

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INTRODUCTION

Despite the essential importance of mental health in the athletic population for achieving outstanding performance (Purcell et al., 2019), little is known about their mental health, particularly with respect to the prevalence of mental health issues. Lack of evidence in this field has commonly been justified on the stereotypical basis that athletes are just "stronger people" and that sport naturally selects individuals in terms of health, both physical and psychological (Chang et al., 2020). Several studies confirm these claims to a degree; athletes are less depressive and anxious compared with the overall population and adapt to stressful situations easier, have more self-esteem, and have

better body image (Rice et al., 2016; Gouttebarge et al., 2019). However, it is being neglected that the athletic environment often includes unique stressors caused by high-pressure circumstances, constant mental efforts, demands, and limitations which may negatively impact mental health (Rice et al., 2016). In addition, professional sport is completely different from recreational sport with regard to mental health risk factors (Gouttebarge et al., 2017). To affirm the aforementioned, studies have repeatedly shown that athletes who constantly have to prove themselves to a coach and/or teammates have better career trajectories than their counterparts playing the same position, as those who are unhappy with the development of their sports career or were injured and are preparing to end their career (usually those who are the most committed and at elite level) (Gouttebarge et al., 2019). It is often forgotten that the picture of athletes' mental health is formed based on the number of those who request help (Prinz et al., 2016), but there are certainly those who neglect the problem and do not even ask for help. In addition, there is a lack of educative effort among coaches, physicians, physiotherapists, and club managers who are in permanent and in direct contact with athletes as well as those who are supposed to recognize and prevent mental health problems of their players (Prinz et al., 2016). If the stigma is added to already bad mental health situations in athletes (Bauman, 2016), which is connected to the acknowledgment that mental health issues among athletes exist and which is further extended to athletes' status within teammates, coaches, fans, and social interaction, it becomes inevitable to confess that mental health of athletes undoubtedly becomes an interplay where inter- and intrapersonal factors are perplexed. Depending on which of these factors is dominant, outcomes of mental health are better or worse, and this should be the key aspect of mental health research in athletes.

Early detection of mental health symptoms in athletes has to take into consideration the prevalence of mental health symptoms, which is based on gender and/or (specific) sport practiced. As far as gender-dependent mental health problems are concerned, epidemiological studies consistently indicate that females are more susceptible to mental health issues than males (Leach et al., 2008). Contingent on the type of mental issue, prevalence among females is two times higher for depression for anxiety and multiple times higher (up to 10 times higher) for eating disorders compared to males (Brody and Hall, 2008; Leach et al., 2008; Schaal et al., 2011). Relative inconsistency of these findings in the athletic population (Kotnik et al., 2012; Rice et al., 2016; Akesdotter et al., 2020) was found due to methodological differences in various studies (different measurement tools, specific sports samples, and other sports-related variables) and until now has not questioned the position that mental health problems in athletes and elite athletes show equal gender dependence like in general population (Schaal et al., 2011).

Specific-sport-based differences also reflect on aspects of mental health. For instance, significant differences in the level of anxiety which exist among athletes who participate in gymnastics or figure skating or those who engage in high-risk sports (Schaal et al., 2011; Lakicevic et al., 2020) can be explained by the specificity of these sports. In the first instance, success depends on the jury decision, and tension develops as the control of the situation is decreased. In the second group of sports, seeking excitement and going against danger is the essence of activity, so anxiety or fear would represent a counter indicator of involvement in that particular sport (and exceptions would just affirm that rule). Aiming toward perfection, known to be present in artistic swimming, can hardly be achieved in other sports. Regarding eating disorders, prevalence varies in different sports with exceptionally high levels of racing and fine motor skills when matched against team ball sports. For male athletes, however, participation in combat and contact sports showed the highest prevalence of eating disorders in comparison with the type of sports (Schaal et al., 2011; Lakicevic et al., 2021).

The commonality of all mental health problems, given all gender and/or sports type and/or sports level, is the presence of unpleasant emotions (Werner and Gross, 2004), with the absence of those problems being unthinkable to diagnose any problem of mental health. Therefore, unpleasant emotions or emotional conditions which threaten to overwhelm us and that affect our everyday activities and relationships with other people jointly termed psychological distress—are known to be the most reliable markers of measuring mental health status (Diener et al., 2010). When a person is constantly facing situations that cause discomfort, fear, or worry and is unable to confront those, that person can start avoiding social contact, feels tired, sad, or angry and is overpowered, which consequently leads to poor performance and also impact existing conditions negatively (Werner and Gross, 2004). If affected persons are athletes, timely intervention can have a profound impact on their career trajectories (Wylleman et al., 2015).

Predicated on the findings that the international success of juniors in combat sports represents a significant predictor of the long-term international success of seniors (Li et al., 2018), early identification of susceptibility elements of psychological distress in younger age categories enables eradication or mitigation of its effect on sports performance and benefits the overall health of an athlete. This also holds true in senior age athletes, because, if neglected, psychological distress can become an even great problem after a career (Prinz et al., 2016).

The main aim of this study was to analyze variations in the prevalence of psychological distress based on gender and sport practiced among elite sambo athletes and recreational athletes, particularly in the measurements of depression, anxiety and stress, and general distress, in overall distress with a particular emphasis on sex-based differences. Based on the previous findings on variations in the prevalence of mental health symptoms among athletes of both gender in specific sports, we hypothesize that differences in the examined aspects of mental health between elite sambo and recreational athletes exist; gender, in addition, may contribute to understanding these differences in our particular subsamples.

MATERIALS AND METHODS

Participants

The sample included 245 athletes, of which 127 were males and 118 were females. Further, 105 were elite sambo athletes, whereas

140 participants were recreational athletes. Among elite sambo athletes (24.32 ± 6.23 years), 52 were males and 53 were females, while among recreational athletes (26.74 ± 5.30 years), 75 were males and 65 were females. Elite sambo athletes subsample were participants of the European Sambo Championship held in May 2021 in Cyprus. Sambo athletes were coming from Russia (33.3%), Uzbekistan (20.9%), Ukraine (18.1%), Lithuania (14.3%), Serbia (8.6%), and Croatia (4.8%). The average weekly exercise volume was 24.0 ± 4.2 h. Recreational athletes were coming from a fitness center in Novi Sad, Serbia, of which 25% train two to three times per week, 61.4% train four to five times per week, while 13.6% train six times per week.

To test athletes partaking in the European Sambo Championship (Cyprus, May 2021), DASS-21 was translated to Russian, Lithuanian, Croatian, and Serbian languages, which are already available at http://www2.psy.unsw.edu.au/dass//translations.htm. These athletes were tested during the break of their athletic duties, whereas recreational ones were tested before and after training sessions. All participants volunteered to participate in the study. Testing lasted for about 10 min, with researchers' supervision. There were none of the data rejected due to partial completion of the scale.

Instruments

The Depression Anxiety Stress Scales-21 (DASSs-21; Lovibond and Lovibond, 1995b) were used to assess psychological distress in elite sambo and recreational athletes. This 21-item self-report scale contains three subscales (each has seven items) for measuring depression, anxiety, and stress, primarily in non-clinical populations of adolescents and adults (authors suggested using it for individuals older than 14 years). Participants indicated how much each item applied to them over the past week on a four-point Likert scale from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much or most of the time*). A total score is calculated as a measure of psychological distress by summing all items.

DASS is based on dimensional and not on the categorical conception of a researched psychological problem. The differences in depression, anxiety, and stress affect different individuals and differences in the degree of the issue.

Although the initial version has 42 items, research on psychometric properties of the 42-item and 21-item versions of DASS in a clinical and non-clinical population showed that the DASS-21 has the same factor structure, with DASS-21 demanding less time (double) for testing, so it is recommended for assessing aforementioned emotional states in the non-clinical population (Antony et al., 1998). Therefore, when using the DASS-21, the rule is to multiply the obtained scale scores by two so that they can be compared to the DASS normative data and to other published DASS data, which in this case was done.

Due to the low time demand of the scale and the fact that it is easy to fill out and is publicly available, this scale is one of the most used scales when it comes to emotional assessment due to its metric characteristics, which were also confirmed in our case.

Statistical Analyses

All applied analyses were performed using the software Statistical Package for Social Science (SPSS), version 20 (SPSS, Chicago, IL). Initially, descriptive statistics (means and standard deviations) for the entire sample and also for specific subsamples (male/female, elite sambo/recreational athletes) was conducted. Normality of distribution was checked (skewness, kurtosis, and Kolmogorov–Smirnov test), internal consistency (Cronbach's alpha), intercorrelations for subscales, and total score DASS-21 within the researched sample. Due to distribution not being normal, appropriate nonparametric measures were taken to compare the DASS-21 scale and subscale scores by sports type/gender in the total sample, with significance being set at $p < 0.05$.

RESULTS

In **Table 1** are shown means and standard deviations for the three subscales and the total score of the DASS-21 (multiplied by 2), indicators of distribution normality (skewness, kurtosis, and Kolmogorov–Smirnov test), Cronbach's alpha coefficients, correlations (Pearson's r) among the three subscales, and general distress in the total sample.

Mean of the total athletes' sample in DASS-21 score was 21.33 (SD = 18.40); between males and females, no statistically significant difference was found: general distress [(M_m = 20.69; SD_m = 16.09 to M_f = 22.02; SD_f = 20.65), depression (Mm = 4, 63; SDf = 6.59; SDm = 5.66 to Mf = 4.37 to Mf = 4.37), anxiety (M_m = 5.69; SD_m = 5.61 to M_f = 6.05; SD_f = 7.12), and stress (M_m = 10.38; SD_m = 7.76 to M_f = 11.59; SD_f = 9.89)]. Females displayed a trend in several above average values when compared to males u in all assessed, except for depression.

Normality tests (skewness, kurtosis, and Kolmogorov–Smirnov test) show that data are not normally distributed (values: from .123 to .231; all $p < 0.01$); a majority of athletes had lower scores in examined subscales of depression, anxiety and stress, and in general distress, with a great deviation from normality, especially in the subscale of depression.

Cronbach's alpha coefficients obtained from the athletes whose values vary from 0.775 (for anxiety subscale) to 0.897 (for general distress) show very good consistency of the scale and are in agreement with the original manual, from 0.73 to 0.81 (Lovibond and Lovibond, 1995a), and other studies that have used this instrument all over the world (Bottesi et al., 2015, from 0.74 to 0.92; Jovanović et al., 2014, from 0.77 to 0.92).

Intercorrelations between specific subscales of DASS-21 in this research range from 0.461 to 0.705; the obtained correlation coefficients are of mild intensity and could be considered as expected if we take into consideration that researched aspects have a common cause in genetic and other factors of vulnerability, which have a tendency to be common for all emotional states and not specific for one. Acquired correlation total score of general distress with depression subscale (r = 0.788), anxiety subscale (r = 0.839), stress subscale (r = 0.930), despite the magnitude of coefficient, also points toward the common cause of all the researched variables of distress and

TABLE 1 | Descriptive statistics and distribution of DASS-21 in the total sample.

	M	SD	Sk	Ku	K–S*	α	2	3	4
1. DASS-21 depression	4.51	6.12	2.386	8.181	0.231	0.780	0.461*	0.614*	0.788*
2. DASS-21 anxiety	5.86	6.38	1.804	4.824	0.179	0.775		0,705*	0.839*
3. DASS-21 stress	10.96	10.96	0.609	−0.258	0.123	0.820			0,930*
4. DASS-21 total	21.33	18.40	1.290	3.346	0.123	0.897			

M, mean; SD, standard deviation; Sk, skewness; Ku, kurtosis; K–S, value of Kolmogorov–Smirnov test.
**Values of Kolmogorov–Smirnov tests are significant (p < 0.01).*
α, Cronbach's alpha coefficients; 2, 3, 4 = intercorrelations.
*Values of standard errors for skewness and kurtosis are .156 and .310, respectively, *p < 0.01.*

TABLE 2 | Comparison of depression/anxiety/stress scores as well as psychological distress total score between elite sambo athletes and recreational athletes in the total sample (values of mean rank, Mann–Whitney U test, and *p*).

	Elite sambo (*n* = 105)	Recreational (*n* = 140)	U	p*
	Mean rank			
Total athletes sample				
DASS-21 depression	110.36	132.48	6,022.50	0.013
DASS-21 anxiety	111.93	131.30	6,188.00	0.032
DASS-21 stress	102.41	138.44	5,188.00	0.000
DASS-21 total	104.44	136.92	5,401.00	0.000

**p < 0.05.*

TABLE 3 | Differences in depression/anxiety/stress scores as well as psychological distress total score between elite sambo athletes and recreational athletes within the male and female subsamples (values of *mean rank, Mann–Whitney U test,* and *p* for males and females).

	Elite sambo (*n* = 52)	Recreational (*n* = 75)	U	*p**
	Mean rank			
Male athletes sample				
DASS-21 depression	64.06	63.96	1,947.00	0.988
DASS-21 anxiety	60.91	66.14	1,789.50	0.425
DASS-2 stress	56.70	69.06	1,570.50	0.061
DASS-21 total	58.38	67.89	1,658.00	0.151
	Elite sambo (*n* = 53)	**Recreational (*n* = 65)**		
Female athletes sample				
DASS-21 depression	47.92	68.95	1,108.50	0.001
DASS-21 anxiety	52.38	65.31	1,345.00	0.038
DASS-21 stress	47.13	69.58	1,067.00	0.000
DASS-21 total	47.01	69.68	1,060.50	0.000

**p < 0.05.*

toward differences which further lead to conclusions that some events in the environment that cause bad emotions within an overall population are partly specific. There are several studies where the factorial structure of DASS-21 was explored. It was shown that a trifactorial model with the unknown factor of general distress best describes the structure of the scale (Henry and Crawford, 2005). This model is applied in our research as well.

Table 2 shows descriptive statistics (mean rank, Mann–Whitney U, and p) after comparing depression/anxiety/stress scores as well as psychological distress total score between elite sambo athletes and recreational athletes in the total sample.

All tested differences between elite sambo and recreational athletes were statistically significant; recreational athletes had a higher score on the depression scale, anxiety and stress, and a general distress score than sambo athletes. Average values affirm accuracy gained through Mann–Whitney test comparing sambo and recreational athletes: in depression subscale $M_s = 3.03$ ($SD_s = 3.794$) and $M_r = 5.61$ ($SD_r = 7.217$), in anxiety subscale $M_s = 5.22$ ($SD_s = 6.236$) and $M_r = 6.34$ ($SD_r = 6.459$), in stress subscale $M_s = 8.67$ ($SD_s = 8.769$) and $M_r = 12.69$ ($SD_r = 8.552$), and in general distress $M_m = 16.91$ ($SD_m = 16.11$) and $M_f = 24.64$ ($SD_f = 19.35$). Although data are not normally distributed, means and standard deviations should be seen as exploratory, but these values are valuable for comparison with other studies that used similar testing tools.

On the level of the total sample, no statistically significant gender differences were found. However, it is possible that these differences were skewed since no data were obtained on the type of sports males and females were engaged in. Nevertheless, these differences might explain differences between sambo athletes and recreational athletes in psychological distress. **Table 3** shows differences in depression/anxiety/stress scores as well as psychological distress total score between elite sambo athletes and recreational athletes within the male subsample and within the female subsample (mean rank, Mann–Whitney U, and p).

Based on the results shown in **Table 3**, within male subsamples, differences between elite sambo and recreational athletes in self-assessment of psychological distress were not statistically significant, which was similarly found in the total sample. It is noticeable that the trend of higher values is found within recreational athletes in comparison with sambo athletes, except for the subscale of depression. Some inconsistencies

were found when conducting a *t*-test, which is sometimes recommended for nonparametric data (Skovlund and Fenstad, 2001), with sambo athletes in the subscale of anxiety having slightly higher values when compared to recreational athletes, with none of the values being statistically significant [in depression subscale $M_s = 4.27$ ($SD_s = 4.534$) and $M_r = 4.48$ ($SD_r = 6.334$), in anxiety subscale $M_s = 5.81$ ($SD_s = 6.630$) and $M_r = 5.60$ ($SD_r = 4.832$), in stress subscale $M_s = 9.08$ ($SD_s = 8.274$) and $M_r = 11.28$ ($SD_r = 7.298$), and in general distress $M_s = 19.15$ ($SD_s = 17.03$) and $M_r = 21.76$ ($SD_r = 15.45$)].

However, elite sambo athletes show significantly lower scores on all examined variables—less depression, less anxiety, less prone to stress, and cope with psychological distress better when compared to females who are recreationally active. Comparing average values of obtained results between sambo and recreational athletes, all aspect of unpleasant emotional states were confirmed and for general distress: in depression subscale $M_s = 1.81$ ($SD_s = 2.362$) and $M_r = 6.46$ ($SD_r = 8.076$), in anxiety subscale $M_s = 4.64$ ($SD_s = 5.828$) and $M_r = 7.20$ ($SD_r = 7.888$), in stress subscale $M_s = 8.26$ ($SD_s = 9.291$) and $M_r = 14.31$ ($SD_r = 9.606$), and in general distress $M_s = 14.71$ ($SD_s = 14.99$) and $M_r = 27.97$ ($SD_r = 22.73$).

This paper has several relevant limitations. When four subsamples were compared (male and female sambo, male and female recreational athletes), female elite sambo athletes were less depressed and anxious and less prone to stressogenic reactions and had the lowest scores of psychological distress within the total sample. Unlike them, female recreational athletes had the highest values of all examined variables within the total sample screened. Also, female recreational athletes are much more prone to stress than males ($t = -2.115$; $p < 0.036$) when compared with sambo athletes, and males are significantly less stressed than females ($t = 3.493$; $p < 0.01$). This large gap in the display of psychological distress symptoms depends on whether they are engaging in sambo or are recreationally active to more mean values for the female subset and no gender differences in the total sample. Heterogeneity of the female subset has caused to derive all of the statistically significant differences.

DISCUSSION

Studies of variations in the prevalence of psychological distress in elite sambo and recreational athletes are rare, and this might be due to the theme itself and due to the specificity of the sports sample, especially elite sambo athletes who are not adequately represented in the literature and virtually nonexistent in the sports psychology. Sambo athletes aim to strengthen their body and mind and to use it against the opponent, which can also reflect on mental health. On the other side, the psychological distress of sambo athletes was compared with recreational athletes who are also aware of physical activity and are active habitually. They definitely feel the benefits of physical activity on their mental health, which makes them different than the overall population. When comparing elite sambo athletes and recreational athletes in psychological distress, we expected that the quality of the elected sport had a significant influence.

Indeed, acquired results confirm this premise; elite sambo athletes scored significantly lower compared to recreational athletes in all examined variables of psychological distress—DASS-21 depression subscale score, DASS-21 anxiety subscale score, DASS-21 stress subscale score, and DASS-21 general distress (total) score differentiated elite sambo and recreational athletes. A possible explanation for these results might lie in the level of engagement in a particular sport. For elite athletes, an elevated level of stress and tension is a sort of normal environment that they are used to, so they can cope better with it, unlike their recreational counterparts. Everyday encounters with high demands, pressures, and expectations have upgraded the level of mental toughness in elite athletes. Therefore, what some non-athletes or recreational athletes perceive as tough or difficult to overcome, professional athletes might perceive the same experience in a milder magnitude. This does not mean that other athletes do not develop a mechanism to cope with pressures that are specific to a particular position that they hold in a given sport or physical activity, but differences in the effectiveness of overcoming and controlling psychological distress between elite athletes and the others exist according to our study. There is no doubt that the differences in psychological distress between athletes and non-athletes could be explained by the presence of positive emotions in athletes that could counter the negative ones. However, the control group within this study was comprised of recreational athletes who gladly engage in physical activity so that those positive emotions might be even more displayed in recreational athletes (Wienke and Jekauc, 2016), which excludes this as a confounding factor. Considering that both subpopulations belong to the athletic population, differences between them in terms of emotional expression are likely caused by the specifics of the sport or physical activity they are engaged in. As a sport, sambo can provide its participants tools to cope with problems whereby their mental health is maintained while dealing with everyday problems. Whether this mental strength stems from the ability to confront an opponent or to confront yourself, or both, might be answered in one of the future studies where the special emphasis would be placed on combat sports and elements of these sports in conjugation with psychological. With that being said, it should be noted that the majority of sambo athletes engage in rapid weight loss due to tactical but also psychological advantages (self-respect, satisfaction, etc.) (Drid et al., 2021; Figlioli et al., 2021). This might be the key reason why elite sambo athletes cope with psychological distress better.

When comparing our results obtained on a total sports sample with the results obtained using the same scale, DASS-21, in the general population (e.g., Jovanović et al., 2014; Bottesi et al., 2015; Sariçam, 2018), we could not notice any regularity in terms of values on particular subscales. However, when separately comparing elite sambo athletes with recreational athletes from our research with the results of other research in which DASS-21 was used, it is noticeable that recreational athletes self-perceive unpleasant emotional states more in line with the general population than elite sambo athletes (Jovanović et al.,

2014; Bottesi et al., 2015). Higher average values found in females on the scale of psychological distress compared with male counterparts were not confirmed in this study. Gender studies of mental health suggest a magnified presence of psychological stress in females when compared to males. However, gender differences studies that used DASS offer inconsistent results, often indicating no gender differences (e.g., Norton, 2007; Mahmoud et al., 2010; Apóstolo et al., 2012; Bottesi et al., 2015). In this study, the obtained results can be justified for a sport-participating sample, a factor known to help with mental health issues. This was also shown in our study, where female athletes showed better mental health when compared to the general population and when compared to male athletes—whereby equal results were found. Thus, if there is a difference between males and females in psychological distress in the overall population, it is not noticeable in the athletic population. Therefore, taking part in sports can induce more psychological benefits in females than males, at least in the researched aspects of the study.

In this study, gender dependence of a specific type of sports activity in psychological distress was noted. Within the female sample, female sambo athletes showed lower scores in depression, anxiety and stress subscales, and general distress scale than female recreational ones. In male participants, there are no differences between elite sambo and recreational athletes in psychological distress, just like in the total sample. Notably, females who practice sambo have the lowest score in scales when compared to other subsets (female recreational, males sambo, and recreational), while recreational athletes show the highest score in a subscale of depression, anxiety, stress, and general distress scale. Unlike male samples, which are quite homogenous when it comes to psychological distress (both elite sambo and recreational athletes), in female sample results show that specifics between sports might have a particular effect on mental health.

Our interpretation of the mentioned findings in women refers to the fact that sambo in terms of mental health is most likely an upgrade of something that in other types of physical activity they cannot adopt and refers to the supply of resources to cope with psychological distress. Unlike them, we assume that in male sambo athletes, it is just a continuation of the natural environment which means playing their gender role as a fighter who protects the family from external challenges—he imposes himself as someone who is strong, and who can and resists these challenges. Thus, females through sambo improve their mechanisms of coping with challenges and unpleasant emotional states, while in males, this shift is not significant.

The obtained results should not be generalized on elite athletes' population or athletes' population, since the study was conducted specifically in sambo athletes. Likewise, this holds true for recreational athletes, since the age gap in selected individuals was very narrow. Our control group was a part of the institutionalized and structured group that engaged in habitual physical activity, which implicates that they might be aware of the effect of physical activity on mental health. When interpreting data, we have to notice that the championship was held in the midst of the COVID-19 pandemic and associated precautionary measures (Gentile et al., 2021), which could have influenced the variables.

CONCLUSION

Data acquired in this study in terms of the prevalence of psychological distress in athletes suggest that they are vulnerable to a range of mental health issues that may be related to both sport and non-sport factors. Moreover, the results showed gender and specific-sport dependence of examined mental health problems. Females were found to be a vulnerable subsample, especially recreational female athletes, not elite-level ones. Future epidemiological and interventional studies should explore optimal strategies to identify mental health needs based on specific sport activity, especially in gender.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The study obtained ethical approval from the Faculty of Sport and Physical Education, University of Novi Sad, Serbia (Ref. No. 46–06-02/2020–1) and it was conducted according to the Helsinki Declaration. Furthermore, all sambo athletes gave written informed consent with complete information about the study and questioners provided by the investigator. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

TT, SE, and PD contributed to the conception and design of the study. TT, BŽ, NL, NZ, BG, ER, TBT, and AB organized the database. TT, NZ, BG, and ER performed the statistical analysis. TT, NZ, AB, and PD wrote the first draft of the manuscript. All authors contributed to the manuscript revision and read and approved the submitted version.

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CASE REPORT
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Case Report: An Application of Wellbeing Science for the Development of Adolescent High-Performance Athletes in the Australian Football League

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Elite athletes experience both universal and sport-related mental health risks. Young high-performance athletes on pathways to professional sport also face the additional challenges associated with the developmental period of adolescence and early adulthood, making prevention and mental health promotion critical in this population group. This community case study considers the wider youth mental wellbeing evidence base, alongside primary prevention in elite sport, and proposes a model of wellbeing for the specific implementation in youth high performance athletes in the Australian setting. The Mental Fitness Model is based on the PERMA theory of wellbeing, which comprises positive emotion, engagement, relationships, meaning, and accomplishment, and is tailored specifically to the unique needs of young high-performance athletes in Australia. The Model sits within a host of evidence-based, appropriately resourced, wellbeing science activities, coordinated by an overall strategy that allows monitoring and continuous improvement. As such, we propose this application of wellbeing science is highly novel for the youth high performance setting. Future work is needed to test the feasibility of this model in an applied context. Further work is also needed to integrate specifically cultural considerations for wellbeing, and to integrate the lived experiences of young people through participatory research. This model is proposed to hold unique promise to meet the mental wellbeing needs of young high-performance athletes, whilst promoting positive mental health that can track into adulthood.

Keywords: mental wellbeing, young high-performance sport, elite sport, youth athletes, community case studies, Australia

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INTRODUCTION

High performance sport is increasingly recognized as a unique setting which poses risks to mental wellbeing. Athletes experience universal risks, such as genetic pre-disposition, stressful life circumstances, and relationship difficulties, in addition to sport-specific risks such as performance pressures, social media and other public scrutiny, and physical injury risks (Purcell et al., 2019). Meta-analytic research suggests comparable prevalence of common mental disorders

(i.e., depression and anxiety) between athletes and the general population (Gouttebarge et al., 2019). There is, however, increasing recognition of the high-performance environment specific stressors that can contribute to the onset and course of mental ill health, and therefore form potential targets for prevention and early intervention (Currie et al., 2021).

Mental health researchers are largely in agreement that an athlete's mental health needs are paramount to physical wellbeing, and that it is both physical and mental wellbeing that are likely to contribute to optimizing athletic performance (Rice et al., 2016; Reardon et al., 2019). Whilst the treatment and management of athlete mental ill health is fundamental to overall athlete wellbeing, it is now recognized that promoting mental wellbeing serves a role beyond offsetting risks of mental disorders (Uphill et al., 2016). Mental wellbeing, and positive psychology more broadly, shifts focus from pathology and deficit focused paradigms of mental health, toward the conditions that support an individual to flourish (Seligman and Csikszentmihalyi, 2014). In other words, mental health is considered more than the absence of mental ill health but encapsulates a global state of wellbeing that focuses on a holistic approach to overall health and human development such that individuals are able to live meaningfully and positively contribute to society.

A large proportion of the mental wellbeing literature to date has focussed on young people, reflective of the known optimal age period for prevention in early life (Arango et al., 2018). In particular, the adolescent age period of 13–18 years comprises a period of rapid developmental, social and emotional changes including increased independence, autonomy, physical maturation, and also a known period of increased risk behaviors (Sawyer et al., 2018). Young people engaged in high performance sports experience the universal risks during this age period, alongside sport specific experiences such as increased pressure to perform, physically and mentally demanding training programs, and potential alternative education programs (Brenner et al., 2019).

Given the known benefits of primary prevention in this age group, alongside the growing understanding of nurturing mental wellbeing among athletes, there exists a unique opportunity to develop and implement a model of wellbeing for young high-performance athletes. This community case study reports on the relevant literature, identifies elements of mental wellbeing most pertinent to this group informed by positive psychology, and describes the application of a model of wellbeing for the high-performance space among young Australian athletes. It is envisaged that such a model could be adapted to meet the needs of young high-performance athletes across other codes and settings, as well as remaining iterative to the emerging evidence body among this specific population group.

CONTEXT

The Australian Football League (AFL) is the pre-eminent, professional sporting competition of Australian rules football and encompasses both men's and women's (AFLW) professional leagues. The AFL is the governing body for the sport at the professional level, and importantly holds responsibility for the participation and talent development infrastructure that supports the professional competition. The AFL's National Talent Pathway is the AFL youth program for talent identified players aged 16–19 years in high performance leagues and Academies throughout the country. There are approximately 1,500 athletes identified annually in the program who are invited to engage in intensive programs to prepare for possible drafting to the national leagues. These identified young high performance athletes are required to engage in training, matches and activities to develop their talent and ability to perform under pressure, whilst being scrutinized by AFL Clubs for their suitability to become an AFL/AFLW player. Providing further context for this current work is the AFL Industry Mental Health Strategy, which was launched in 2019 covering period 2020–2022 (https://resources.afl.com.au/afl/document/2020/12/16/49fbf87a-7290-4a88-a0a3-5c98c79e6e4a/AFL-Mental-Health-Wellbeing-Strategy_2020_2022.pdf). The aligned Mental Health Strategy guides an industry wide approach to mental health and wellbeing and includes all associated activities across the industry including those within the National Talent Pathway. The AFL Mental Health and Wellbeing in the National Talent Pathway position statement further contextualizes this current work (https://resources.afl.com.au/afl/document/2021/11/04/67edea0c-d0fc-4fdb-ae33-1e0a86b1e562/Talent-Pathway-Wellbeing-Position-Statement.pdf?_ga=2.22362163.949308775.1651457423-1818937647.1629779017).

PROGRAMMATIC ELEMENTS

Literature Review

A review of literature was conducted to identify applications of mental wellbeing in young high-performance sport. The Scale for the Assessment of Narrative Review Articles informed the methods for this review (Baethge et al., 2019). Whilst the articles selected for review were based on their relevance to the context of this specific study, it is possible that some literature was overlooked and thus this approach does not assume to be exhaustive.

Mental Wellbeing

The reviewed literature suggests that there is consensus that positive mental health is not exclusively the absence of psychopathology, and equally, experiencing low levels of wellbeing does not confirm a diagnosable mental health condition. Mental wellbeing, however, is not universally defined, although it is generally accepted that wellbeing is best described as a multi-dimensional construct, that incorporates pleasure and happiness, as well as psychological and other forms of functioning, and ultimately concerns the factors that allow optimal human functioning (Dodge et al., 2012; van Agteren et al., 2021). Eudemonic (i.e., personal fulfillment and living one's values) and hedonic (i.e., the pursuit of happiness and other pleasurable feelings) theories have characterized mental wellbeing definitions historically, however such definitions have been criticized for focusing exclusively on positive feelings and positive functioning which can be restrictive and specific to the

culture in which individuals live (Disabato et al., 2016; Huta, 2017). Further, alongside the lack of consensus for theoretical underpinnings of mental wellbeing, there are also consequential inconsistencies in the measurement of mental wellbeing which further complicate the field.

Mental Wellbeing in Young People

The developmental perspective requires a model of mental wellbeing that applies to young people, of which positive psychology appears to hold promise based on the exponential growth of literature in this field aimed at adolescence and school settings generally (i.e., positive education, Seligman and Adler, 2018). Martin Seligman, a pioneer in positive psychology, proposed that wellbeing is comprised of five elements being positive emotions, engagement, relationships, meaning and accomplishment, which he refers to as the PERMA model of wellbeing (Seligman, 2012; Seligman and Csikszentmihalyi, 2014). Positive emotion refers to happiness, joy, love, compassion, and other emotions. Engagement refers to being present in the current moment and engaging entirely in the task at hand. Positive relationships refers to interactions with others that reflect supportive, loving and valued relationships. Meaning refers to experiencing value, worth and holding a purpose. Accomplishment refers to working toward and achieving goals. Seligman proposed that the above factors are major contributors to wellbeing, and they comprise defined and independent constructs that are intrinsically motivating to an individual (Seligman, 2018).

Seligman's PERMA model has shown moderate associations with other subjective measures such as those that screen for depression, anxiety, and stress (Kern et al., 2015; Butler and Kern, 2016). A longitudinal study of adolescents demonstrated that indicators corresponding to the PERMA model successfully predicted educational attainment and civic activities such as volunteering. This suggests that promoting positive mental wellbeing in younger years may support some healthy developmental milestones in adulthood such as employment and community engagement (O'Connor et al., 2017). The uptake of the PERMA model in school settings in Positive Education reflects the perceived appropriateness and value of this approach for supporting young people amongst community members and stakeholders (Slemp et al., 2017; Waters et al., 2017).

A major criticism of the PERMA model, and positive psychology generally, is that it is overly individualistic and culture bound in terms of domains in focus for subjective wellbeing (Gruman et al., 2018). This is particularly important given the known role of social determinants in the development and maintenance of mental wellbeing across the lifespan (Allen et al., 2014). Such determinants may be cultural, political, historical, and/or social such as the impact of poverty, racial discrimination, exposure to stressful life events, and access to community resources. In the Australian setting, the historical oversight of the specific social, emotional, and cultural experiences of wellbeing among First Nations people universally across models of mental health and wellbeing cannot be overemphasized (Terare and Rawsthorne, 2020; Wilson and Waqanaviti, 2021). This was highlighted in the Australian Government Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice body of work which aimed to provide appropriate resources to support mental health professionals who work with First Nations people experiencing mental health and wellbeing concerns (Purdie et al., 2010; Gee et al., 2014). It was noted that this work was in response to a dearth of literature to date in culturally appropriate resources that enable professionals to provide support in the context of suffering, grief and other forms of distress resulting from previous policies and practice for Aboriginal and Torres Strait Islander people. Gee and colleagues discussed understandings of social and emotional wellbeing from an Aboriginal and Torres Strait Islander perspective which includes centralizing culture alongside Aboriginal and Torres Strait Islander world views, and encompasses domains of health and wellbeing including connection to land or "country", ancestry, kinship and community). This is important in the AFL context because of the long-standing centrality of the game to Indigenous communities throughout Australia (Gee et al., 2014; Gorman, 2017).

Mental Wellbeing in Young High-Performance Athletes

The need to understand the uniqueness of mental health in the elite sporting domain is firmly established, as demonstrated through the recent publication of the International Olympic Committee consensus statement on mental health in elite athletes (Reardon et al., 2019). Importantly, Purcell and colleagues identified that whilst the International Olympic Committee's consensus statement provided welcomed recommendations for the treatment of mental illness among athletes, there was reduced attention to prevention and mental wellbeing promotion initiatives. Purcell et al. acknowledged that while mental health literacy and intervention models of care are prevailing frameworks in this burgeoning literature, primary prevention and wellbeing approaches have not been broadly examined (Purcell et al., 2019). In response to this, Purcell and colleagues proposed a framework for promoting mental health and wellbeing for elite athletes that comprises self-management skills among athletes, building capacity among stakeholders to support mental health, and emphasizing the need for multidisciplinary supporting teams (Purcell et al., 2019). Purcell et al. highlighted the need for whole systems of support that contribute to environments that promote and nurture mental health and that respond adequately to athletes' needs.

Whilst the above literature made important advances in relation to mental health, the area of wellbeing and positive mental health is in further infancy in the elite sport environment. Lundqvist et al. explored conceptual understandings of wellbeing in the elite athlete domain, finding that most wellbeing-based studies have used weak theoretical rationales or conceptual models of wellbeing, and failed to recognize the distinction between wellbeing in the general community and wellbeing among athlete groups (Lundqvist, 2011; Lundqvist and Andersson, 2021). Moreover, the identified literature on wellbeing among athletes has been limited by lack of use of sound, reliable and valid measures of wellbeing (Cooke et al., 2016; Giles et al., 2020). Despite limitations, the available literature to date has sought to identify the factors (and therefore, strategies) that can be utilized to protect and improve athlete

wellbeing. Specifically evidence to date has sought to understand the lived sports environment whilst considering the individual, social and community factors that unique to athletes (e.g., athletic identity, media and other pressures, physical injury) (Lundqvist and Sandin, 2014; Küttel et al., 2020).

Whilst literature on the facets of mental health and wellbeing support for elite athletes are emerging, the experiences of young high performance athletes (i.e., under the age of 18 years) is in infancy (Xanthopoulos et al., 2020). The young athlete experiences developmental changes that characterize adolescence generally including physical maturation, social and peer group transitions, and a shift from dependent to increasingly independent relationships. The sport-specific factors that contribute to mental wellbeing include performance expectations, intensive training programs that may displace academic and social opportunities, and other pressures that characterize the high-performance domain. Whilst some literature historically demonstrated lower rates of mental illness among young high performance athletes, this has since been suggested to be explained, at least in part, by stigma associated with help seeking (Bauman, 2016). It is now understood the young athlete experiences mental ill health at similar rates to the general population (Gulliver et al., 2015; Rice et al., 2016).

In terms of mental wellbeing, there is very little research in terms of models of mental wellbeing designed specifically to support young high-performance athletes. Of the existing literature conducted among young high performance athletes, mental wellbeing has been measured as a secondary outcome, such as in studies designed to promote mental health and optimize performance through family-based intervention activities (Donohue et al., 2015), mindfulness based interventions (Longshore and Sachs, 2015), and for young high performance athletes identified at risk for mental health problems (Tester et al., 1999). Other research has sought to examine aspects of mental wellbeing, or trialed standalone positive psychology interventions such as practicing gratitude (Gabana, 2019). In terms of models of wellbeing for young high-performance athletes, we identified one example in the published literature which proposed, through theoretical review, the appropriateness of PERMA among Finnish junior ice hockey players (Uusiautti et al., 2017). Uusiautti et al. operationalised PERMA for elite junior ice hockey athletes and identified opportunities to support mental wellbeing in this group. Whilst this work offers unique insight into the theoretical appropriateness of PERMA, it does not propose a specific model of wellbeing and strategies for implementation.

Summary of Literature

The above literature review highlights that the evidence to date relating to elite athlete mental health has primarily focussed on psychopathology and treatment of mental illness, with little focus on the mental health promoting factors and strategies to support mental wellbeing. We identified that there may be utility for positive psychology, and in particular the PERMA model, to foster positive wellbeing however the mental wellbeing literature to date does not include a universally accepted definition or optimal approach. This is particularly the case for young people, with growing evidence to support the use of positive education that broadly targets the domains of the PERMA model in the education setting for young people aged 18 years and younger (Slemp et al., 2017; Waters and Loton, 2019). Despite its recognized utility, the PERMA model is limited by its individualistic approach, and the lack of recognition of the cultural and community factors that interact to impact mental wellbeing (Kern et al., 2020). Considering the Australian setting, we identified an Aboriginal and Torres Strait Islander model of social and emotional wellbeing to incorporate the social determinants of mental wellbeing more appropriately. Finally, we identified that the understandings of mental health and wellbeing are growing for the adult athlete population, however, less is known among young high-performance athletes who experience the dual risks of developmental changes that accompany adolescence, and the expectations and challenges that characterize high level sport. To our knowledge, there has been one proposal which discussed how the PERMA model could be operationalised in the young high-performance space, however, there does not appear to be a current model of wellbeing that has been developed, implemented and evaluated in a real-world sport setting.

THE MENTAL FITNESS MODEL

Given the above literature review and identified gaps in evidence to date, we sought to develop and propose a model of mental wellbeing for young high-performance athletes in the Australian Football League. Utilizing the above literature, combined with the investment within the AFL industry which recognizes the period of adolescence as critical to prevent and promote positive mental wellbeing that can track into adulthood, the Mental Fitness Model was developed. The purpose of this model was to enable a proactive and supportive culture of wellbeing in the National Talent Pathway, to provide environments that allow young high-performance athletes to develop and thrive, and to provide a framework which other junior sporting programs may adopt to support the wellbeing of their athletes.

The Mental Fitness Model (**Figure 1**) is informed by Seligman's PERMA model alongside several cross-cutting principles drawn from the AFL Industry Strategy which adopts the mental health continuum approach to mental wellbeing and ecological systems model for mental health (Keyes, 2002; Purcell et al., 2019). The model components, including supporting literature, proposed mechanisms, and example activities within the specific AFL context, are reported in **Supplementary Table 1**. The Mental Fitness Model focuses on the individual athlete at the center of the Model which considers the athlete's individual differences and their environment as interdependent contributors to wellbeing. This model acknowledges both the individual and the sporting system as both intervention targets. Three pillars of the mental health continuum are articulated in the model: prevent, support and thrive (flourish) (Keyes, 2002). The addition of mental fitness to the continuum was made in acknowledgment of the unique mental requirements of high-performance environments such as elite sporting contexts.

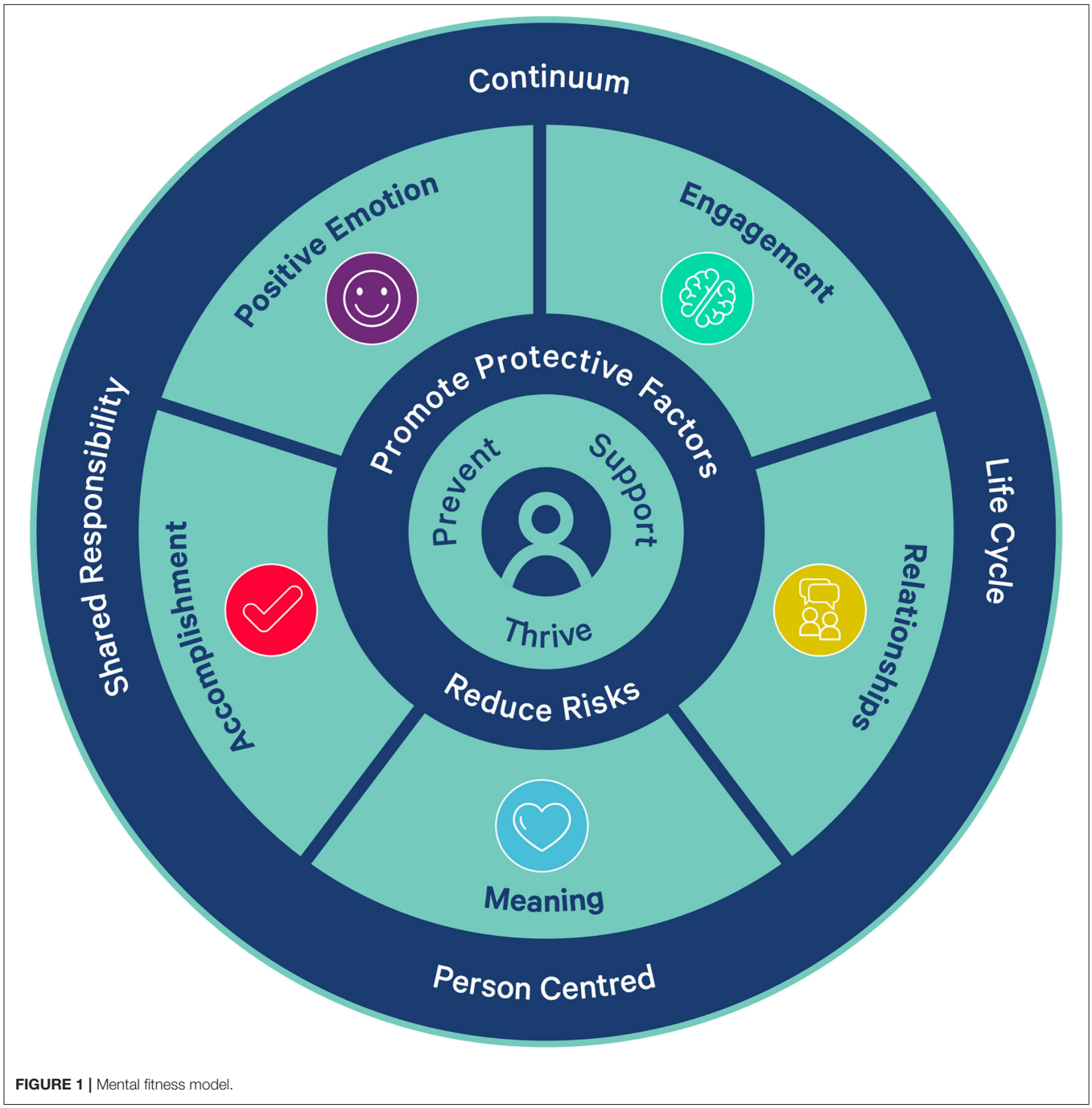

FIGURE 1 | Mental fitness model.

The individual building blocks of individual athlete wellbeing corresponding to the PERMA model of positive emotion, engagement, relationships, meaning, and accomplishment were integrated into the model.

The following levels, informed by Purcell's comprehensive mental health framework (Purcell et al., 2019), incorporate the promotion of protective factors, and the reduction of risks that occur in the individual, family, team and social, and other environments. In practice this incorporates the AFL specific risk and protective factors faced by young people such as age of draft and subsequent changes to education, employment and training engagement, being an individual member of a larger team, Australian-centric nature of the sport, and the unique challenges of the men's and women's programs (e.g., the shortened season length in the women's program). The final level proposes the wider macro level processes that underpin the building blocks of wellbeing such as the National sporting environment, public and social media. The Mental Fitness model was developed to be informed by theoretical frameworks for wellbeing, psychiatry's staging model, public health models such as social determinants of health and health promotion approaches. There is a continuous improvement focus that sought to evaluate and revise in an iterative way, as the program evolved and new evidence emerged relating to mental wellbeing.

Implementation

The above model guides the implementation of a host of wellbeing activities, all of which are designed to contribute to an environment of positive mental wellbeing. This aligns with earlier review of literature which highlights the need of moving beyond athlete awareness and encouraging help seeking, to creating mental wellbeing nurturing systems and environments (Purcell et al., 2019; Kern et al., 2020). A major component of this model is the delivery of the wellbeing curriculum to the young athletes. Whilst outside the scope of this paper in terms of program components (further work in relation to this program is forthcoming), briefly this curriculum focuses on building skills and strategies for young people to care for and build their own wellbeing. This reflects the core of the Model which is person centered in terms of individual skills development, as well as the interconnectedness of the environment in which they live. It also includes a parent education component to upskill parents and guardians in the wellbeing Model to build capacity in the home environment, and to create shared responsibility and language for young people's wellbeing. The delivery of wellbeing science is facilitated by AFL-employed, local wellbeing co-ordinators, who hold minimum or working toward Bachelor-level qualifications in health, education, or science. The young high-performance athletes are engaged in data surveillance regarding mental wellbeing, including the EPOCH measure which corresponds to the PERMA domains of wellbeing and adjusted for age-appropriateness (Kern et al., 2016).

It is important to note the implementation approach is designed based on best practice principles for enabling systems-level change (Braithwaite et al., 2018), and what has recently been promoted in the positive psychology literature (Kern et al., 2020). Specifically, the wellbeing activities are a set of strategic and coordinated activities, informed by the evidence-base as described above. This is in contrast to many wellbeing programs which can occur as standalone sessions with no overarching strategy or clearly defined evidence base on which they are developed. The role of wellbeing coordinators, who are credentialed in health, education or science, and who have completed professional development in wellbeing science and therefore hold appropriate skills and capacities, provide local, targeted and consistent supports to the young people within their settings. It is widely reported that to enable any positive health support for young people, there must be local leadership within the settings and communities in which the young people exist, that allow relationships which are enduring, localized and integrated (Bischoff et al., 2017; Hoare et al., 2019). Such personnel hold professional qualifications, and also hold community-specific knowledge of the players with whom they work. Lastly, on-going quality assurance and evaluation is achieved through surveillance and monitoring using reliable and validated measures of wellbeing. Whilst many wellbeing programs and initiatives are often developed and implemented, rarely do monitoring of outcomes and subsequent improvement of program components occur.

DISCUSSION

Our review demonstrated the need to consider the application of mental wellbeing science specifically for the young high performance athlete population. Whilst mental health treatment and coordinated systems of care are increasingly understood to be a critical aspect of high-performance sport generally, fewer literature has focussed on promoting mental wellbeing. Even fewer research studies have sought to explore models of wellbeing for the young high-performance athlete. Given what is known in regard to prevention during early years, the opportunities for early intervention leading to improved outcomes that can track into adulthood, and the uniqueness of elite sport specific experiences, there is strong rationale to explore how best to enable mental wellbeing in young athletes. The literature reviewed in this work led to the development of the Mental Fitness Model, which is based on the PERMA model of wellbeing, and adapted to the sport specific environment of the young Australian Footballer in the National Talent Pathway. This model sits within a suite of wellbeing activities that we propose are highly novel in terms of evidenced-informed program content, within-community resources (i.e., dedicated local wellbeing co-ordinators), and data surveillance to inform quality improvement and respond to real-time needs of athletes.

LIMITATIONS

A limitation of the model to date is the need to further integrate specific cultural factors into conceptual framework and practice of mental wellbeing, such as that proposed in the Australian Government Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice. We also identify the need for young athletes lived experiences to be incorporated into this work, including consideration toward language that could best support young athletes to conceptualize wellbeing. Lastly, our model was developed and implemented for the Australian Rules Football context, but we envisage this model, and in particular the above reported literature review, theoretical and practical considerations, to be applicable across sporting codes and settings.

AUTHOR'S NOTE

This case study was conducted as part of ongoing continuous improvement framework for the wellbeing program.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/**Supplementary Material**, further inquiries can be directed to the corresponding author/s.

AUTHOR CONTRIBUTIONS

EH led the drafting of the manuscript, collated input from co-authors, and prepared the piece for submission. NC led the

design, development, and delivery of the Model. KH oversaw all aspects of the Model development, the work prepared and reported in this manuscript, and provided senior expertise in psychology and wellbeing science. All authors contributed to the article and approved the submitted version.

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SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2022.856241/full#supplementary-material

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Mental Health in Athletes: Where Are the Treatment Studies?

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In recent years, athletes' mental health has gained interest among researchers, sport practitioners, and the media. However, the field of sport psychology lacks empirical evidence on the effectiveness of psychotherapeutic interventions for mental health problems and disorders in athletes. Thus far, intervention research in sport psychology has mainly focused on performance enhancement using between-subject designs and healthy athlete samples. In the current paper, we highlight three interrelated key issues in relation to treating mental health problems and disorders in athletes. (i) How are mental health and mental health problems and disorders defined in the sport psychology literature? (ii) How are prevalence rates of mental health problems and disorders in athletes determined? (iii) What is known about psychotherapeutic interventions for mental health problems and disorders in athletes? We conclude that the reliance on different definitions and assessments of mental health problems and disorders contributes to heterogeneous prevalence rates. In turn, this limits our understanding of the extent of mental health problems and disorders in athletes. Furthermore, knowledge of the effectiveness of psychotherapeutic interventions for athletes with mental health problems and disorders is scarce. Future research should include athletes with established mental health problems and disorders in intervention studies. We also propose an increased use of N-of-1 trials to enhance the knowledge of effective psychotherapeutic interventions in this population.

Keywords: mental disorders, mental health problems, interventions, psychotherapy, sports

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INTRODUCTION

There has been an increasing interest in athletes' mental health among researchers and sport practitioners in the past decade. Several reviews and position statements have recently been published on this issue (e.g., Reardon et al., 2019; Kuettel and Larsen, 2020). Several top athletes also highlighted mental health problems and how it affected their sport performance during the recent Olympic Games in Tokyo, which major news outlets have reported on, such as the *New York Times* (Longman, 2021) and the *Washington Post* (Svrluga, 2021). Despite this increased interest, studies on the effectiveness of psychotherapeutic interventions for mental health problems and disorders in athletes are almost nonexistent (Stillman et al., 2019). Most previous research has focused on interventions for performance

enhancement (e.g., Schenk and Miltenberger, 2019), resulting in an apparent knowledge gap that needs to be addressed in future research.

Researchers have argued that athletes differ from the general population (e.g., Reardon et al., 2019) in, but not limited to, personality traits (e.g., narcissistic tendencies, perfectionism, and competitiveness), behaviors (e.g., risk-taking and superstitious rituals; Stillman et al., 2016), and barriers to help-seeking (Gulliver et al., 2012). Furthermore, some have argued that these differences, among others, need to be considered when working in a psychotherapeutic setting with athletes (Stillman and Farmer, 2021). However, empirical evidence is scarce, and research is needed to examine whether, and if so, how athletes differ from the general population (Gouttebarge et al., 2019). In addition, researchers have put much effort into determining prevalence rates of mental health problems and disorders in athletes. However, there is an extreme heterogeneity of prevalence rates in the published literature, making it difficult to determine the extent of mental health problems and disorders in athletes (Gouttebarge et al., 2019).

In light of the above, in the current paper, we will discuss three interrelated key issues related to research on treating mental health problems and disorders in athletes. (i) How are mental health and mental health problems and disorders defined in the sport psychology literature? This has important implications for both assessing the prevalence of and treating mental health problems and disorders. (ii) How are prevalence rates of mental health problems and disorder in athletes determined? (iii) What is known about psychotherapeutic interventions for mental health problems and disorders in athletes? We conclude by outlining several issues in need of further research related to treating mental health problems and disorders in athletes and suggest ways to advance knowledge in this area.

MENTAL HEALTH IN SPORT PSYCHOLOGY

Definitions of Mental Health, Mental Health Problems, and Mental Disorders

Historically, mental health has been defined in many different ways and how to define it is still under debate (e.g., Keyes, 2002, 2005; Galderisi et al., 2015). More recently, a narrative review on mental health in athletes by Lundqvist and Andersson (2021) concluded that what is considered mental health or mental health problems will vary depending on three factors: definition, theoretical perspective, and the assessment chosen by researchers. Hence, an essential prerequisite when researching mental health is to provide a clear definition and a well-grounded theoretical perspective of mental health and mental health problems (Lundqvist and Andersson, 2021).

Several researchers in sport psychology have suggested conceptualizing mental health as part of a continuum rather than adhering to strict diagnostic criteria and viewing it as a binary state (Moore and Bonagura, 2017; Rice et al., 2021). On the other hand, Lundqvist and Andersson (2021) argue that continuum models do not provide any guidance regarding how to interpret symptoms and whether symptoms should be viewed as natural reactions to sports or early signs of mental health problems or disorders. Many elite athletes are expected over time to move back and forth along the continuum without necessarily being at risk of developing clinically relevant mental health problems or needing treatment (Lundqvist and Andersson, 2021). Thus, caution is needed not to pathologize everyday human experiences (Henriksen et al., 2020). Despite this increased interest and recent efforts, Lundqvist and Andersson (2021) argue that it is unlikely that consensus will be reached on a uniform definition of mental health in elite sport contexts.

The lack of a uniform definition in the sport psychology literature is also evident in relation to mental health problems and disorders. The terms mental health problem and mental disorder are sometimes used interchangeably despite referring to different levels of severity and diagnosis. A mental disorder refers to a specific psychiatric diagnosis based on several criteria in the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*-5; American Psychiatric Association, 2013), whereas mental health problems usually refer to subclinical psychological ill-being without necessarily fulfilling clinical criteria according to the *DSM*-5. Symptoms of subclinical psychological ill-being are often signs of how mental health can fluctuate without developing into an all-encompassing disorder (i.e., cognitive and emotional disturbance, abnormal behaviors, and/or impaired functioning; American Psychiatric Association, 2013). An example from the sport context is performance anxiety versus an established psychiatric anxiety disorder (e.g., generalized anxiety disorder, social anxiety, and obsessive–compulsive disorder). Performance anxiety most often occurs before a performance and is a passing state, whereas generalized anxiety disorder, for example, is an ongoing state leading to impaired functioning in different areas of life (Reardon et al., 2021).

Although these can be viewed as subtle differences, the nuances have important practical implications related to assessment and treatment. Disregarding these subtle differences increases the risk of underestimating or overestimating mental health problems and disorders in athletes. Relying on different definitions and operationalizations increases the heterogeneity of prevalence rates in the published literature, which, in turn, creates confusion and uncertainty rather than clarity in terms of the extent of mental health problems and disorders in athletes.

Prevalence of Mental Health Problems and Disorders in Athletes

Prevalence rates of mental health problems and disorders in athletes are often studied with quantitative and cross-sectional methods using self-reported data *via* questionnaires (Kuettel and Larsen, 2020). Consequently, prevalence rates of mental health problems and disorders among athletes vary and are more prominent in some samples than others, often dependent

on the type of study design and type of assessment. Prevalence rates are generally higher in studies adopting a broader definition of mental health problems and self-report measures compared to studies that limit assessment to psychiatric diagnosis and clinical evaluation. For example, prevalence rates for depression in athletes range from 4% when clinically assessed (Schaal et al., 2011) to 48% when self-reported (Foskett and Longstaff, 2018), whereas rates for anxiety varies from 9% when clinically assessed (Schaal et al., 2011) to 16% when self-reported (Åkesdotter et al., 2020). Åkesdotter et al. (2020) included both psychiatric disorders and psychological distress symptoms in their definition of mental health problems and used self-report measures, whereas Schaal et al. (2011) examined the prevalence rates of mental health problems based on psychological disorders found in the *DSM-IV* or International Classification of Diseases 10th version (*ICD*-10) with a licensed caregiver conducting additional clinical evaluations.

These discrepancies show that prevalence rates of mental health problems and disorders differ substantially based on the definition and operationalization of mental health problems (e.g., psychiatric diagnosis versus symptoms of psychological distress), type of assessment (e.g., self-report versus clinically assessed), and instruments used, and contribute to the heterogeneity of prevalence rates for mental health problems and disorders in athletes. This heterogeneity and lack of consensus regarding how to assess prevalence limits the understanding of athletes' mental health problems and disorders. Furthermore, Gouttebarge et al. (2019) argued that prevalence rates for current elite athletes might be slightly higher than in the general population; however, comparisons were not possible due to the lack of reference group from the general population in the studies included in their meta-analysis. Nevertheless, despite these methodological issues, the available evidence indicates that the prevalence rates of the most common mental health problems and disorders seem comparable with those of the general population (Gorczynski et al., 2017; Moesch et al., 2018).

PSYCHOTHERAPEUTIC INTERVENTIONS IN SPORT PSYCHOLOGY

Many recommendations have been put forward about how to address mental health problems and disorders in sport contexts, such as prevention strategies (Reardon et al., 2019), mental health officers (Henriksen et al., 2020), and new screening tools to detect symptoms of mental health problems (Gouttebarge et al., 2021). Surprisingly, very few of these recommendations include calls for more rigorous and controlled studies on psychotherapeutic interventions for athletes. Intervention research has mainly focused on performance enhancement (e.g., Sappington and Longshore, 2015; Schenk and Miltenberger, 2019), although the constant pressure to perform may increase athletes' vulnerability to mental health problems (Kuettel and Larsen, 2020). The scarcity of research on interventions for athletes' mental health problems and disorders has resulted in a critical knowledge gap related to the effectiveness of interventions (Stillman et al., 2019) and the underlying mechanisms that account for intervention outcomes (Gross et al., 2016).

Cognitive behavioral therapy (CBT) has been recommended as an "excellent choice" for treating athletes with mental health problems or disorders because it involves procedures that athletes commonly use, such as structure, direction, goal setting, and practice (Stillman et al., 2016). However, to our knowledge, there are no studies conducted on the effectiveness of CBT on athletes with established mental health problems or disorders. Nevertheless, given that CBT is a well-researched form of psychotherapy and established as one of the most effective and common treatments for a wide range of mental health problems and disorders (Hofmann et al., 2012), it is understandable why CBT is recommended. Despite the lack of clinical studies using CBT for mental health problems or disorders in athlete populations, a limited number of case studies have been conducted using CBT principles with athletes. For example, Gustafsson et al. (2017) performed a six-session exposure intervention with a 17-year-old cross-country skier experiencing a high level of performance anxiety. Furthermore, McArdle and Moore (2012) describe how one of the authors employed key CBT principles when working with a 26-year-old rugby player with a dysfunctional perfectionist mindset. Participants in the abovementioned studies were not diagnosed with a clinical diagnosis but were included on the basis of experiencing mental health problems and underperforming. However, Lundqvist (2020) provides an example of how to use behavioral activation when working with a former Olympic athlete who developed depression (according to the Montgomery-Åsberg Depression Rating Scale) after retirement.

In addition to CBT, so-called third-wave behavioral therapies such as acceptance and commitment therapy (ACT) and compassion-focused therapy (CFT) seem promising (e.g., Ruiz, 2010; Craig et al., 2020) and should also be evaluated in athlete populations. ACT stems from the traditional behavior and cognitive therapies, such as CBT, but with a stronger emphasis on mindfulness and acceptance (Hayes et al., 2006). ACT has been widely researched in clinical samples with strong evidence for a wide range of mental health problems (Ruiz, 2010), such as anxiety (Swain et al., 2013), depression (Bai et al., 2020), and chronic pain (Veehof et al., 2016). Since introducing ACT (Hayes et al., 1999), many interventions in sport psychology have drawn from the ACT model and its six core processes (i.e., values, contact with the present moment, committed action, acceptance, self as a context, and defusion). Sport psychology researchers have mostly adopted the parts about being present in the moment and accepting internal events (i.e., thoughts and emotions) to enhance performance (e.g., The Mindfulness-Acceptance-Commitment approach; Moore, 2009). Mindfulness-based interventions for enhanced athletic performance show promising results of being effective in improving characteristics associated with well-being, such as psychological flexibility and anxiety (Sappington and Longshore, 2015). However, the field currently lacks clinical intervention studies testing the ACT model as a psychotherapeutic intervention in athletes with mental health problems or disorders.

A small number of intervention studies in sport contexts have included parts of the ACT model (see Lundgren et al., 2020; Moesch et al., 2020). However, in these studies, participants were recruited based on characteristics related to their sport participation (e.g., current injury, motivation to participate), not that they explicitly needed treatment for mental health problems or disorders. It is difficult to draw conclusions about the effectiveness of an intervention on mental health problems (e.g., anxiety, depression, and psychological rigidity) based on research with healthy samples. Research on compassion-based interventions (Neff, 2003; Gilbert, 2009) in sport is also scarce but is gaining interest (Craig et al., 2020). However, despite an increased interest, a scoping review (Röthlin, 2019) on the role of self-compassion in competitive sport settings only found one intervention study (i.e., Mosewich et al., 2013). Given the lack of empirical evidence, athletes experiencing mental health problems or disorders need to be included in future studies to evaluate the effectiveness of interventions based on CBT, ACT, or CFT.

Targeted and Disorder-Specific or Transdiagnostic Treatment?

There have also been calls for developing comprehensive, targeted, and disorder-specific treatment models for athletes (e.g., Rice et al., 2016). However, this suggestion is problematic for several reasons. First, to adopt a targeted, disorder-specific treatment with an individual, that person must fulfill the criteria for a specific disorder, and only those criteria. This is rarely the case and comorbidity (i.e., the occurrence of two or more psychiatric disorders simultaneously) is more often the rule than the exception (Krueger and Eaton, 2015). Second, a sole focus on those with confirmed disorders will exclude many athletes struggling with subclinical mental health problems (Reardon et al., 2019). Third, how can we develop new, comprehensive, targeted, and disorder-specific treatment models when there is a lack of evidence related to the effectiveness of already established psychotherapeutic treatment models (e.g., CBT, ACT, and CFT) in athletic samples?

Researchers in the field of sport psychology seem to agree that mental health problems are more than just specific disorders and that the full range of mental health problems need to be considered (e.g., Moesch et al., 2018; Henriksen et al., 2020; Kuettel and Larsen, 2020; Lundqvist and Andersson, 2021). In addition, due to issues such as categorical overlap and high comorbidity rates (Meidlinger and Hope, 2017; Reardon, 2017), recognition is growing in terms of acknowledging that traditional psychiatric diagnoses are flawed due to the limitations (e.g., topographical approach, syndromal classification, and diagnosis overlap) of the current *DSM*-5 diagnostic system, and thus the treatments of them. Because of this, the field of clinical psychology is advancing toward transdiagnostic approaches aimed at targeting underlying mechanisms (e.g., emotional and cognitive avoidance, attentional focus, and worry) hypothesized to drive and maintain a person's mental health problems (Frank and McKay, 2020). The field of sport psychology would benefit from following this trend and research on how transdiagnostic approaches (e.g., ACT and CFT) can be used in interventions with athletes is warranted. Well-designed clinical studies evaluating established psychotherapeutic interventions in athletes should be prioritized over developing new, comprehensive, targeted, and disorder-specific treatment models.

GENERAL DISCUSSION

When examining the literature on the prevalence rates of mental health problems and disorders in athletes, it is apparent that the field lacks a shared language to discuss mental health, mental health problems, and mental disorders, and the terms are often not clearly defined. The lack of consensus regarding the definition of mental health and mental health problems likely contributes to heterogeneous prevalence rates for mental health problems and disorders among athletes (Lundqvist and Andersson, 2021). Furthermore, using clinical cutoff values and diagnostic criteria are essential in future research; however, a strict focus on cutoff values and criteria is not very helpful when designing psychotherapeutic interventions for athletes with mental health problems and disorders. In a treatment setting, it is likely more effective to focus on factors underlying and underpinning mental health problems rather than fulfilling diagnostic criteria (Hayes et al., 2020).

In line with the increasing interest in research on mental health problems and disorders in sport, it is reasonable to assume that research on treatments for such problems would follow. However, this has not been the case. Clinical studies testing well-researched and evidence-based psychotherapeutic interventions in athletes with mental health problems or disorders are long overdue within sport psychology. Consequently, interventions in sport psychology have been criticized to be "a shot in the dark" (Moore and Bonagura, 2017, p. 178), and researchers have expressed that athletes deserve to receive support for their mental health equal to what they receive for their physical health (Currie et al., 2021).

We argue that an increased use of N-of-1 studies and including athletes with established mental health problems or disorders in intervention studies would greatly benefit the understanding of effective treatments. N-of-1 studies have been recommended in contexts where variability in patient response is large, when the evidence is limited, and/or when the patient differs in important ways from the population participating in conventional randomized trials (Mirza et al., 2017). Furthermore, an N-of-1 approach is especially valuable when taking on new research areas (Barker et al., 2020). All these recommendations are applicable to research on interventions for mental health problems and disorders in athletes where the variability in type and prevalence varies greatly (e.g., Rice et al., 2016; Gouttebarge et al., 2019), and the evidence for interventions for mental health problems and disorders is scarce (Stillman et al., 2019). Furthermore, the athletic population has been suggested to differ from the general population in how mental health problems and disorders are expressed and factors that affect mental health, which

may impact the effectiveness of interventions in this population (Reardon et al., 2019). However, this suggestion requires confirmation in empirical studies.

Summarizing Conclusion

There is an urgent need for well-designed clinical studies testing established psychotherapeutic interventions in athletes with established mental health problems or disorders. We argue that N-of-1 studies provide a promising approach to build a knowledge base for treating mental health problems and disorders in athletes, which would aid in psychologists' mission to offer the best possible support for athletes who need it.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

RE wrote the manuscript. AS and SH critically reviewed and revised for intellectual content before submission. The authors discussed and agreed upon the main messages during the paper's preparation. All authors contributed to the article and approved the submitted version.

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Current state and the support system of athlete wellbeing in Japan: The perspectives of the university student-athletes

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The optimization of athletes' wellbeing has been increasingly considered essential both in the academic and practical fields of high-performance sports. Various organizations, such as the International Olympic Committee, have highlighted its importance, particularly mental health. Moreover, the increased attention to athlete wellbeing in sport policy debates at the national level has led to the development and implementation of a support system for athletes' mental wellbeing in some countries. Nevertheless, the literature is limited to understanding the case of Japan. Interestingly, only 0.8% of the literature is available on "athlete" and "wellbeing" in Japanese compared to English journals up to 2019. Therefore, the purpose of this study was to identify (a) the current state of wellbeing of Japanese university student-athletes, (b) the level of knowledge about athlete wellbeing, and (c) the athletes' perception of the availability of wellbeing support in the national sports federations, (d) the athlete experience of support services, and develop the types of national support athletes expect and need from the government and national sports federations in the future. As a pilot study, a total of 100 Japanese university student-athletes (43 male, 57 female) from 17 Olympic and seven Paralympic sports completed an online survey. Consequently, the state of their wellbeing was self-perceived as good in all dimensions (i.e., physical, mental, educational, organizational, social, and financial). Moreover, the results showed low recognition of the term "athlete wellbeing" and a lack of knowledge of the availability and accessibility of appropriate support services. The results also showed that Japanese university student-athletes rarely seek help from experts, while 45% indicated "no one" to talk to. Interestingly, however, most athletes considered each dimension of wellbeing important in relation to their performance development. Based on the results, it is necessary to develop an education program, guidelines, and detection

systems and improve information accessibility. Given that this pilot study's validity, reliability, and feasibility were verified, further studies should focus more on the wellbeing of Japanese elite athletes in high-performance sports (i.e., Olympic and Paralympic athletes).

KEYWORDS

psychological/mental wellbeing, mental health, athlete health, high-performance sports, COVID-19, sport policy, athlete support system, Asia

Introduction

The optimal and holistic development as a human being is considered important for athletes to achieve their maximum potential both in performance and life after their athletic careers (Wylleman, 2019). Although participation in sports and physical activity benefits one's health and mental wellbeing in many ways (Biddle et al., 2015), pursuing excellence in high-performance sports is associated with various factors that may pose threats to the holistic wellbeing of athletes (MacAuley, 2012; Gouttebarge et al., 2019; Giles et al., 2020).

Given those risks in a highly competitive environment, optimizing athlete wellbeing, particularly mental health, has received considerable attention in high-performance sports academic, political, and practical fields. The increase in interest might be triggered by some high-profile athletes openly and publicly discussing their challenges with mental health and wellbeing (Heaney, 2021). In the period between 2018 and 2020, several sporting organizations published consensus statements on athletes' mental health, including the International Olympic Committee (IOC) (Moesch et al., 2018; Schinke et al., 2018; Gorczynski et al., 2019; Reardon et al., 2019; Van Slingerland et al., 2019; Henriksen et al., 2020).

At the same time, several national governments and sports organizations have conducted investigations and developed policies to guide the nation to promote and support athletes' mental wellbeing at a system level (Canadian Olympic Committee, 2015; Department for Digital, Culture, Media and Sport, 2018; English Institute of Sport, 2019; Australian Institute of Sport, 2020; High Performance Sport New Zealand, 2021). To operationalize the policy into practice, some leading countries have launched teams responsible for establishing and implementing the national support system and programs, mostly at the high-performance sports centers, as an integral part of athlete development. Those support frameworks appeared to include some of the common approaches proposed by Purcell et al. (2019): (a) providing support for athletes to equip them with a range of skills to self-manage distress, (b) educating key stakeholders (e.g., coaches, science and medicine practitioners, support service providers, etc.) in a high-performance environment to better understand and respond to symptoms regarding mental health and wellbeing, and (c) establishing multi-disciplinary teams and/or professionals to better support and manage prevention and reaction to athletes' problems with mental health and wellbeing.

Despite mounting literature and practical implementation of policies to support athlete wellbeing, there are several limitations associated with athlete wellbeing. First, the majority of research have focused on athletes' physical and psychological/mental wellbeing, even in the last 2 years (Biggins et al., 2020; Schary and Lundqvist, 2021; Jovanovic et al., 2022). Thus, there is little to know about the athlete's wellbeing from a holistic perspective. Furthermore, Giles et al. (2020) argued that evidence-based intervention in athlete wellbeing is limited due to methodological and conceptual issues. Lundqvist (2011) also claimed that "wellbeing is treated as an unspecific variable, inconsistently defined and assessed using a variety of theoretically questionable indicators (p.118)." These methodological and conceptual issues associated with athlete wellbeing, therefore, make it difficult to carry out evidence-based interventions in practice (Giles et al., 2020). Moreover, despite most studies having been conducted in Western countries, there is still little information available about other regions, including Asia (Reardon et al., 2019). Additional research, therefore, contributes to knowledge in this area, particularly in developing the support policy and framework that could be operationalized in practice.

Japan earned 27 gold medals and 58 total medals in the Tokyo 2020 Olympic Games, placing them in the top three nations for gold medals, which were the best results ever. Since the development of sports has become the responsibility of the government due to the enactment of the Basic Act on Sport in 2011 (Ministry of Education, Culture, Sports, Science and Technology, 2011), the landscape of Japanese high-performance sports has dramatically changed at all levels, such as policies, systems, the structure, and programs. However, there had been little discussion about athlete mental health and/or wellbeing until the COVID-19 pandemic struck, resulting in the Tokyo 2020 Games being postponed by 1 year. In fact, Kinugasa et al. (2021) reported that only 14 articles were available on "athlete" and "wellbeing" in the Japanese language; it was only 0.8% of those in English journals up to 2019. However, gradually more focus is being directed toward athletes' mental health, that is, a state of mental wellbeing. For example, Tsuchiya et al. (2021)

argued the need for support for athletes' mental health by reporting the positive correlation with a psychological stress response to COVID-19.

To contribute to Evidence-Based Policy Making (EBPM) in the high-performance sports field, the Japan Sport Council (JSC) launched a new research group in social sciences at the Japan Institute of Sports Sciences (JISS), a part of the Japan High Performance Sport Center (HPSC) (Kukidome and Noguchi, 2020). Given the limited evidence available in the field of athlete wellbeing in Japan, the group initiated the research project to provide some evidence to support the policy development into operationalization in Japan–that is, a pilot study with university student-athletes aiming to reveal (a) the current state of wellbeing of Japanese university student-athletes, (b) the level of knowledge about athlete wellbeing, (c) the student-athletes' perception of the availability of wellbeing support in the national sports federations, and (d) the student-athletes experience of support services on wellbeing, and develop the types of national support student-athletes expect and need from the government and national sports federations in the future.

Materials and methods

Participants

The participants for the pilot study included 100 Japanese university student-athletes (43 male, 57 female) aged from 20 to 25 years (M = 21.3, SD = 1.2). The sample was limited to student-athletes who attend either undergraduate or postgraduate programs and belonged to the university's Athletic Department, participating in sports in an official event of the Tokyo Olympic and Paralympic Games 2020. The participants represented 18 Olympics (baseball and softball, basketball, athletics, volleyball, football, badminton, tennis, swimming, table tennis, archery, handball, judo, rhythmic gymnastics, rugby sevens, artistic gymnastics, karate, surfing, and water polo), and seven Paralympic sports (para-table tennis, para-badminton, para-swimming, para-archery, boccia, para-athletics, and para-judo). The participants were grouped into two categories: "elite" for those who have competed in international competitions representing Japan, including five serial medalists (36.0%), and "sub-elite" for the rest (64.0%). 11% of the participants were carded athletes in national (n = 1), senior (n = 4), youth (n = 3), and junior (n = 1) categories for less than 1 year (33.3%), 1–3 years (44.4%), and 4–6 years (22.2%).

Measures

Given that this pilot study was specifically designed for the initial investigation to capture the general trends of student-athlete wellbeing in Japan with the aim of providing evidence for developing the support system within the country, the instrument was self-developed in the Japanese language. To maintain the holistic nature of wellbeing, we developed the instrument in accordance with the Holistic Athlete Career Model (Wylleman, 2019). To validate this 48-item instrument, we used the Delphi method (Hsu and Sanford, 2007) by eight psychologists and social scientists with an excellent understanding of athlete wellbeing. The instrument was resurveyed until the experts reached a consensus (100% agreement by the eight experts), and the content validity and feasibility of the instrument were verified through this process. The reliability of the instrument was tested by administering the same instrument twice to the same 38 respondents, the participants within 1 week, and calculating the intraclass-correlation coefficient (ICC). Test-retest reliability of the instrument was found to be good (r = 0.7 ± 0.3) (Hopkins, 2000).

Demographic information

The measurement consisted of 11 items to gather demographic information about the participants. These items included gender, age, place of living, working/educational status, sport type, the number of years played in their main sport, organizational type, carded category, the number of years played in their carded category, and the best performance record in their sport.

Awareness of and state of athletes' wellbeing

As "athlete wellbeing" is a relatively new concept in Japan, one item was included to understand the level of awareness in student-athletes. In addition, it comprised seven Likert-scale items to measure the state of wellbeing in each dimension (i.e., physical health, psychological health, balance with education/and or work, interpersonal relationships, organizational environment, financial security and stability, and legal security and safety). Their states of wellbeing in each dimension were asked over the past 3 years to account for COVID-19 spread mostly in 2020 in Japan, and a 5-point scale was used in most of the items (e.g., 1 = *very good*, 2 = *somewhat good*, 3 = *not so good*, 4 = *not good at all*, 5 = *not sure*). Furthermore, in order to take the degree of influence of COVID-19 into consideration, another seven items were added (e.g., *Does COVID-19 have more influence on your wellbeing than usual before the pandemic?*).

Influence and importance of wellbeing in relation to athlete performance

A total of 12 items were included in the instrument to reveal the perspectives of student-athletes on how much each dimension of wellbeing would influence performance and how important they perceived a state of wellbeing in their

performance development. Those items scaled from 1 (*very much)* to 5 (*not at all*).

Availability, experience, and expectation of support services

Two items were specified to collect information about the availability of guidelines and support programs on athlete wellbeing and/or mental health within the national sports federation. Furthermore, a total of 25 items were prepared in order to investigate the student-athletes' experience of receiving support services in relation to their wellbeing. In contrast, one item was added to identify the level of expectation for developing national support services by the government and/or national sports federations. Those items were developed with the perspectives on general service provision in relation to information, detection, proactive and/or reactive support service, tools, and networking.

Life satisfaction

The overall satisfaction with life scores from the national wellbeing and quality of life survey were taken on an 11-point scale from 0 (*not satisfied at all*) to 10 (*very satisfied*) to compare the participants' scores with the general population in Japan (Cabinet Office, 2018).

Procedures

Ethical approval for this study was granted by the authors' sports science institute ethical review committee (Reference #047) in accordance with the Declaration of Helsinki. A written informed consent form describing the aim, methods, risks associated with participation, confidentiality considerations, and data ownership and management methods of the study was provided to the student-athletes before the participants filled out the web-based questionnaire. They could withdraw from participation at any time, even after they have agreed to participate in the study. After we obtained informed consent from the participants, they completed the survey using the web-based questionnaire system (Tokyo: Cross Marketing Group Inc.), taking approximately 15–20 min on a confidential and voluntary basis. The survey was conducted from February to March 2021.

Analysis

The Chi-square tests were used to determine the presence and magnitude of deviations away from expected distributions, and the significance level α was set at 0.05. Correlation analysis was applied to identify the relationship between the items with the following thresholds: < 0.1, *trivial*; 0.1–0.3, *small*; 0.3–0.5, *moderate*; 0.5–0.7, *large*; 0.7–0.9, *very large*; and 0.9–1.0, *almost perfect* (Hopkins et al., 2009). The Statistical Package for Social Science (SPSS) for Windows version 27 (Armonk, NY: IBM Corp.) was used for this analysis. A Welch's *t*-test was conducted for group comparison using RStudio statistical computing software version 1.4.1717 (Boston, MA: RStudio), and the significance level α was set at 0.05. Uncertainty in true (population) effects values was expressed as 90% confidence limits.

Results

The current state of student-athlete wellbeing

The state of the participants' wellbeing in the past 3 years was perceived as *somewhat good* in all physical ($M = 1.91$, $SD = 0.94$), mental ($M = 2.05$, $SD = 0.97$), educational ($M = 2.10$, $SD = 1.07$), organizational ($M = 2.42$, $SD = 1.26$), social ($M = 2.06$, $SD = 1.04$), financial ($M = 2.19$, $SD = 1.06$), and legal ($M = 2.53$, $SD = 1.36$) dimensions. Among the seven dimensions of wellbeing, the participants self-evaluated their legal wellbeing as the highest, indicating "*relatively not good." In contrast, physical* wellbeing at the lowest indicated "*relatively good."* The results of the correlation analysis showed that the overall satisfaction with life scores and the seven dimensions of wellbeing were insignificant ($p > 0.05$). However, the relationship between the overall satisfaction with life and wellbeing scores between the groups showed some significant differences (**Table 1**). In particular, moderate and small positive correlations were observed between the overall satisfaction with life and wellbeing scores in organizational and financial dimensions only in the elite group ($r = -0.51$, $p = 0.001$; $r = -0.36$, $p = 0.031$, respectively). No significant differences were observed in the sub-elite group.

Furthermore, based on Chi-square tests between states of wellbeing and independent variables, no significant difference was found in gender, place of living, and Olympic sports compared to Paralympic sports. The performance level, however, showed significant differences in organizational ($p = 0.002$), financial ($p = 0.004$), and legal ($p = 0.004$) dimensions of wellbeing. The elite athlete group indicated *not being good at all* in organizational wellbeing ($p = 0.02$) and *not so good* in social wellbeing ($p = 0.01$), whereas *somewhat good* in legal wellbeing ($p = 0.01$) compared to the sub-elite group. Interestingly, only the sub-elite athlete group showed their uncertainty (i.e., *not sure*) about their wellbeing in organizational ($p = 0.03$), social ($p = 0.004$), financial ($p = 0.04$), and legal dimensions ($p < 0.000$). There was no significant difference in the overall satisfaction to life score between the elite and sub-elite athlete groups [$p = 0.26$ (90% confidence limits –1.47 to 0.27)].

Given that this study was conducted in early 2021, the influence of COVID-19 on their wellbeing was observed. As a result, the COVID-19 pandemic was perceived to have an

TABLE 1 The relationship between the overall satisfaction with life and wellbeing scores of the participants in the elite athlete group (represented Japan in the senior competition at the international level) and sub-elite athlete group (competed at the national level).

	Overall satisfaction with life	Physical wellbeing	Mental wellbeing	Educational wellbeing	Organizational wellbeing	Social wellbeing	Financial wellbeing	Legal wellbeing
Overall satisfaction with life	–	−0.30	−0.28	0.01	−0.51**	−0.20	−0.36*	−0.22
Physical wellbeing	−0.10	–	0.65**	0.62**	0.69**	0.56**	0.72**	0.30
Mental wellbeing	−0.11	0.89**	–	0.67**	0.68**	0.62**	0.77**	0.55**
Educational wellbeing	−0.18	0.65**	0.67**	–	0.48**	0.63**	0.64**	0.49**
Organizational wellbeing	−0.07	0.43**	0.45**	0.65**	–	0.51**	0.72**	0.51**
Social wellbeing	0.03	0.62**	0.66**	0.77**	0.65**	–	0.55**	0.46**
Financial wellbeing	−0.05	0.66**	0.67**	0.71**	0.61**	0.73**	–	0.66**
Legal wellbeing	0.08	0.45**	0.40**	0.45**	0.65**	0.52**	0.58**	–

Upper level, correlation coefficients of the elite athlete group; lower level, correlation coefficients of the sub-elite athlete group.
*$p < 0.05$, **$p < 0.01$.

impact on the state of student-athletes' wellbeing to some degree, as approximately half of the participants indicated either being *greatly influenced* or *somewhat influenced* in physical (57%), mental (61%), educational (52%), organizational (48%), social (48%), financial (49%), and legal (44%) wellbeing.

Athletes' perception of the influence and importance of wellbeing for performance

Influence on their performance

About half of the participants considered their performance was *greatly influenced* or *somewhat influenced* by physical (56%), mental (53%), educational (50%), social (47%), financial (42%), and legal (38%) wellbeing (Table 2). Moreover, significant differences were observed between the elite and sub-elite groups in social, financial, and legal wellbeing [$p = 0.03$ (90% confidence limits −0.88 to −0.13), $p = 0.004$ (90% confidence limits −1.03 to −0.29), and $p = 0.003$ (90% confidence limits −1.15 to −0.44), respectively]. Thus, it was found that the student-athletes in the elite group perceived their state of wellbeing to affect their performance more influence on performance than the athletes in the sub-elite group.

Importance of their performance

Many participants considered the dimensions of physical (83%), mental (80%), educational (72%), social (78%), financial (76%), and legal (71%) wellbeing to be *very important* or *somewhat important* in relation to improving their own performance (Table 2). No significant difference was observed between the elite and sub-elite athlete groups ($p > 0.05$), meaning that most Japanese student-athletes consider wellbeing important for their performance development regardless of performance level.

Availability of support policy, guidelines, and programs in national sports federations

The results revealed that Japan's support systems and programs were rarely available for student-athletes. First, 11.0% of the participants indicated the availability of guidelines on athlete wellbeing and/or mental health from the national sports federations, whereas 35.0% responded "*No,*" and 54.0% showed "*I do not know.*" Second, only 18.0% revealed that their national sports federation has some kind of policy or implementation of it to support the athlete's wellbeing and/or mental health. In comparison, some national sports federations have policies but no implementation (11.0%). Third, 21% of the participants indicated no policy or actions within the national sports federations, whereas 50.0% did not know the availability.

TABLE 2 Athletes' perception of the influence and importance of wellbeing for performance between the elite athlete group ($n = 36$) and sub-elite athlete group ($n = 64$).

	Influence on performance					Importance for performance				
	Elite group		Sub-elite group			Elite group		Sub-elite group		
Measure	***M***	***SD***	***M***	***SD***	***P***	***M***	***SD***	***M***	***SD***	***P***
Physical wellbeing	2.25	1.05	2.56	1.11		1.89	0.78	1.75	0.89	
Mental wellbeing	2.22	1.02	2.55	1.14		1.92	0.81	1.72	0.81	
Educational wellbeing	2.42	1.08	2.73	1.13		2.11	0.85	2.09	0.83	
Social wellbeing	2.28	1.06	2.78	1.11	*	1.92	0.65	1.88	0.83	
Financial wellbeing	2.25	1.02	2.91	1.15	*	1.97	0.84	1.98	0.86	
Legal wellbeing	2.25	0.97	3.05	1.10	*	2.08	0.81	2.16	0.88	

*$p < 0.05$.

Student-athletes' experience of support for their wellbeing

The results indicated that most of the student-athletes (85.0%) had never received support for their wellbeing. The reasons were identified as (a) a lack of knowledge about how to access those services (49.4%), (b) the lack of information about those services available to them (43.5%), (c) the lack of understanding of the necessity to receive such support (11.8%), and (d) the lack of a service provider from whom they can receive support (10.6%). Interestingly, nine of 15 participants (60.0%) who experienced athlete wellbeing support in the past revealed that they received support from *educational institutions (i.e., high schools and universities)* rather than national sports federations ($n = 2$) or the Japanese Olympic and Paralympic Committees ($n = 1$). The support services the 15 participants received in the past comprised educational programs to gain knowledge and information (46.7%), develop the athletes' skills such as resilience and/or coping (40.0%), and mental health-related services (40.0%). Individualized consultation (26.7%), as information delivery and education programs, seemed to be necessary.

Information

It was found that only 12.0% of the student-athletes knew the word and the meaning of "a*thlete wellbeing*." In fact, 99.0% of them claimed, in their perception, that the national sports federations had never delivered information about their wellbeing to them. Moreover, 67.0% indicated that they had never obtained and/or gathered information about "*athlete wellbeing*." For the rest of the participants, the information sources varied from online movie (e.g., YouTube, SNS etc.) (18.0%), national sports federations (12.0%), literature (7.0%), information delivery from entourage (support staffs = 4.0%, coach = 3.0%, teammates = 3.0%, retired athletes = 2.0%), and website of IOC and/or International Sports Federations (IFs) (2.0%).

Detection

The results demonstrated the lack of a detection and monitoring system for student-athlete wellbeing. First, 77.0% of the participants responded that they had no experience when national sports federations approached them to understand their state of wellbeing. Despite the relatively low experience of the student-athletes (23.0%), the detailed detection methods utilized by the national sports federations in their approach were also specified as; (a) conversation with the coach and/or experts (11.0%), (b) informal conversation daily (9.0%), (c) utilization of measurement tools (8.0%), (d) individual confirmation from behavior such as continuous absence in training (5.0%), and (e) clinical diagnostic tests (3.0%). Interestingly, however, no participants indicated their experience in utilizing any tool for detection.

Help-seeking behavior when faced with a threat or risk

Most participants indicated that they had never witnessed or experienced behavior that could be considered a threat or risk to the student-athlete's wellbeing and/or mental health (84.0%). Among 16 participants who have witnessed or experienced inappropriate behavior, 31.2% of those shared or reported it to someone else, such as teammates or team staff ($n = 6$), and the national hotline set by the national sports federations, Japanese Olympic Committee, Japanese Paralympic Committee, or JSC ($n = 4$). The reason why the majority of the student-athletes (68.8%) did not share or report the case was that the athletes; (a) did not want to make it a big deal (45.5%), (b) were afraid of who reported (36.4%), (c) did not know whom to report to (18.2%), or (d) did not want to be involved in (18.2%). Of those who shared or reported it to someone else, however, 60.0% indicated their positive experience by expressing their satisfaction with the correspondence to the issues. Finally, the results demonstrated the lack of information and knowledge about the availability of a hotline, as 75.0% of the participants responded that they had never heard or been aware of the availability of a hotline.

Help-seeking behavior when anxious or distressed

The results also showed that 55.0% of the participants had someone whom they could talk to whenever they were anxious or distressed, including parents (61.8%), friends (60.0%), teammates (30.9%), significant others (25.5%), senior athletes (23.6%), brothers and sisters (18.2%), coaches (10.9%), and/or support service staff (5.5%). However, only 19.0% choose to approach experts to seek help. Those experts included psychiatrists (26.3%), clinical psychologists (21.1%), other psychological specialists (e.g., industry and school counselors) (15.8%), sports counselors (15.8%), and so on. Interestingly, 31.6% of those who sought help from experts identified with a coach. Their experience of working with the experts tended to be somewhat positive, as 47.4% indicated their satisfaction, whereas the same number of participants were not sure whether they were satisfied or not. Interestingly, the barriers to not seeking help from experts were identified; (a) lack of knowledge about where they could find the appropriate experts (37.0%), (b) uncertainty about the cost of receiving support (35.6%), (c) disbelief in the ability of experts to solve their problems (30.1%), (d) no clarity about whom to talk to (23.3%), (f) worries about eyes around them (17.8%), and/or (g) a feeling of embarrassment to seek help (12.3%).

Athletes' expectations for the national support system and service programs for their wellbeing

If the government and national sports federations were to develop the support system and service programs in Japan, 38.0% of the participants expressed their willingness to receive support, while 31.0% were reluctant to use the service in the future. The majority of the participants, however, agreed with the importance and necessity of the government and national sports federations developing the system and programs to promote and support athlete wellbeing in Japan (**Figure 1**). Based on the results, "*coach education*" was the most expected action (77.0%), followed by "*develop a guideline*" (76.0%), "*clear statement on strategic plan or policy of national sports federations*" (75.0%), and "*set up the system to react when any problem occurs (investigation, measures, and penalties, etc.)*" (75.0%). These results might indicate the need for coaches to understand the field of wellbeing while expecting the government and national sports federations to provide guidance. Considering that all items were somewhat equally supported and even the least expected item obtained 66.0%, it could be concluded that various actions could potentially be taken to develop the national support systems and programs in the future.

Discussion and practical implications

As there is convincing evidence that indicates pursuing excellence i nhigh-performance sports is associated with various factors that may become threats to the holistic wellbeing of athletes (MacAuley, 2012; Gouttebarge et al., 2019; Giles et al., 2020; Bennie et al., 2021), several high-profile countries in the Olympic and Paralympic Games, such as Canada, Australia, Netherlands, New Zealand, the United Kingdom, the United States, and so on, have started developing their own support systems and programs for athletes to pursue excellence both in performance and wellbeing in recent years. Japan is considered one of the world's leading countries in high-performance sports by placing in the top 3 in the summer Olympic Games of Tokyo 2020. However, little literature is available in the Japanese context (Kinugasa et al., 2021). As an initial investigation, this pilot study aimed to reveal the general trends of athlete wellbeing in Japan, particularly from

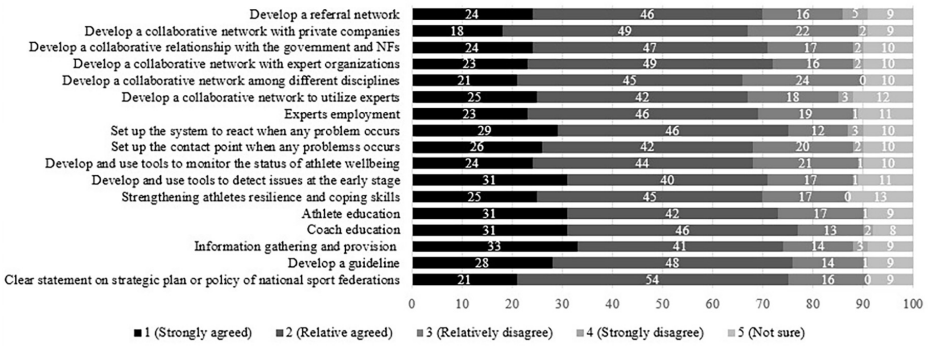

FIGURE 1
The participants' expectations for the national support system and service programs on wellbeing on a 5-point scale (1 = *strongly agreed*, 2 = *relatively agreed*, 3 = *relatively disagree*, 4 = *strongly disagree*, 5 = *not sure*).

the perspectives of university student-athletes. In the following, the discussion was carried out as per the four specific objectives of this study.

First, this study aimed to investigate the current state of student-athlete wellbeing from a holistic development perspective (Wylleman, 2019). Based on the results, the Japanese university students demonstrated a relatively good state in all seven dimensions of wellbeing (i.e., physical, mental, organizational, social, educational, financial, and legal) despite the observation of COVID-19 influence to a certain degree. In fact, the overall satisfaction with life scores of the participants and the general population in Japan were similar (5.7 and 5.9, respectively) (Cabinet Office, 2018). The lower score of wellbeing in organizational and social wellbeing for the elite group somewhat supported the idea that elite athletes need more support than non-elite athletes as they face higher demands that may threaten their wellbeing. In addition, the results show that only the sub-elite athlete group indicates their uncertainty (i.e., *not sure*) about their wellbeing in organizational, social, financial, and legal dimensions, suggesting lower awareness of their wellbeing at the non-elite level. Those results implied that elite athletes need more support for their wellbeing. The holistic approach is preferable by providing not only physical and mental but also social and organizational dimensions of their wellbeing.

The second objective of this study was to understand the level of knowledge about athlete wellbeing in university student-athletes. Given the little information available in Japanese, the result showed that the student-athletes were previously not familiar with the word "athlete wellbeing," and the majority did not exactly know the meaning of it. However, given the description in the written form attached to the survey, approximately half of the student-athletes perceived their performance was significantly influenced or somewhat influenced by physical, mental, educational, social, and financial wellbeing. Moreover, more than 70.0% of the participants considered athlete wellbeing in all dimensions to be very important or somewhat important to improving their performance. These results have implications in two ways. One is that it is essential to raise awareness of athlete wellbeing in Japan so that athletes recognize the importance of self-care for their wellbeing, which, in turn, influences their performance. The other one is that those involved in the field of wellbeing should not take wellbeing apart from performance by understanding that those two are intercorrelated, at least from the perspective of student-athletes. In other words, the support for athlete wellbeing should be designed to align with the performance development plan and progress of the athletes.

The third objective of this study was to reveal the athlete's perception of the availability of a support system within the national sports federation. In regards to the availability of policies, guidelines, and programs, the results suggested that (a) there were only a few national sports federations already accommodating the support policies, programs, and guidelines in their systems, and (b) the information might not be appropriately delivered to athletes despite the availability, or (c) the athletes were not eligible to access the service and information due to their performance level. As only 2% of the participants indicated their experience of receiving support services for their wellbeing from the national sports federation, it could be argued that few national sports federations obtain the support system within the organization supporting point (a) indicated above. Given that the results derived from the athletes' perception, however, further investigation of the national sports federation is necessary to conclude that they have not developed the policy, guidelines, and service programs for their athletes.

The fourth objective was to investigate athletes' experiences of support services from various points of view, including information, detection, and seeking behavior in reacting to a threat and/or risk, as well as a feeling of anxiety and/or distress. Overall, the results proved that most of the university student-athletes had never experienced, at least in their recognition, receiving support services for their wellbeing in the past. In terms of information, 67.0% indicated that they had never obtained and/or gathered information about "athlete wellbeing." Interestingly, however, it was found that the lack of information about the support service available and where to access it was the number one reason cited by the student-athletes, rather than their rejection of the service. Despite the small sample size who obtained the information about wellbeing (33.0%), given the results indicating their behavior to seek information about wellbeing, it could be recommended to consider the use of an online platform such as YouTube and/or social networking sites (18.0%) in addition to the national sports federations (12.0%) and entourage (e.g., coaches, teammates, support staff, former athletes) (12.0%) as the channel for information delivery. Nevertheless, it should be cautious about the accuracy of the information, as only 2.0% indicated their experience of seeking information on the official website of IOC and/or Ifs. In order for student-athletes to systematically access the right information in the Japanese language, a somewhat "one-stop-shop resource center" could be a possible action, while conducting further research in the Japanese context is necessary to provide evidence for policy-makers and practitioners. Kinugasa et al. (2021) stated the definition of athlete wellbeing in Japanese, which could be used in policy and practice in the future. Regarding detecting problems associated with athlete wellbeing, the results showed that 77.0% of them had no experience of receiving this service from national sports federations. As for detection techniques, it was found that communication and/or interaction was more commonly used than the application of measurement tools and/or clinical tests. Furthermore, concerning help-seeking behavior, 84.0% claimed no experience of facing or witnessing inappropriate behavior that could be a threat or risk to the athlete's wellbeing. Among those 16.0% with experience, approximately 70.0% did not share

or report it to someone because they did not want to make it a big deal (45.5%) and/or were afraid of who reported it (36.4%). Despite the availability of a hotline for wellbeing in a broader sense, only 4 participants have used it to report the problem. This was probably due to the lack of awareness, as 75.0% of the participants indicated that they had never heard of or been aware of the hotline. It was evident that the student-athletes tended to first report problems to their entourage rather than the official hotline set by organizations to seek help. Finally, the results indicated that 45.0% of the student-athletes did not have anyone to talk to about their anxiety or distress. Within the 55.0% of the student-athletes, it was found that approximately 60.0% of them would initially talk to their parents or friends rather than coaches or support staff. It implied that information and education to athletes and coaches are not enough but include parents and entourage to understand athlete wellbeing better. Additionally, despite the low rate of student-athletes (19.0%), coaches (31.6%), psychiatrists (26.3%), and clinical psychologists (21.1%) were the top three experts from whom student-athletes have sought help in the past, while non-psychology experts such as medical doctors and athletic trainers/physiotherapists (10.5%) were also indicated for their options. These results indicate that it is essential for the organization to consider the development of a network with experts in the fields of mainstream psychology and medicine, as well as the involvement of coaches within the support system in Japan. It should, however, be noted that only 8.0% of the student-athletes indicated their willingness to talk to experts, while 43.0% did not feel a need, and 30.0% could not seek help despite wanting to do so. Interestingly, the main barriers for the student-athletes were a lack of knowledge about where they could find the appropriate experts, their uncertainty and a feeling of incapability about the cost, and their distrust in the ability of experts to solve their problems. According to these results, it could be suggested that to facilitate the change in athletes' help-seeking behavior from experts, information and education, as well as a reference network to access the appropriate experts for their issues, are necessary as the barriers seemed not to be the stigma often associated with athletes.

These findings could then lead to a discussion about the implications associated with this study's last objective, which was to identify the types of support student-athletes expect from the government and/or national sports federations in the future. It was interesting that most student-athletes strongly or relatively agreed to all of the proposed actions, including clear guidance of the direction, information gathering and delivery, athlete and coach education, the development of detection and monitoring tools, the settling of the system to react to problem occurrences, the employment of experts, and the development of a collaborative network system with experts, expert organizations, private companies, government, and national sports federations, and the development of a referral network. These results somewhat supported the argument that to implement policy into practice, increasing awareness and knowledge through information delivery is essential but not sufficient to address athletes' various needs for mental health and wellbeing (Purcell et al., 2019). The development of these support frameworks could be considered the common approach in a national system worldwide (Department for Digital, Culture, Media and Sport, 2018; Moesch et al., 2018; Australian Institute of Sport, 2020; High Performance Sport New Zealand, 2021). As those approaches were somewhat equally agreed upon (**Figure 1**), however, it was difficult to make the prioritization among those actions in this pilot work. Interestingly, however, more than one in three athletes showed resistance to receiving support services even if the government and/or national sports federations establish those support frameworks in the high-performance sport system. These attitudes might be associated with a lack of knowledge and information, as observed in their experience of receiving support from experts rather than cultural stigma. Therefore, promoting athlete wellbeing is necessary to consider those obstacles when designing and planning the development of policies, systems, and programs to support athlete mental health and/or wellbeing to facilitate its utilization in better ways.

In summary, this pilot study of university student-athlete wellbeing in Japan revealed the general trends in broader and holistic perspectives as little information was available. Based on the results, the current state of student-athletes' wellbeing was relatively positive despite the influence of COVID-19. Given the lack of information related to athlete wellbeing in Japan, the student-athletes demonstrated low recognition of the word and meaning of "*athlete wellbeing*." They indicated, however, that they perceived their state of wellbeing might influence their performance and, therefore, be important for their performance development. Nevertheless, in the perception of student-athletes, few national sports federations have policies, guidelines, and support programs in place for athletes. It was, therefore, evident that most of the student-athletes had never experienced the support service on wellbeing in terms of information, detection, and help-seeking behavior. Despite the uncertainty of utilizing the support provided, the student-athletes agreed that it was necessary for the government and/or national sports federations to take actions such as clear guidance of the direction, information gathering and delivery, athlete and coach education, the development of detection and monitoring tools, the settlement of the system to react to problem occurrences, employment of experts, and the development of a collaborative network system with experts, expert organizations, private companies, government and national sports federations, and the development of a referral network. Given these results, further investigations were required, particularly targeting athletes in high-performance sports (i.e., Olympic and Paralympic athletes) and national sports federations.

Limitations and future direction

There were some limitations associated with this pilot study. First, the COVID-19 pandemic affected the findings as the study was conducted during the State of Emergency in Japan. In fact, approximately half of the participants perceived the influence of the COVID-19 pandemic on their wellbeing. To account for the COVID-19 pandemic, the states of athlete wellbeing in each dimension were asked over the past 3 years. Since this investigation focused on the general trend of student-athletes' perceptions of their state and environment of holistic wellbeing, the instrument consisted of only one set of items specifically capturing the influence of COVID-19. Second, in terms of methodology, the sample size of 100 is limited for subgroup analysis. Therefore, further studies could suggest that an in-depth analysis of athlete wellbeing, such as gender, length of time in the field, and status of physical limitations, with larger sample size, might support assuming the generalizability of the study. Finally, as the interval of 7 days for test-retest reliability might not be sufficient, a minimum time gap of a fortnight may be necessary for future investigation.

Based on the findings from this pilot study, further investigation should be carried out to develop the national support system in Japan. First, future studies could target elite athletes (i.e., Olympic and Paralympic athletes) on a larger scale. Second, as the findings were only derived from athletes' perspectives, it could suggest investigating the national sports federation's point of view regarding the availability of athlete support systems and/or programs. Third, the researchers could consider the study about the wellbeing of the entourage because the issues and challenges associated with the topic of wellbeing are not necessarily limited to athletes as they also spend considerable time in a highly demanding environment (Breslin et al., 2017).

Given the lack of information on the Asian population in the field of athlete well-being and mental health was evident (Reardon et al., 2019), international collaborative research in the Asian region is necessary. Furthermore, comparing Asian and Western countries could help in cultural considerations in developing each country's policies, systems, and programs. As the JSC, the mother organization of the JISS, is the only national sports agency responsible for grassroots to high-performance sports in Japan, the social science research group of the JISS will continue to study in this field to provide further evidence and information to support policy implementation in the field of athlete wellbeing by collaborating with researchers both in Asia and the world in the future.

Data availability statement

The datasets generated for this study will not be available due to the privacy of the participants. Please contact the corresponding author for any further information and any requests to access the datasets.

Ethics statement

The studies involving human participants were reviewed and approved by Japan Institute of Sports Sciences Ethical review Committee. The patients/participants provided their written informed consent to participate in this study.

Author contributions

YN conceptualized the study, developed the instrument, supervised the analysis, and drafted the manuscript from initial to final. CK conducted data analysis and drafted parts of the methods, measures, and results. TK supervised the whole process as the project leader, recruited participants, conducted the survey and data analysis, and drafted some of the methods, measures, and results in parts. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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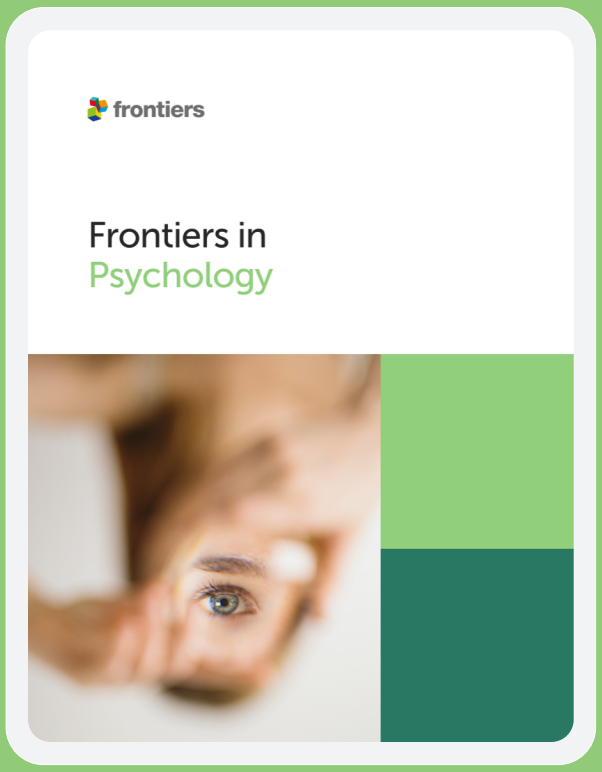

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