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The Gold Medal Profile for Sport Psychology (GMP-SP)

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ABSTRACT

The Gold Medal Profile for Sport Psychology (GMP-SP) is a comprehensive, evidence-informed framework integrating mental performance competencies underpinning the athletic performances of Canadian athletes capable of stepping onto the Para/Olympic Podium. The GMP-SP was established to guide Mental Performance Consultants (MPCs) and National Sport Organizations (NSOs) in their design, delivery, tracking, and evaluation of mental skills programs in the Canadian high performance sport system. A Participatory Action Research approach involving a 2-year cyclical process of planning, action, reflection, and evaluation informed the collaborative work of six experienced Canadian MPCs (four men, two women). The group, whose lived experience was integral to the relevance and impact of the inquiry collectively had over 125 years of experience conducting research and consulting in high performance sport. A review of the scientific literature combined with the experts' professional practice led to the creation of the GMP-SP, which includes 11 mental performance competencies grouped under three broad categories: (a) fundamental competencies (motivation, confidence, resilience), (b) self-regulation competencies (self-awareness, stress management, emotion, and arousal regulation, attentional control), and (c) interpersonal competencies (athlete-coach relationship, leadership, teamwork, communication). Mental health was also included as an overarching construct influencing the achievement of mental and athletic performance. The GMP-SP fulfills an important gap given the current lack of models, methods, and tools to guide the operationalization of mental performance systems in high performance sport that include both intrapersonal and interpersonal competencies.

Lay summary: The Gold Medal Profile for Sport Psychology (GMP-SP) is a framework integrating 11 mental performance competencies underpinning podium success in Canadian high performance sport, with attention to mental health. The GMP-SP is intended to guide practitioners and sport leaders in their sport psychology programming and resource allocation to support athletes in their quest for excellence.

IMPLICATIONS FOR PRACTICE

- Mental Performance Consultants (MPCs) can use the Gold Medal Profile for Sport Psychology (GMP-SP) for the assessment,


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periodization, and implementation of mental skills training programs in high performance sport.

- The GMP-SP can be used to educate athletes, coaches, and staff about the importance of mental performance skills to achieve success in high performance sport. The GMP-SP uniquely highlights intrapersonal and interpersonal competencies and the interplay between mental performance and mental health.
- The analogy of gold, silver, and bronze in the GMP-SP can help practitioners, scholars, and sport leaders to plan, test, and allocate adequate resources and funding for the development of mental competencies.

Many international scholars have delivered scientific articles and reports on mental performance competencies (e.g., characteristics, states, skills) associated with peak, expert, or Olympic/Paralympic performance (e.g., Anderson et al., 2014; Banack et al., 2011; Durand-Bush et al., 2001; Durand-Bush & Salmela, 2002; Fletcher & Sarkar, 2012; Gardner & Moore, 2007; Gould et al., 2002; Gould & Maynard, 2009; Jones, 2002; Jordet, 2015; Krane & Williams, 2015; MacNamara et al., 2010; Mitić et al., 2021; Orlick & Partington, 1988; Swann et al., 2017). The aforementioned contributions contain valuable information that can be used to tailor the development and maintenance of athletes' mental performance for podium success. Competencies reported in these articles include self-confidence, motivation, commitment, attention regulation, arousal regulation, planning, evaluation, emotion regulation, stress management, resilience, mental toughness, coping, goal-setting, imagery, and self-talk. Overall, the literature demonstrates that athletes require "a highly developed ability to identify and then self-regulate a range of cognitive, emotional, and behavioral factors relevant to the individual athlete and the requirements of the competition environment" (Anderson et al., 2014, p. 331). This suggests psychological skills and self-regulation processes are necessary to successfully perform and adapt to sport environments and should be integrated into mental performance models.

Although there are commonalities in the findings from previous works (e.g., confidence and commitment are consistently identified as fundamental competencies; Durand-Bush et al., 2001; Gould et al., 2002; Mitić et al., 2021; Orlick & Partington, 1988), there are also diverse results that must be considered (e.g., stages of expertise development, training/competitive environment; able-bodied/parasport; Banack et al., 2011; Durand-Bush & Salmela, 2002; Gardner & Moore, 2007; MacNamara et al., 2010). Interestingly, although several studies have investigated the psychological characteristics, states, and skills of elite athletes, very few published conceptual models or frameworks that comprehensively integrate the most relevant skills to guide practice. Notwithstanding this observation, some models are available and we have chosen to briefly summarize two of them: the Wheel of Excellence (Orlick, 1996, 2016) and the Ottawa Mental Skills Assessment Tool (OMSAT-3*; Durand-Bush et al., 2001). These models were particularly relevant for the current project because they were developed within the Canadian context based on research conducted with high performance (HP) Canadian athletes. They have also been used by Canadian Mental Performance Consultants (MPCs) to guide mental performance work in the HP sport context.

The wheel of excellence

Orlick (1996, 2016) developed the Wheel of Excellence, which includes the following seven critical elements of excellence: focus, commitment, confidence, positive images, mental readiness, distraction control, and ongoing learning. According to Orlick, although all skills are interconnected and essential to attaining the highest level of excellence in sport, focus (i.e., attentional control) is the cornerstone of the model and drives the other elements of excellence. Orlick (2016) articulated the importance of focus and its link to other mental skills (e.g., confidence, positive images) when he stated: “Excellence begins to blossom when you begin to trust yourself to focus fully in positive ways that connect you completely and absolutely with each step in the moment-by-moment process of your performance pursuit” (p. 13). The Wheel of Excellence captures the mental performance skills postulated in Orlick and Partington’s (1988) ground-breaking mixed methods study with 235 Canadian Olympic athletes. The ecologically valid framework emerged from “many years of ongoing focused consulting, interviewing, learning, and interacting with some of the world’s best athletes and best performers” (Orlick, 2016, p. 11). Although this model serves as a valuable guide to help athletes increase the quality and consistency of their performance, it has some limitations. For example, it does not address important self-regulation skills such as emotion and arousal regulation or key interpersonal skills like communication and leadership.

Ottawa mental skills assessment tool

The OMSAT-3* is another multidimensional framework depicting 12 mental skills deemed important for high level performance in sport (Durand-Bush et al., 2001). Skills are grouped under the following three broader components: (a) foundation skills (i.e., goal-setting, commitment, self-confidence), (b) psychosomatic skills (i.e., stress reactions, fear control, relaxation, activation), and (c) cognitive skills (i.e., imagery, mental practice, focusing, refocusing, competition planning). Self-confidence, goal-setting, and commitment are conceptualized as foundational skills as they were rated by 335 elite and competitive Canadian athletes as the top three most relevant skills to their performance (Durand-Bush et al., 2001). Furthermore, both elite and competitive groups of athletes scored highest on these three skills in comparison to the other nine skills. The OMSAT-3* is a useful framework for MPCs wishing to obtain a comprehensive view of strengths and weaknesses or to evaluate mental skills training programs (e.g., Fournier et al., 2005). Although it addresses more skills than the Wheel of Excellence (i.e., 12 compared to 7), a limitation is that it does not target interpersonal skills.

Overall, the Wheel of Excellence and the OMSAT-3* were developed in the 1990s within the Canadian sport context. Although they still have relevance for working in HP sport contexts today, other models exist (e.g., Psychological Characteristics of Developing Excellence, MacNamara et al., 2010; Psychological Resilience Model, Fletcher & Sarkar, 2016) and were used to inform this work. Describing these models in detail in the introduction was, however, beyond the scope of the article.

Aim and context

In summary, the literature demonstrates that several psychological skills are vital to consistently achieve high levels of performance in sport (e.g., Anderson et al., 2014; Durand-Bush et al., 2001; Gardner & Moore, 2007; Gould et al., 2002; Gould & Maynard, 2009; MacNamara et al., 2010; Mitić et al., 2021; Orlick, 2016; Swann et al., 2017). However, considering the breadth and depth of sport psychology research across the globe, few comprehensive models have been put forth to guide sport organizations and practitioners in designing, implementing, and evaluating multi-skills mental performance programs to optimize performance readiness and outcomes. The development of the GMP-SP for the Canadian HP sport context aimed to fill this gap. This work was centered around two questions: (a) What evidence-informed mental performance competencies underpin the performance of athletes capable of stepping onto the Para/Olympic podium? and (b) How can these competencies be integrated and assessed to guide professional practice in the Canadian context? It was also based on three key constructs: (a) competencies (i.e., measurable patterns of knowledge, skill, abilities, behaviors, and other characteristics that individuals need to successfully perform their roles, functions, or tasks; Rodriguez et al., 2002); (b) mental performance (i.e., capacity to use cognitive processes [e.g., perception, reasoning, decision-making] and mental/self-regulation competencies [e.g., motivation, confidence, resilience, communication] to perform and reach goals in a constantly changing environment; Durand-Bush & Van Slingerland, 2021); and (c) mental health (i.e., state of psychological, social, and emotional well-being in which individuals feel, think, and act in ways that enable them to enjoy life, realize their true potential, cope with the normal daily stresses of life, work effectively, and contribute to society; World Health Organization, 2018).

The current project was initiated by Own The Podium (OTP)—an organization leading and funding Canada's HP sport system to support athletes and coaches in their quest to win medals at Olympic and Paralympic Games (Government of Canada, 2019; OTP, 2021). OTP assembled a group of sport psychology practitioners and researchers to produce the GMP-SP to assist MPCs and National Sport Organizations (NSOs) with the development and tracking of mental performance competencies in a comprehensive, systematic, and evidence-informed manner. Up until the current work was conducted, OTP did not have a GMP specific to sport psychology, thus this scholarly project filled an important gap.

Methods

Research paradigm

This project followed a Participatory Action Research (PAR) approach involving researchers, practitioners, and policy makers to reflect on, debate, and establish a GMP-SP (Ponterotto, 2013). The approach was positioned as a collective, self-reflective inquiry to understand and improve practices. The reflective process is linked to action and understanding of the culture and local context (Baum et al., 2006). Grounded in a participatory worldview, PAR projects involve the co-construction of knowledge by stakeholders with lived experiences regarding the topic of interest (Borg et al., 2012).

Of note, PAR researchers do not bracket their biases as their experiences are recognized as legitimate evidence impacting the inquiry (Lucock et al., 2007). PAR is also flexible and pragmatic due to the complexity and fluidity of real-life situations (Schwandt, 2007). Consequently, specific data collection methods are not prescribed but instead dictated by the needs of the stakeholder group that emerge through cycles of planning, action, observation, and reflection (Ponterotto, 2013).

The current project followed a collaborative, flexible, and democratic inquiry process driven by the goal of establishing a framework of measurable mental performance competencies that was (a) grounded in current knowledge, (b) conceptualized in a way that was readily accessible for coaches, athletes, and other sport stakeholders, and (c) reflective of issues relevant to the Canadian HP sport system. The group of practitioners and researchers assumed a relativist ontology, acknowledging that multiple and mind-dependent realities exist (Reza, 2007; Smith & McGannon, 2018). To access these realities, they adopted a pragmatic epistemology oriented toward usefulness, workability, and practicality of knowledge construction to meaningfully assist and impact the sport community (Herr & Anderson, 2005).

Participants

In line with the PAR approach, a stakeholder group of sport psychology experts across Canada was established in January 2019. OTP's sport psychology lead for this project sought to include experienced MPCs and researchers of varying ages, genders, languages, and geographical locations working in HP sport in Canada. The group was limited to six individuals who were available to collaborate on a monthly basis over an extended period of time to accomplish the aims of this project. Furthermore, an external reviewer group, comprised of three experts, was formed using the same aforementioned criteria to provide feedback on the GMP-SP once it was created. [Figure 1](#) provides a summary of the stakeholder and external reviewer groups who agreed to participate and be identified in this project. Five of the six participants from the stakeholder group also agreed to serve as coauthors for this manuscript; the sixth participant declined due to other commitments.

Data collection and analysis—PAR timeline and steps

The project spanned a period of two years ([Figure 2](#)). The first year was dedicated to researching, synthesizing, debating, and finalizing the content of the GMP-SP. Each member of the stakeholder group had tasks to complete in between the monthly online meetings. The second year of the project involved getting feedback from the external reviewer group as well as OTP. The final step involved developing assessment guidelines to design, implement, and evaluate mental performance programs and sharing the GMP-SP with NSO stakeholders and the MPC community working in HP sport in Canada. Throughout this process, the group engaged in planning, action, observation, and reflection (Ponterotto, 2013).

During the first meeting with the stakeholder group, the aims, expectations, procedures, and timeline of the project were discussed. The group agreed that the first step in developing

Participant	Affiliation	Gender	Geographical location	Spoken/written language(s)	Type and years of experience
Stakeholder Group					
Natalie Durand-Bush, PhD, MPC (CSPA)	School of Human Kinetics, University of Ottawa	Female	Ottawa, Central Canada	French, English	Academia and applied practice; 25-30 years
Joseph Baker, PhD	School of Kinesiology and Health Science, York University	Male	Toronto, Central Canada	English	Academia; 20-25 years
Frank van den Berg, MSc, MPC (CSPA); OTP Project Lead	Canadian Sport Institute - Calgary	Male	Calgary, Western Canada	English	Applied practice; 20-25 years
Véronique Richard, PhD, MPC (CSPA)	Institut National du Sport - Québec	Female	Montreal, Central Canada	French, English	Applied practice; 10-15 years
Gordon Bloom, PhD, MPC (CSPA)	Department of Kinesiology and Physical Education, McGill University	Male	Montreal, Central Canada	English	Academia and applied practice; 25-30 years
Bryce Tully, MSc, MPC	Canadian Sport Centre - Atlantic	Male	Halifax, Eastern Canada	English	Applied practice; 10-15 years
External Reviewer Group					
Sharleen Hoar, PhD, MPC (CSPA)	Canadian Sport Institute - Pacific	Female	Victoria, Western Canada	English	Academia and applied practice; 15-20 years
Adrienne Leslie-Toogood, PhD, C. Psych., MPC (CSPA)	Canadian Sport Centre - Manitoba	Female	Manitoba, Centre Canada	English	Academia and applied practice; 20-25 years
David Paskevich, PhD, MPC (CSPA)	Faculty of Kinesiology, University of Calgary	Male	Calgary, Western Canada	English	Academia and applied practice; 20-25 years
<i>Note.</i> CSPA denotes that the individual is a professional member of the Canadian Sport Psychology Association.					

Figure 1. Characteristics of PAR participants.

the GMP-SP was identifying key mental performance competencies underpinning long-term athlete development and podium success based on both research and experience providing mental performance services in HP sport. This involved collecting data (i.e., reviewing and synthesizing the literature as well as mental performance consulting reflective and case notes) and then discussing and debating constructs to be addressed in the GMP-SP, such as definitions (e.g., focus on competencies), stages of development (e.g., emphasize process and learning and consider individual differences), the scope of the GMP-SP (e.g., include mental health), applicability (e.g., reference relevant models explaining competencies), and assessment (e.g., identify tools to measure competencies).

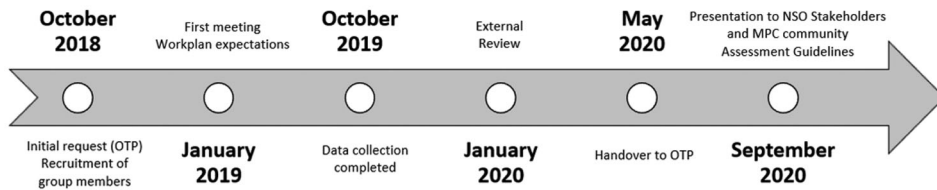


Figure 2. PAR timeline.

Once the foundation for the GMP-SP was established, the stakeholder group brainstormed a list of mental performance competencies to be investigated for inclusion in the GMP-SP. This was based on the members' intricate knowledge of the literature and application of this knowledge as MPCs with HP athletes, coaches, and staff. Once the list of competencies was finalized, each member indicated which ones they would review and synthesize for the group. To provide consistency, a template was created to guide members' review and synthesis of the literature using available databases (e.g., Sport Discus, Ovid-Psych Info, Eric) as well as reports from established organizations (e.g., mental fitness for long-term athlete development; Canadian Sport for Life). With a particular emphasis on work developed and used in the Canadian sport context, this template included sections to provide (a) key definitions and relevance of competencies, (b) representative visual models or tables explaining competencies and related factors, (c) existing assessment tools, and (d) content to be integrated in the GMP-SP.

In a shared document, each member independently worked on their sections. Once every member completed their task, the group reconvened virtually to discuss and debate the first iteration of the GMP-SP. From this exercise, recommendations were made and other PAR cycles were initiated, which led to several actions including: (a) refining definitions based on selected scientific sources, (b) expanding the content to address related factors (e.g., long-term athlete development, individuality), (c) selecting a model to explain a competency to facilitate its application, (d) combining constructs to be more efficient given some overlap between them, (e) presenting certain competencies as subsidiary competencies given their relevance to develop other main competencies, and (f) addressing inter-relationships and ways to integrate the main constructs in a visual model (e.g., categorization of mental performance competencies under three interrelated components; depiction of interrelationship between mental performance and mental health).

The stakeholder group finalized the list of main competencies and constructs included in the GMP-SP. They also created a visual model in which mental performance and mental health were highlighted and competencies were grouped under three broader interrelated components (see [Figure 3](#) and explanation of the GMP-SP in the results section). The next step in the creation of the GMP-SP consisted of finalizing the actual content of the GMP-SP document with a focus on condensing the vast amount of information in a meaningful and applicable format. In addition to the main body of text covering mental performance competencies, the following sections were added to articulate the purpose, context, recommendations, and limitations of the GMP-SP and facilitate its use: (a) an executive summary, glossary, and reference list, (b) OTP terminology to define concepts, such as Podium Pathway and GMP-SP, (c) the scope of the GMP-SP, justifying the use of terms like "competency" and the inclusion of mental

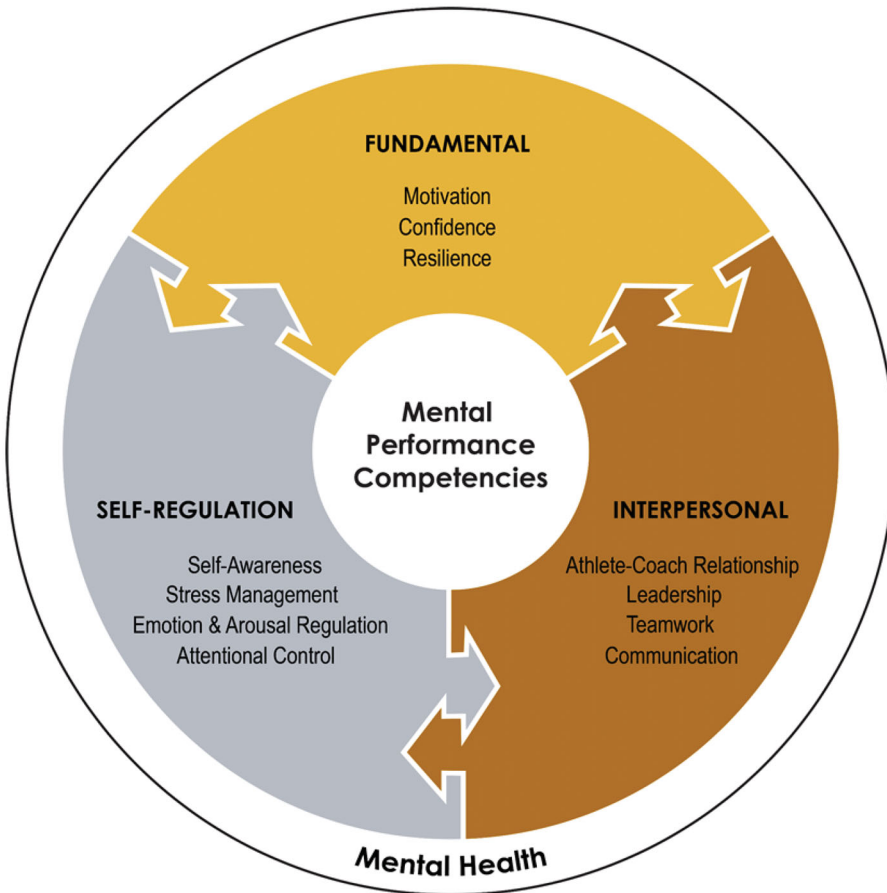


Figure 3. Gold Medal Profile for Sport Psychology (GMP-SP)—Mental performance competencies underpinning podium pathway performances.

health as a foundation upon which mental and athletic performance can be achieved, (d) the importance of using an evidence-informed, client-centered, and process-orientation (e.g., self-regulated learning) approach when developing competencies, taking into account individual differences, career/developmental stage, experience, maturity, competition level, training/competition environment, and challenges/setbacks, (e) the possibility of using the GMP-SP as a template to operationalize other relevant competencies not listed in the document based on the needs of particular sports, (f) the importance of measurement to accurately understand how and which mental performance competencies should be developed, and (g) the importance of working with qualified Mental Performance Consultants on the Podium Pathway.

The final phase of the project involved getting input from the external reviewer group and OTP. The document was submitted to the external reviewer group ~1 year after the project was initiated. After receiving each of the three member's written feedback (e.g., suggestions to clarify, justify, and present the content), the stakeholder group met virtually to discuss the comments and reach consensus on the changes that should be made to the document. The document was revised accordingly and submitted to OTP for final review, after which only minor changes were suggested.

All in all, the inquiry process involved multiple PAR ‘moments’ (Kemmis et al., 2004) leading the group of practitioners and researchers to discuss their biases and to challenge one another. There were multiple iterations of the constructs included in the GMP-SP and several versions of the visual depiction of these constructs. As ‘critical friends’, the external reviewer group provided valuable feedback that led to further reflexivity and revisions (Smith & McGannon, 2018). Rigor was fostered through detailed meeting minutes, email trails, and reflective notes.

Results

This manuscript is a condensed version of the original 80-page double-spaced GMP-SP document prepared for OTP. It is beyond the scope of this manuscript to cover all of the elements included in the original document (e.g., subsidiary competencies, assessment guidelines, glossary of terms). Instead, the manuscript focuses on the 11 main mental performance competencies included in [Figure 3](#), which are grouped under three components: (a) fundamental competencies (motivation, confidence, resilience), (b) self-regulation competencies (self-awareness, stress management, emotion and arousal regulation, attentional control), and (c) interpersonal competencies (athlete-coach relationship, leadership, teamwork, communication). Mental health was also included as an overarching construct influencing the achievement of mental and athletic performance. A broad overview of [Figure 3](#) is provided, followed by a brief summary of each competency, given space constraints.

Using the analogy of gold, silver, and bronze podium finishes, the model includes three main colors. Fundamental competencies are in gold, self-regulation competencies are in silver, and interpersonal competencies are in bronze. The gold fundamental competencies serve as the foundation of the GMP-SP and should be developed and maintained to achieve consistent high-level performance. For instance, athletes should identify and stay connected to the motives or reasons that enable them to pursue high performance sport (motivation). Furthermore, they should believe in their capability to improve and achieve success (confidence) and be able to persevere and rebound from inevitable setbacks and adversity that are inherent in elite sport (resilience). Without confidence, motivation, and resilience, athletes may lack the key ingredients (i.e., robust self-motivational beliefs) to engage in effective self-regulation (self-regulation competencies), particularly in the face of challenges that can lead to setbacks and depletion. With regards to the silver self-regulation competencies (self-awareness, stress management, emotion and arousal regulation, attentional control), self-awareness is essential as it provides the conscious knowledge driving athletes’ capacity to manage themselves and adapt to their constantly changing environment. Furthermore, in the process of pursuing goals through both effortful control and automatic goal-directed behavior, athletes should be able to regulate their attention, emotions, and arousal as these competencies impact learning and performance. Additionally, high performance athletes face complex and often conflicting demands and expectations that can be paired with inadequate resources, and they should therefore be able to successfully manage stress. Foundational competencies and [individual] self-regulation competencies facilitate the bronze [team] interpersonal competencies essential for high quality interactions and growth in high

performance environments. To illustrate, with strong foundational and self-regulation competencies that fuel athletes' effort, direction, and tenacity, athletes are in an ideal position to engage in effective team or co-regulation. At the core of developing robust interpersonal competencies in the pursuit of excellence, athletes should develop high quality relationships, particularly with coaches with whom they spend the most time in training and competition environments (athlete-coach relationship). To optimize co-regulation, they should also be able to effectively communicate (communication), work as a team regardless of its size (teamwork), and lead in positive and facilitative ways (leadership).

The circle in the GMP-SP figure represents the dynamic development of mental performance competencies and mental health, and the cyclical nature of self-regulation. Fundamental competencies are at the top as they are considered the most important for success and serve as the foundation for developing self-regulation and interpersonal competencies. There are built-in arrows between each of the three categories of competencies and the arrows are in both directions to show the inter-relationships between competencies. The white lines between the three categories of competencies flow into the center of the model, indicating that all competencies impact mental performance. They also flow into the outer circle, demonstrating that competencies can impact mental health and vice versa.

Fundamental competencies

All fundamental, self-regulation, and interpersonal competencies are important in the GMP-SP, however, evidence shows that the competencies of motivation, confidence and resilience are central for success in HP sport (Durand-Bush & Salmela, 2002; Fletcher & Sarkar, 2012; Jordalen et al., 2020; Machida et al., 2017). The term "fundamental" was chosen to imply that these competencies form a necessary base or core foundation for optimal (mental) performance and mental health.

Motivation

Motivation is indispensable for high level sport achievement (Gillet et al., 2012; Jordalen et al., 2020). It refers to an individual's reasons or motives to behave in a particular way to attain or avoid certain outcomes (Ryan & Deci, 2017). Self-Determination Theory (SDT), for example, explains different types of motivation regulation positioned along a continuum ranging from intrinsic regulation, four types of extrinsic regulation (i.e., integrated, identified, introjected, and external) and amotivation (Ryan & Deci, 2017). According to SDT, humans have innate tendencies to move in directions of greater self-regulation, competence, and integration (Ryan & Deci, 2017). Movement toward these outcomes is dependent on the support and fulfillment of three basic psychological needs, which are core dimensions of mental health: (a) competence (e.g., athletes seek challenges and develop their confidence), (b) relatedness (e.g., athletes develop a sense of belonging through interpersonal connections with coaches and teammates), and (c) autonomy (e.g., athletes act in ways that are congruent with personal interests and values, and engage in volitional behavior). When basic needs are met, athletes are more

likely to internalize and integrate autonomous forms of behavior and take ownership for their actions (Ryan & Deci, 2017).

Confidence

Confidence is another competency that is essential for superior athletic performance (Gould et al., 2002; Hays et al., 2009; Mitić et al., 2021). It refers to the belief or degree of certainty that athletes possess about their ability to be successful in sport (Machida et al., 2017). The Sport Confidence Model (Vealey & Chase, 2008) depicts several inter-related variables (e.g., personality characteristics, organizational culture), sources of confidence (e.g., coach's leadership, social support, physical/mental preparation), and three types of sport-confidence that influence performance in sport: (a) physical skills and training (e.g., confidence about training and capability to perform physical skills), (b) cognitive efficiency (e.g., confidence about ability to maintain optimal focus and make critical decisions), and (c) resilience (e.g., confidence about ability to refocus and bounce back from errors/setbacks).

Resilience

Directly linked to the aforementioned type of sport-confidence, resilience is essential in HP sport given the multiple demands, stressors, setbacks, and failures that athletes face (Durand-Bush & Salmela, 2002; Fletcher & Sarkar, 2016). Resilience is a dynamic process encompassing the capacity to maintain regular [healthy] functioning through diverse challenges and to effectively rebound following adversity through the use of facilitative resources (Fletcher & Sarkar, 2016). The Psychological Resilience Model (Fletcher & Sarkar, 2016) includes the following variables that impact optimal sport performance: stressors, cognitive appraisal and meta-cognitions, protective psychological factors (i.e., positive personality, motivation, confidence, focus, perceived social support), and facilitative responses.

Self-regulation competencies

Athletes' capacities to regulate their performance and learning is of considerable importance in HP sport, with elite athletes typically engaging in more self-regulation processes than less-elite athletes (Bartulovic et al., 2017; Toering et al., 2009). Self-regulation relates to efforts undertaken to generate and alter one's thoughts, feelings, and behaviors in the pursuit of goals, values, and ideals. It involves planning actions to reach personal or set standards as well as regulating the execution and evaluating the outcomes of such actions to be able to maintain or adapt them as necessary to meet evolving demands (Zimmerman, 2000). The following four competencies underlying effective self-regulation in sport are included in the GMP-SP: self-awareness, stress management, emotion and arousal regulation, and attentional control.

Self-awareness

Self-awareness is the product of engaging in introspection and reflection to understand one's internal states (Ravizza & Fifer, 2015). Although there is no empirical framework

for self-awareness, it is a core construct in Zimmerman's (2000) self-regulation model. Heightened self-awareness allows athletes to recognize and self-regulate psychological and physiological states required for peak performance (Dupee et al., 2016). When athletes' states are not aligned with what is required for peak performance, self-awareness can help them select appropriate strategies to achieve congruence. Self-awareness can be enhanced by completing training/competition diaries and by debriefing performances with others (e.g., coaches, teammates, MPCs; Chow & Luzzi, 2019). It can also be fostered through mindfulness practice through principles of attention, acceptance, and commitment (Gardner & Moore, 2012).

Stress management

Athletes encounter many challenges in the pursuit of excellence, which can be perceived as facilitative or debilitating to performance. Such challenges pose demands and when they are not met with appropriate competencies and resources, they can generate stress and impede athletes' performance and mental health (Smith, 1986). Hence, stress management is another key competency in HP sport (Crocker et al., 1988; Dugdale et al., 2002). Smith's (1986) cognitive-affective stress-based burnout model includes four components that influence athletes' stress response: the situation, cognitive appraisal, physiological responses, and coping and task behaviors, all of which are impacted by personal factors (e.g., self-efficacy, motivation). High or conflicting demands paralleled with insufficient resources, low social support, low autonomy, and a lack of rewards can cause stress and increase the risk of burnout. When athletes do not feel challenged to use their resources due to insufficient demands, they may feel bored and unmotivated, which can also contribute to stress (Smith, 1986). Athletes can mitigate stress responses by changing how they appraise stressors (Neil et al., 2011).

Emotion and arousal regulation

HP athletes experience a wide range of emotions and must have the capacity to regulate them for optimal performance and well-being (Anderson et al., 2014). Emotions are primal, automatic, and unconscious responses to a wide variety of environmental demands ranging from serious threats to trivial decision-making tasks (Hansen, 2005). Emotions are typically brief in duration and physiological responses associated with them are closely linked to the arousal of the nervous system, with various states and strengths of arousal relating to particular emotions (Hansen, 2005). The Individual Zone of Optimal Functioning (IZOF) can be useful for the identification and management of emotional and arousal responses (Ruiz et al., 2017). The model integrates functional and dysfunctional patterns of emotions related to optimal and poor performances. Four global categories can be derived from the IZOF model to inform how energy and arousal can be mobilized, adjusted, and used to optimize sport performance: positive helpful, positive harmful, negative helpful and negative harmful (Ruiz et al., 2017).

Attentional control

Attention is a component of athletic performance that must continually be regulated to achieve success in sport (Baumeister, 1984). Attentional control, also known as

concentrating or focusing, involves deliberately directing one's attention to a stimulus (e.g., object, cue) to perform a task (Boutcher, 2002). The information processing framework (Marteniuk, 1976) postulates that attentional control relies on attentional selectivity (e.g., allow relevant information to be processed by the nervous system via the five senses, although leaving out irrelevant information), (b) attentional capacity (e.g., attend to a limited amount of information at one time and capacity depends on whether a task is new/well-learned and simple/complex; Schneider et al., 1984), and (c) attentional alertness (e.g., level of emotional arousal impacts information processing whereby increased emotional arousal reduces alertness; Easterbrook, 1959). Anxiety-provoking situations can cause attention to be internally shifted to focus on movement execution, which can disrupt the coordination of automatic processes and lead to choking. Expert athletes with automatized skills tend to perform best with an external focus although novice athletes often benefit from using an internal focus to pay attention to movement execution (Wulf, 2013).

Interpersonal competencies

Athletes train and compete in a social context, thus interpersonal competencies are important assets to achieve podium performances (Durand-Bush & Salmela, 2002; Gould et al., 2002). Such competencies are also key for optimizing mental health and creating safe, productive environments conducive to learning and growth (Henriksen et al., 2020). The four interpersonal competencies included in the GMP-SP are athlete-coach relationship, leadership, teamwork, and communication.

Athlete-coach relationship

The ability to establish and maintain positive and trustworthy coach-athlete relationships is pivotal in HP sport (Gould et al., 2002). Such relationships are possible when athletes and coaches' feelings, thoughts, and behaviors are mutually and causally interconnected (Jowett, 2007). Four key properties can be used to characterize coach-athlete relationships: closeness, commitment, complementarity, and co-orientation (Jowett, 2007). Closeness is manifested by trust, liking, caring, and respect. Commitment reflects motivation to maintain a close relationship over time. Complementarity involves responsive, relaxed, and friendly interactions (Jowett, 2007). Finally, co-orientation is characterized by mutual beliefs, values, goals, and interests, facilitated through strong communication. High measures of closeness, complementarity, commitment, and co-orientation are associated with higher interdependence (Jowett, 2007). Coach-athlete relationships are impacted by individual differences (e.g., age, gender, personality), social-cultural factors (e.g., race/ethnicity, culture, language, sport type; Jowett & Frost, 2007), and relational factors (e.g., typical vs. atypical relationships, length of relationship; Jowett & Shanmugam, 2016).

Leadership

Leadership is the ability to influence or guide others to achieve common goals and can be enacted by both coaches and athletes (Duguay et al., 2019). Furthermore, it is

required to develop contextual awareness, understanding roles, and enhancing skills and relationships in HP sport (Arnold et al., 2012). Athletes can fulfill important leadership functions as formal or informal leaders within a team and shared athlete leadership can lead to improved team chemistry, climate, communication, and athletic experience (Duguay et al., 2019). The Full-Range Model of Leadership (Avolio, 1999) depicts laissez-faire, transactional, and transformational leadership behaviors. Laissez-faire is the most passive and ineffective form of leadership and is characterized as the absence of leadership. Transactional leadership is more effective than laissez-faire and involves exchanges between the leader and follower, with the follower receiving rewards for high quality work, effort, and behavior, and punishments for the opposite. Transformational leadership is the most effective and beneficial form of leadership, focusing upon building relationships with followers based on emotional, personal, and inspirational exchanges with the end goal of follower development (Avolio, 1999; Vallée & Bloom, 2005).

Teamwork

Teamwork is a “dynamic process involving a collaborative effort by team members to effectively carry out the independent and interdependent behaviors that are required to maximize a team’s likelihood of achieving its purposes” (McEwan & Beauchamp, 2014, p. 233). Teamwork greatly impacts satisfaction, cohesion, and performance in HP sport (Bloom et al., 2003; Collins & Durand-Bush, 2019). The Optimal Team Functioning Model depicts eight components involved in developing and maintaining optimal teamwork: individual attributes (e.g., personal skills), team attributes (e.g., relational skills), structural team processes (e.g., goal setting), communication, individual regulation processes (e.g., self-awareness), team regulation processes (e.g., leadership), the context, and desired outcomes (Collins & Durand-Bush, 2019). The OTF model emphasizes both the team as an entity as well as individual team members, with communication as a foundational process to achieve anticipated outcomes.

Communication

Communication underlies effective teamwork and refers to the exchange of information, thoughts, or messages using verbal and non-verbal means (Collins & Durand-Bush, 2019). Communication is influenced by different factors, such as age, gender, religion, language, and culture (Carron et al., 2005). It is also contingent upon personality types and preferences, which impact interactions, conflict resolution, and stress management within teams (Beauchamp et al., 2005). Teams require efficient coordination of shared knowledge, underpinned by effective two-way communication (Eccles & Tran, 2012). The ability to communicate in an open and safe environment is essential to execute a host of team processes, such as goal-setting, leadership, support, decision-making, and conflict resolution (Collins & Durand-Bush, 2019).

The competencies listed in the GMP-SP can be measured through reliable and valid psychometric assessment tools and surveys. Assessment leads to greater awareness, accuracy, and understanding of how mental performance competencies are being developed, experienced, and applied in athletic pursuits. Cone (1995) explained assessment as “obtaining a snap-shot like view of the person at a moment in time in order to determine

a person's status with respect to a cumulative knowledge or skill" and described measurement as "the dynamic act of charting changes in dimensional qualities of all or a portion of that repertoire over time" (p. 201). This suggests assessment should be done regularly to track the development of knowledge and skills of athletes. In addition to quantitative instruments, other means (i.e., interviews, observations, assessment rubrics) can be used to inform the development of individualized or sport-specific mental performance profiles. Collaboration with MPCs and a template rubric (see Supplemental Material) is provided to assist coaches and other support staff in this process.

It is noteworthy that other mental performance competencies (e.g., goal-setting, imagery, self-talk) not listed in the GMP-SP serve as important subsidiary competencies. Unique competencies may also be targeted in particular sports (e.g., decision-making in team sports, pain management in endurance sports, fear management in speed sports, creativity in esthetic sports). Leaders are encouraged to work with qualified professionals (i.e., MPCs) to target the mental performance competencies reflecting the demands of their sport. Developing sport-specific gold medal profiles and individualized athlete performance plans ensures that individual differences and developmental stages are considered (e.g., biopsychosocial changes as a function of maturity, level of competition, and challenges in athletes' life).

Finally, mental health is a key construct in the GMP-SP that is interrelated with mental performance. Athletes have unique needs, demands, pressures, and expectations they must effectively manage on a daily basis. In today's HP sport environment, athletes are continuously taxed and must be able to cope with stress and adversity and protect their mental health (Durand-Bush & Van Slingerland, 2021). As a syndrome of symptoms of positive functioning and positive feelings, mental health encompasses key psychological, social, and emotional dimensions (Westerhof & Keyes, 2010). When high stress is paired with low support, low help-seeking, and under-recovery, athletes' mental health can be compromised and lead to mental illness (Gouttebauge et al., 2019; Reardon et al., 2019). The sport community has a duty of care to preserve the mental health of athletes so that it is not sacrificed for high performance. This is essential because mental health impacts learning, performance, social relationships, and physical health (e.g., Durand-Bush & Van Slingerland, 2021; Reardon et al., 2019). Due to a lack of mental health literacy, training, and resources, sport leaders may not know how to address mental health in their particular context. This emphasizes the important role that MPCs play in promoting and nurturing mental health in sport, and in collaborating with mental health practitioners when challenges and illness arise. Given the rise in safe sport issues reported in Canada and abroad, sport leaders must create psychologically healthy climates and cultures and hire certified MPCs with graduate level education, supervised training, and strong ethics who are in good standing with their credentialing bodies.

Discussion

The aim of this project was to produce a comprehensive and evidence-informed framework to optimize the development and tracking of mental performance competencies to support Canadian athletes in their quest toward podium performances. A PAR process led to the identification of 11 competencies classified under three broader components

(i.e., fundamental, self-regulation and interpersonal competencies). Mental health was also included as an overarching construct influencing the achievement of mental and athletic performance. The uniqueness, application, strengths, and limitations of the GMP-SP are highlighted next.

Comparison to previous works

The comprehensive and interrelated structure of the GMP-SP is distinct from other works outlining mental performance competencies (e.g., characteristics, states, skills) associated with peak performance in sport (e.g., Anderson et al., 2014; Durand-Bush et al., 2001; Durand-Bush & Salmela, 2002; Gardner & Moore, 2007; Gould et al., 2002; Gould & Maynard, 2009; Jones, 2002; Jordet, 2015; Krane & Williams, 2015; MacNamara et al., 2010; Mitić et al., 2021; Orlick, 2016; Orlick & Partington, 1988; Swann et al., 2017). More specifically, in comparison to the elements in the Wheel of Excellence (Orlick, 2016), the GMP-SP addresses the foundational competency of resilience, as well as three self-regulation competencies (i.e., self-awareness, stress management, emotion and arousal regulation), four interpersonal competencies (i.e., athlete-coach relationship, leadership, teamwork, communication) and mental health, which were not included in Orlick's framework.

The GMP-SP also shares both similarities and differences with the OMSAT-3* (Durand-Bush et al., 2001) framework. In comparison to foundation skills in the OMSAT-3* (goal-setting, commitment, and self-confidence), the GMP-SP's foundation component includes motivation, confidence, and resilience (with goal-setting considered as a supporting competency). The GMP-SP also encompasses the self-regulation competencies of self-awareness and stress management (i.e., stress reactions in OMSAT-3*) and integrates both emotion and arousal control (i.e., fear control, relaxation, activation in OMSAT-3*) given the intricate interplay between these two constructs (Ruiz et al., 2017). Although the GMP-SP includes attentional control (i.e., focusing and refocusing in OMSAT-3*), it does not explicitly list competition planning as seen in the OMSAT-3* because planning and evaluation competencies were implied within the construct of self-regulated learning upon which the GMP-SP was developed. Finally, the interpersonal competencies and the mental health construct integrated in the GMP-SP were not addressed in the OMSAT-3*.

More globally, although the 11 mental performance competencies in the GMP-SP are uniquely conceptualized, they are individually well supported in the literature. For instance, motivation and confidence have been consistently identified as central constructs in athletic success (Durand-Bush et al., 2001; Gould et al., 2002; Jones, 2002; Orlick, 2016). Resilience, on the other hand, has not always been integrated in previous works, however, it is a more recently advanced competency in the sport psychology literature in comparison to other traditional ones (Fletcher & Sarkar, 2012, 2016). Resilience encompasses coping and adapting, and considering the inevitable stress, pressure, and adversity encountered in HP sport, this competency was deemed foundational in the GMP-SP.

Superior athletic performance is empirically associated with various self-regulation processes and skills (Bartulovic et al., 2017; Gardner & Moore, 2007; Toering et al.,

2009). The self-regulation component of the GMP-SP encompasses self-awareness to effectively recognize and adapt to changing conditions (Chow & Luzzeri, 2019; Ravizza & Fifer, 2015), stress management to efficiently deal with expected and unexpected stressors (Dugdale et al., 2002; Neil et al., 2011), attentional control to correctly execute tasks and improve motor performance (Wulf, 2013), as well as emotion and arousal regulation to manage emotional and physiological responses and prevent choking under pressure (Dupee et al., 2016; Ruiz et al., 2017).

The importance attributed to interpersonal competencies distinguishes the GMP-SP from other applied sport psychology frameworks, which have typically focused on intrapersonal skills (e.g., Jones, 2002; MacNamara et al., 2010). HP athletes work within larger social systems and support teams, demonstrating the need to include athlete-coach relationship (e.g., Jowett, 2007), leadership (e.g., Avolio, 1999), teamwork (e.g., Bloom et al., 2003) and communication (e.g., Eccles & Tran, 2012) constructs in the GMP-SP. These competencies have been shown to positively impact performance (Eccles & Tran, 2012) and mental health (Van Slingerland et al., 2019). Coaches are the lead architects of athletes' daily training environment (DTE) thus attention must be paid to the quality of relationships they develop with athletes. With increasing mental health and safe sport issues in HP sport (Durand-Bush & Van Slingerland, 2021; Kerr et al., 2020; Reardon et al., 2019), it is important to advocate for autonomy-supportive (i.e., need-supportive) DTEs that sustain self-motivational beliefs (e.g., Jordalen et al., 2020) and provide balance between challenges and support as these characteristics are associated with resilience (Fletcher & Sarkar, 2016).

A novel feature of the GMP-SP is the inclusion of mental health. Empirical evidence on the interplay between mental health, mental performance, and athletic performance is increasing. For instance, Canadian competitive athletes reported that their mental health is related to their sport experiences and participation (Jewett et al., 2021). Similarly, Schinke and colleagues (2017) stated that "mental health is a major resource for athletes in relation to their performance and development" (p. 1). The International Olympic Committee consensus statement on mental health in elite athletes also highlighted that fostering resilience and self-regulation competencies can prevent mental health issues from arising and increase the positive psychological experiences of sport participation (Reardon et al., 2019). This interrelation between mental health and mental performance is underscored in the GMP-SP.

Applications

The analogy of gold, silver, and bronze in the GMP-SP can help MPCs, scholars, and sport leaders to plan, test, and allocate adequate resources and funding for the development of mental competencies. Although the model does not provide a precise 'road map' depicting when every mental competency should be fostered in elite athletes, it certainly guides the content of a mental performance training program that can be periodized and integrated with other elements of the DTE developed by coaches and other sport scientists (Mujika et al., 2018). Importantly, OTP aims to systematize the design and delivery of mental performance plans while staying flexible to meet both athlete (e.g., strengths, weaknesses) and contextual (e.g., nature of sport, resources available) factors. Based on

the structure of the GMP-SP, gold competencies are central and should continually be on MPCs and coaches' radar as they are necessary for consistent high-level performance. Silver competencies are essential to reach peak psychophysiological states and should be refined and adapted to meet the fluctuating demands of HP environments. Self-regulation skills set the stage for the development of sound interpersonal competencies, the latter of which will help to build strong and safe cultures of excellence.

Strengths and limitations

Notwithstanding the benefits the GMP-SP affords to both applied and scholarly work, some limitations are worth noting. First, the GMP-SP was designed by Canadian practitioners and academics to serve the needs of the Canadian sport system. Based on the literature that exists, it is highly probable that the mental performance competencies identified in the GMP-SP transfer across cultures; however, the way in which they are operationalized, systematized, and implemented must be based on contextual values and needs. For instance, it is important to translate the content of the GMP-SP into actions and experiences that resonate with athletes and coaches. It is equally necessary to adopt a process orientation that considers factors such as age, gender, maturity, experience, competition level and constraints, as well as general life events and stressors, to name a few. In terms of the scope of the GMP-SP, although a wide-ranging set of competencies were included, they should not be seen as exhaustive or definitive. MPCs and sport leaders should consider other valuable constructs and models in the literature to add or expand competencies specific to their own sport demands and culture (e.g., coping with fear in speed and acrobatic sports), and revisit these competencies as athletes, sports, and systems change. All competencies in the GMP-SP should be measured through valid, reliable, and practical assessment tools or surveys that do not unreasonably burden athletes and coaches. For proper administration, interpretation, and feedback, the use of certified MPCs is highly recommended. Although group-based means and norms are informative, individual differences are not accounted for in the GMP-SP and must be gauged. Many champions are successful because of their individual differences, hence an athlete-centered approach allowing for the differentiation of personal characteristics is warranted when employing the GMP-SP.

From a methodological standpoint, there were benefits and limitations to using a PAR approach to carry out the current project. One of the benefits pertained to the diversity of the group of practitioners, researchers, and external reviewers, which led to various perspectives that enhanced the social validity, quality, and trustworthiness of the empirical work. Another strength related to the use of a project lead who facilitated the inquiry process by organizing and recording all of the meetings, keeping an audit trail of documents and communications, overseeing the reporting and writing process, and serving as a contact person with OTP (Cornwall & Jewkes, 1995). Given the philosophical orientation of PAR (i.e., knowledge is socially co-constructed by those involved; Borg et al., 2012), the inquiry process is impacted by the strengths and limitations of the researchers themselves. To mitigate this potential challenge, OTP sought stakeholders with extensive experience conducting research and applied work in HP sport and provided an extended timeline allowing the stakeholders to collaborate over a two-year

period involving multiple meetings and ongoing communication. Although the full and active participation of the group was a strength, time management and task exhaustion were sometimes challenges given other demands competing with the commitment required for this project. Another element of PAR that offered both benefits and drawbacks was flexibility. There is no recipe for carrying out PAR and the group appreciated the fluidity allowed within and between the structured monthly meetings held throughout the inquiry process. However, as reflected in the authors' communications and reflective notes, this flexibility also sometimes created ambiguity, which led to rich discussions to clarify and resolve competing and changing interpretations throughout the inquiry process (Cornwall & Jewkes, 1995). All in all, there were more benefits than limitations to using a PAR approach to carry out this project and those contemplating adopting PAR for their own work are highly encouraged to do so.

Conclusion

Increasing interest in mental performance and mental health in the HP domain supported the need to develop a comprehensive and accessible framework for sport stakeholders. Although the GMP-SP steers practitioners toward 11 mental performance competencies that have been empirically linked to high level performance, more work is warranted to support the design, delivery, and tracking of sport- and context-specific interventions. To make HP sport experiences safe, inclusive, and fulfilling, resources dedicated to the training of GMP-SP competencies is recommended. By reaching their full psychological potential, athletes increase the likelihood of achieving success in HP sport and building a strong foundation for realizing other feats in society.

Disclosure statement

The authors declare that there is no financial interest or benefit that has arisen from the direct applications of this research.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analyzed in this research.

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