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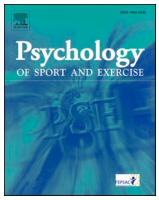

Self-regulatory processes in goal striving during excellent distance-running performances: A qualitative study

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ABSTRACT

Objective: Goal setting can improve endurance performance, yet how endurance performers maintain goal striving and bring it to a successful close has received limited attention. In this study, we investigated the self-regulatory processes employed by long-distance runners during goal striving in excellent competitive performances.

Method: Through in-depth, event-focused interviews, we explored 21 long-distance runners' experiences of goal striving in excellent competitive performances ($M = 77.43$ h post-race). Furthermore, we recruited 10 additional participants with relevant experiences (runner $n = 7$, coach $n = 2$; sport psychologist $n = 1$) for external member-reflection interviews.

Findings: Through our matrix analysis, we interpreted that by contrasting their current and future goal status periodically throughout their excellent performances, using a process called *mental contrasting with implementation intentions* (MCII), this helped the runners to make decisions about whether to persist with a goal, or disengage from a goal and reengage with an alternative. Furthermore, our findings depict how these goal decisions unfolded when runners perceived they were behind, equalling, or exceeding their goal(s). We also illustrate how goal revision was used as an adaptive process to maximise performance, and to avert or manage action crises.

Conclusions: Our findings extend theoretical understandings of goal striving and the self-regulatory processes endurance performers employ to attain and/or adapt their goals. Psychological support provided for athletes should go beyond simply setting goals, but also include training on mental frameworks such as MCII to manage goal-striving challenges and decisional conflict encountered during performances.

1. Introduction

Setting goals can be an effective way to improve performance in sport (Williamson et al., 2022) and, more specifically, within endurance sport contexts (McCormick et al., 2015). Despite this, endurance athletes often fall short of meeting their race goals (e.g., Markle et al., 2018; Waleriańczyk et al., 2022). One reason for this may be that goal attainment not only depends on the content of a goal that a person sets (e.g., performance, outcome) but also relies on their ability to cope with self-regulatory difficulties they encounter during goal striving (i.e., goal implementation - Gollwitzer & Oettingen, 2012). These difficulties include challenges with getting started (e.g., procrastination), staying on track (e.g., maintaining concentration in competitive situations), and bringing goal pursuit to a successful close (e.g., maintaining pace despite experiencing greater physical discomfort) (Gollwitzer & Oettingen, 2019). Although the need to distinguish between goal setting and goal striving has long been recognised (Lewin et al., 1944), comparatively less is known about goal striving in endurance sport (Wolff et al., 2019). Goal striving is a key psychological process underpinning athletic flourishing (Beauchamp et al., 2023) and considerable interest exists in understanding how endurance athletes progress toward, and ultimately achieve, their goals (Hutchinson, 2018). Questions remain, however, as to how endurance athletes maintain goal striving and bring it to a successful close despite the many internal (e.g., high effort, distracting

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thoughts) and external (e.g., competitor actions, weather conditions) challenges that endurance activity can bring (e.g., Wolff et al., 2019). Therefore, in the current study, we investigated the self-regulatory processes employed by long-distance runners during goal striving in competitive performances.

In line with much of the discourse about success in sport, theories of goal pursuit generally stress the value of persistence for achieving goals (Brandstätter & Bernecker, 2022). Although continued engagement can facilitate goal attainment, persevering with unattainable goals can be costly (Ntoumanis et al., 2014). In scenarios where a goal is perceived as unattainable, goal disengagement (i.e., the dissolution of one's interest in a goal - Brandstätter & Bernecker, 2022) is sometimes an adaptive self-regulatory response that can protect individuals against some unhealthy, negative emotional consequences of perceived goal failure, such as guilt, shame, or depressive mood (Wrosch & Scheier, 2020). Various theories are proposed to explain persistence and disengagement in goal pursuit (see Brandstätter & Bernecker, 2022 for a review). Ntoumanis and Sedikides (2018), for example, proposed a tripartite model of goal striving, which posits that goal motives (i.e., autonomous and controlled) and two complementary, metacognitive self-regulatory processes, namely *mental contrasting* and *implementation intentions*, interact to shape an individual's self-regulatory response in challenging situations (i.e., the thoughts and actions that lead to goal persistence or goal disengagement). In turn, this decision to persist or disengage from a goal will produce distinct consequences (e.g., performance, goal progress and attainment, affective and cognitive outcomes). Furthermore, individual differences and traits (e.g., perfectionism, pessimism, goal flexibility, affectivity) are proposed to influence the interaction between goal motives, mental contrasting, and implementation intentions (Ntoumanis & Sedikides, 2018).

Of particular interest in the present study are the metacognitive self-regulatory processes that help individuals to make decisions about goal pursuit (i.e., goal commitment and goal striving) and to cope more effectively with problems encountered during goal striving (Oettingen, 2012). The first component, mental contrasting, enables people to decide between striving for attainable and unattainable goals by imagining a desired future (i.e., achieving a goal) and then reflecting on the barriers in the present reality that impede its attainment (Oettingen, 2012). According to fantasy realisation theory (Oettingen, 2000), contrasting an imagined future with the present reality activates expectations of success, which provide a platform for expectancy-dependent goal pursuit. If a person expects that they can surmount the obstacles to goal achievement, it is proposed that they will mobilise greater effort towards reaching that desired future, but if expectations of success are low, mental contrasting will help someone to refrain from committing to an unfeasible goal. Oettingen (2000) also proposed that mental contrasting differs from two other routes to goal pursuit: indulging and dwelling. Indulging entails envisioning a desired future and the potential benefits of this without reflecting on the present reality. In contrast, dwelling involves focusing on the obstacles in the present reality without considering the desired future. As neither of these processes activate expectations of success, indulging and dwelling lead to unchanged goal pursuit (Oettingen, 2012). Mental contrasting, therefore, is the only one of these three self-regulatory processes that facilitates goal-related decision-making and performance based on the feasibility of goal attainment (Oettingen, 2000).

The second component of MCII, implementation intentions, involves the creation of a mental connection between a cue or situation (e.g., obstacle) and a goal-directed response in the form of an 'if-then plan', which details where, when, and how an individual will take action (e.g., "If situation X occurs, then I will do Y to achieve goal Z"; Gollwitzer & Oettingen, 2019). Implementation intentions can minimise resource depletion by fostering a less effortful and more automatic form of self-regulatory control during goal striving (Oettingen et al., 2013). Mental contrasting provides the prerequisites to form more effective implementation intentions, by creating strong goal commitment, and specifying impeding obstacles (i.e., for the 'if' part) and the actions needed to surmount them (i.e., for the 'then' part; Oettingen & Reininger, 2016). MCII is, therefore, a synergistic strategy that can support goal-directed behaviour, with a meta-analysis of 21 studies revealing a small-to-moderate effect ($g = .34$) of MCII on goal attainment (Wang et al., 2021).

The relevance of MCII to endurance performance is apparent given the many obstacles that endurance athletes face during goal striving. Once endurance athletes initiate goal-directed behaviours, they often encounter difficulties that threaten goal attainment, such as pacing errors, falling behind a competitor, feelings of boredom, and experiencing unpleasant or effort-related bodily sensations (Marcora, 2019; McCormick et al., 2018; Venhorst et al., 2018). These difficulties span a range of endurance tasks and include urges to slow down in 800m running (Cooper et al., 2021) and "hitting the wall" in the latter stages of a marathon (Buman et al., 2008; Smyth, 2021). In these situations, athletes will need to make strategic decisions about whether their current resources and goal-striving approach are sufficient to allow them to continue to move toward, and ultimately reach, their goal. When someone has already invested substantial effort into achieving a goal, but meets setbacks that threaten its attainability, the decisional conflict between persistence and disengagement that arises has been defined as an action crisis (Brandstätter et al., 2013; Venhorst et al., 2018). Higher action-crises ratings in a marathon are related to increased physiological distress, slower running times, reduced perceived goal attainability, and a desire to disengage (i.e., stop or quit) from the running task (e.g., Brandstätter et al., 2013; Schüler & Langens, 2007). Thus, an action crisis can undermine effective goal striving and lead an individual to consider the desirability and feasibility of both the pursued goal and alternate goals (Brandstätter & Schüler, 2013; Venhorst et al., 2018).

Consistent with the tripartite model of goal striving (Ntoumanis & Sedikides, 2018), some recreational runners have reported disengaging from their goal during an action crisis (e.g., giving up on a time goal) and renegotiating their goal – rather than quitting – to cope (Buman et al., 2008). Aligned with endurance performance models (e.g., Marcora, 2019; Pageaux, 2016), this goal revision (i.e., lowering a goal rather than abandoning it) may be interpreted as an adaptive process to optimise potential motivation based on current progress and, consequently, to direct and maximise the effort exerted in pursuit of a new, yet valued goal. Equally, goal revision may help individuals return to an implemental mindset (i.e., tune into information on where, when, and how to act) from the deliberative mindset (i.e., consideration of the feasibility and desirability of persevering with a goal) characteristic of an action crisis (Venhorst et al., 2018). One reason why athletes might decide to revise their goal is because of a discrepancy between a goal (e.g., a target pace) and current performance (e.g., running pace) (e.g., Brick et al., 2015). A goal-performance discrepancy (GPD; Donovan & Williams, 2003) can take several guises, as an athlete may be behind (i.e., negative GPD), equalling (i.e., no GPD), or ahead of (i.e., positive GPD) the performance standard needed to achieve their initial goal. If a discrepancy exists, individuals might adjust their behaviour (e.g., exert more effort) or goal to close the discrepancy (Donovan & Williams, 2003). Underlining the dynamics of goal striving in sport, GPDs have been linked to goal-driven self-regulatory processes (e.g., pace regulation; McCormick et al., 2019), positive and negative affective states (Gaudreau et al., 2002), and, of particular interest to the current study, decisions to maintain or adjust one's goals during a season (Donovan & Williams, 2003). These studies offer initial insight into the dynamics of goal-striving decisions in sport, but there is a need to deepen understanding of the complex decision-making processes endurance athletes engage in about their goal(s) as performance unfolds *within* an event and how strategic decisions that aid goal attainment are made.

1.1. The current study

In this study, we investigated the self-regulatory processes employed

by long-distance runners during goal striving in excellent competitive performances. We developed two research questions to guide our investigation: 1. How do runners make decisions about goal striving during excellent competitive performances? 2. What self-regulatory processes do runners use to make these decisions? To address our research questions, we adopted a qualitative approach to generate insight into participants' experiences of goal striving in real-world events. Researchers have highlighted the importance of using methods that can better understand the dynamics of goal striving and self-regulation (Neal et al., 2017) and the experiences of endurance athletes in real-world competition (McCormick et al., 2015). Qualitative methods appear well positioned to achieve this as qualitative research can generate novel insights into psychological phenomena in real-world settings and is well suited to examining how these may unfold in specific contexts, which can lead to advancements (and accelerations) in the theoretical development of a research area (Hagger & Chatzisarantis, 2011).

In the current study, we generated data through event-focused interviews (Jackman et al., 2022) as this method can develop detailed accounts about specific moments, events, or experiences and is suitable for investigations of dynamic, context-dependent phenomena. Given that runners often fall short of meeting their race goals (e.g., Markle et al., 2018; Waleriańczyk et al., 2022) and the limited research on within-event goal striving in real-world sport competition, we focused on excellent competitive performances as these were events in which runners were more likely – though not guaranteed – to have brought goal striving to a successful close despite the likely experience of obstacles to goal attainment. By focusing on specific, excellent performances, we believed this would enable us to recruit information-rich cases (Patton, 2014), who were likely to possess valuable knowledge that could help to address our research questions. Ultimately, we sought to expand theoretical understanding of goal striving and provide evidence that could inform guidance and educational content for runners, coaches, and sport psychologists working within endurance sport.

2. Methods

The theoretical frameworks that guided the current study are grounded in a postpositivist worldview, as phenomena such as goals, goal setting, goal striving, and self-regulation are conceptualised as mental entities that reside within the mind and are proposed to influence a person's behaviour (see McGannon & Mauws, 2000). This perspective therefore aligned with a realist ontology, whereby it is assumed that although not directly observable or knowable, mental phenomena exist in an external reality independent of the researcher's beliefs about them (Maxwell, 2012). Studies utilising these theoretical frameworks are often guided by a modified objectivist epistemology and the use of quantitative research designs. In an attempt to enrich and diversify understanding of goal striving and self-regulatory processes and to move this field beyond the predominant use of quantitative research designs, we adopted an alternative position. Specifically, while maintaining a realist ontology, we combined this with a constructivist epistemology (Maxwell, 2012). Thus, we assumed that although not directly observable, mental processes (e.g., goal striving and self-regulatory processes) are real, mind-independent phenomena, but believed that any knowledge generated about such phenomena is garnered from a particular perspective and is theory-laden, context-dependent, and partial. Our use of a qualitative approach was coherent with this philosophical position (Maxwell, 2012). We gained ethical approval for the study from the first author's university's ethics committee.

2.1. The researchers

Before the study, I (first author) had been a runner for several years and could be regarded as a cultural "insider" (Dwyer & Buckle, 2009). Across the project, my degree of "insider" status evolved, as I began to compete in races and run new distances (e.g., ultra-marathon). Although my cultural and embodied understandings of running helped me to generate (e.g., via recruitment, building rapport, empathy), interpret, and represent the dataset, my insider status also presented challenges. During interviews, for example, I needed to remember to notice, explore (e.g., via follow-up questions), and not take for granted the meanings of language used in the running community that was familiar to me. The second and fourth authors were also runners and had prior research experience in endurance sport, yet they, alongside the third author, held a greater degree of "outsider" status (Dwyer & Buckle, 2009) due to not being involved in the data generation process. The co-authors acted as critical friends (see Rigour) throughout the research project, which provided a space for me to engage in critical dialogue and develop my interpretations. The second and fourth authors' experiences of working with endurance athletes as sport psychologists also encouraged questions about the practical implications of the study (e.g., Why is this important? What might a practical implication be?), which enriched our analysis and representation of findings.

2.2. Participants and sampling

Following sampling guidelines for event-focused interviews (Jackman et al., 2022), we specified that runners who recorded a recent excellent performance in a competitive distance-running event were eligible to participate. Adapting criteria used previously (Swann et al., 2017), we defined an excellent performance as one in which runners achieved a record performance (e.g., personal, course, national, world) or finished in a leading position. Embracing a maximum-variation sampling perspective (Sparkes & Smith, 2013), we sought adult participants across various race distances and competitive standards. To identify eligible runners, we monitored race results and posts on websites, social media, and digital fitness applications (e.g., Strava) over a 22-month period. We contacted eligible runners and invited them to partake in the study if they felt their performance matched the eligibility criteria. No incentive was offered for participation. We recruited 21 runners (M age = 34.90 years old) for event-focused interviews, ranging from those who competed at local/regional level to those with Olympic Games experience (Table 1). To enhance rigour, 10 additional participants with experiences relevant to the research topic (runners $n = 7$; running coaches $n = 2$; sport psychologist $n = 1$) were recruited for 'external' member-reflection interviews (see Rigour). The additional runners were sub-elite and competed in local/regional races. Both running coaches and the sport psychologist also had experience as endurance runners, with one of the coaches previously coaching a runner to a World Championship Final. All participants provided informed consent to partake in the study.

2.3. Procedures

After eligible participants agreed to take part, I interviewed them online ($n = 19$) or via phone ($n = 2$) just over three days after the races finished on average ($M = 77.43$ h post-race, range = 21–180 h). During the interviews, I adopted a semi-structured approach (see Supplementary File 1 for interview guide), as this allowed me to pose relatively focused, open-ended questions and be flexible in responding to and exploring areas of interest that arose (Sparkes & Smith, 2013). As we sought to construct a detailed account of each runner's experience in a specific race, the dialogue direction was largely controlled by participants, so I found myself moving between a semi-structured and unstructured approach to ensure I moved *with* the story conveyed (Smith & Sparkes, 2016). Before each interview, I gathered race information, where available, to heighten my understanding of the performance that would be discussed. These insights allowed me to build rapport with participants and heightened my empathic understanding of their account (e.g., features of the route; Roulston, 2022).

After opening the interview by asking questions about the runner's

Table 1
Summary of event-focused interview participant characteristics and sampling rationale.

Participant group	Demographic characteristic	Descriptions	*n*
Event-focused interview participants	Gender	Female	6
		Male	15
	Age	20–29 years	7
		30–39 years	7
		40–60 years	7
	Ethnicity	White-British	15
		White-Irish	6
	Highest standard of performance	Olympic Games	2
		World Championship	2
		European Championship	2
		Represent nation in lower-tier international race (e.g., Masters, invitational race)	7
		National-level races	1
		Regional/local races	7
	Sampling rationale	*Record performances*	
		Personal record	7
		Age-grade world record	1
		National and personal record	1
		Finished in a leading position	
		1st in regional race	2
		2nd in international race	1
		2nd in regional race	1
		Finished in leading position and record performance	
		1st in national championship, national record, and personal record	1
		1st in regional race and course record	1
		1st finisher for country in international representative-race and personal record	1
		2nd in regional race, personal record, and qualifying time for international race	1
		2nd in national championship and personal record	1
		3rd in international race and personal record	1
		4th in national race and personal record	1
		5th in age group in international representative race	1
Additional member-reflection interview participants	Gender	Female	6
		Male	4
	Age	30–39 years	2
		40–49 years	4
		50–60 years	4
	Ethnicity	White-British	9
		White-Spanish	1
	Role	Runner	7
		Coach and runner	2
		Sport psychologist and runner	1

background in running, I posed questions in four areas. First, to develop a chronological description of the race, I invited participants to talk about how their performance in the sampled activity unfolded ("From start to finish, can you explain how the race unfolded?"). As they recalled their race, I built a timeline of key events (i.e., participant-identified events or crossroads) and reflected this back for clarification before continuing. Second, to understand each runner's experience and goals *before* the race, I asked about their preparation ("Can you tell me about the build up to the performance") and their goal(s) ("What were you hoping to achieve?"). Third, I then asked questions that focused on their experience *during* each race stage they identified, using the information in the timelines as a guide. To orient participants to the relevant point in the race, I used phrases like, "I would like to take you back to [stage]" or "I would now like to move onto [stage]", before progressing to asking specific questions about the runners thoughts ("What were you thinking about in this stage?), feelings ("How were you feeling in this stage?"), actions ("Can you tell me about how you were performing in this stage"?), and within-event goals ("What were you trying to achieve in this stage?"). By adopting this stage-by-stage approach and shifting flexibly back and forth between stages, I could elicit more detail on the runners' decisions and explore any within-person changes described over time (e.g., contrasts between an earlier and a later stage). Finally, I invited the participants to talk about their feelings and reflections *after* the race (e.g., "Reflecting back now, can you tell me how you feel about the performance?"). Throughout the interviews, I posed curiosity-driven questions (Smith & Sparkes, 2016) to generate more insight into the accounts shared by participants and to clarify the meaning of terminology from the participant's perspective. To give an example, during the interview with 10-km Runner 3, I responded to a description conveyed by the runner by stating, "I'm curious. You mentioned a stage where it was the first point you checked as to how long was left. [pause] What happened for that to be the first check in?" Before finishing, each participant was asked if they had anything further to add. I recorded the interviews (*M* length = 76.04 min) and transcribed them verbatim.

2.4. Data analysis

To address our research questions, we used matrix analysis (Miles & Huberman, 1994). According to Braun and Clarke (2021), matrix analysis is a form of 'codebook' thematic analysis characterised by the use of a coding frame (i.e., matrix) and maintenance of a commitment to qualitative philosophical assumptions, including acknowledgement of researcher subjectivity and the context-dependency of knowledge. We selected the time-ordered variant of matrix analysis as this is suited to examining the "*sequence*, *timing*, and *stability* of processes and experiences" (italics in original; Miles, Huberman, & Saldana, 2014, p. 198) and allowed us to organise and interpret data generated chronologically. Thus, our analysis was coherent with our philosophical position, research questions, and interview method. In a time-ordered matrix, time periods are displayed on the x-axis and the concepts of analytic interest presented as rows on the y-axis (Miles & Huberman, 1994). Applied to our study, the time-ordered matrix comprised separate: (1) columns on the x-axis about the race stages; and (2) rows on the y-axis representing areas pertinent to our research questions.

We undertook the main analysis in two stages. The first stage involved within-person analysis, which I started by reading each transcript multiple times to further my familiarisation. While doing so, I made jottings on areas of interest (e.g., patterns, theoretical links) and, building on my interview notes, created a race timeline for each runner. I began with first-cycle coding (Miles et al., 2014) for a small number of transcripts, highlighting relevant segments of text pertinent to the runners' goals, goal-striving decisions, and self-regulatory processes. Here, I created descriptive codes (i.e., basic meaning of a passage, such as 'specific outcome-goal') and process codes (i.e., codes that focus on action, such as 'increasing the pace') (Miles et al., 2014), adding concise snippets of this information to the runners' timelines. As I began to progress through the transcripts, I realised that I needed to expand the time-ordered matrix. For example, I quickly recognised the need to code information on 'goal progress', something I gained further insight into by engaging with literature on goal revision (Donovan & Williams, 2003). I also made more additions after 'critical friends' discussions (Miles & Huberman, 1994) with the co-authors, as I began to draw upon the tripartite model of goal striving (Ntoumanis & Sedikides, 2018) and MCII (Oettingen, 2012) in my interpretations.

Informed by these new perspectives, the 'final' time-ordered matrix (see Supplementary File 2) contained four categories: (1) *desired future* (i.e., goal type); (2) descriptions of, and obstacles (e.g., internal, external, potential) in, the *present reality* (e.g., GPD, race stage, and perceived physical condition); (3) *goal-attainment expectancy*; and (4)

goal-striving decisions (i.e., persist or disengage and re-engage with an alternative). Using this coding frame, I revisited the transcripts, created codes for each stage of the race for the four categories, and entered this information into each runner's time-ordered matrix. While coding data for the *desired future* and *present reality* categories, I adopted an abductive approach (i.e., shift between inductive coding and coding shaped by existing literature). For example, I drew on extant literature on goal types (e.g., process, performance, outcome – Hardy, 1997) and endurance running (e.g., Brick et al., 2014, 2015; Jackman et al., 2021) to cluster initial codes into a smaller number of sub-categories within these categories. In contrast, for the *goal-attainment expectancy* and *goal-striving decision* categories, I utilised a deductive approach guided by past literature (Ntoumanis & Sedikides, 2018; Oettingen, 2012). After coding, I examined data within each matrix, and, in a fifth row, noted any within-person patterns over time (e.g., changes from one goal type to another) and processual links between categories (e.g., no GPD + high expectation of success → goal persistence) (Miles & Huberman, 1994). Each participant was sent their race-analysis summary as a timeline (see Supplementary File 3 for examples), asked if the interpretation was recognisable, and invited to make changes or additions as per the member reflections process (Tracy, 2010). As a result, I made minor changes to two timelines (e.g., 10-km Runner 3 suggested the addition of "exploring their effort" to a later stage of their timeline).

In the second stage, I undertook a cross-case analysis, which involved creating a series of meta-matrices (Miles & Huberman, 1994) that displayed and synthesised information from the individual matrices in master charts. 'Clustering' is a technique used to group similar cases for cross-case matrix analysis (Miles & Huberman, 1994). To develop meta-matrices based on relevant clusters, I considered both variable-oriented (i.e., organise information based on coherent themes that cut across cases) and case-oriented (i.e., assembling similar cases to permit comparison) information (Miles & Huberman, 1994). As goal striving was the concept of central interest to our analysis, I extracted information from columns in the individual time-ordered matrices and inputted this into one of two initial meta-matrices, which segmented information based on whether the *goal-striving decision* was to (1) persist with a goal or (2) disengage from a goal and re-engage with an alternative. After examining the meta-matrices, I then divided each meta-matrix into three based on the GPD within the *present reality* (i.e., negative GPD, no GPD, or positive GPD), leading to analysis across six meta-matrices (see Supplementary File 4 for example): (1a) negative GPD and goal persistence; (1b) no GPD and goal persistence; (1c) positive GPD and goal persistence; (2a) negative GPD and goal disengagement and re-engagement; (2b) no GPD and goal disengagement and re-engagement; and (2c) positive GPD and goal disengagement and re-engagement. After assembling the information, I examined patterns within and across the meta-matrices, asking questions such as: Under what conditions (e.g., race stage, perception of effort, goal-attainment expectancy) was this decision made?; How did these decisions compare based on the type of goal(s) pursued?; What is similar or different between cases?; Are there any exceptions?; and How does this link to existing theories or research? To retain a sense of the 'whole' accounts provided, I also shifted between the meta-matrices, time-ordered matrices, and transcripts, assessing their coherency and constantly questioning my interpretations (e.g., Do the cross-case analysis conclusions make sense in the context of each runner's account?). After further discussions with the co-authors and engagement in the member reflections process (see Rigour and Supplementary File 5), we developed a visual display to depict the runners' goal-striving decision-making processes. In representing our findings, we integrated literature to illustrate the interpretative nature of our analysis.

2.5. Rigour

In the current study, we took actions to enhance rigour and address several markers of quality. By responding to calls for further research on goal striving in endurance sport (Wolff et al., 2019), we sought to make a *significant contribution* to theoretical and applied understanding in this area (Tracy, 2010). Through our sampling (i.e., event-focused and maximum-variation sampling), data generation (i.e., interview method suited to generating chronological data), and data analysis (i.e., consideration of temporality and dynamics; within- and cross-case analyses), we aimed for *rich rigour* and *methodological coherence* (Tracy, 2010). Our engagement with the 'critical friends' process (Miles & Huberman, 1994; Smith & McGannon, 2018) developed the analytical rigour. Throughout the study, I shared my reflexive notes and interpretations (i.e., in writing, voice notes, and diagrams) regularly with the co-authors, who provided written and verbal feedback. In regular critical friends' meetings, our intention was not to reach consensus, but to explore other, and challenge my, interpretations. These discussions pushed me to justify my interpretations (i.e., What was the evidence for this?) and led to the integration of new perspectives. One example of this was when literature on goal striving (Ntoumanis & Sedikides, 2018) and MCII (Oettingen, 2012) were suggested, and I subsequently drew upon this in the analysis. During the peer review process, we were encouraged to think more deeply about the analysis, which prompted me to revisit and integrate other literature (e.g., Oettingen, 2000). In the later stages of the write up, the co-authors offered me a valuable sounding board for considering the theoretical and applied implications of the findings.

To enhance the *credibility* of our research and explore the findings' *resonance* (i.e., as a form of naturalistic generalisability – Stake, 1995), we engaged in member-reflection interviews (Tracy, 2010). By sharing and discussing research with participants, the co-participatory dialogue involved in member reflections "is argued to have the potential to lead to more robust and intellectually enriched understandings" (Everard et al., 2022, p. 2). In addition to sharing a summary of each participant's within-case analysis, we sent a summary of our preliminary findings to the 21 runners and invited them for another interview. Four participants accepted this invite and took part in a subsequent interview (*M* length = 34.66 min). We also engaged in "external" member reflections, by sharing a summary of the findings in written and video (23 min) formats with 10 additional, relevant people (see Table 1). I conducted an interview ($n = 6$) or dyad-interview ($n = 4$) with these participants (*M* length = 54 min), similar to the "internal" member-reflection interviews. During these relatively unstructured, member-reflection interviews, I asked broad questions such as: What are your impressions of the findings?; Do the findings make sense?; How do the findings resonate with your experiences?; and What, if anything, have you taken away from the findings? Overall, the outcomes of the member reflections process were overwhelmingly positive and strengthened our confidence in the findings. More so, the member reflections process with these 14 participants generated additional data that enriched our analysis (Cavallerio et al., 2020). For example, participants from both sets of member-reflection interviews recalled similar race situations that the findings 'spoke to', including in both excellent and less-than-excellent performances. As a team, we were acutely aware that our study sampled excellent performances, but in the member-reflection interviews, I asked follow-up questions when participants mentioned examples of other race outcomes to gain additional detail. With these new insights from the member-reflection interviews in mind, I revisited and deepened my interpretations, as a form of 'analytic expansion' (Thorne, 1994). For instance, I engaged with additional literature (e.g., consideration of other facets of fantasy realisation theory – Oettingen, 2000) and integrated additional interpretations into the write-up.

3. Findings

The runners' decisions about goal striving represented the central concept in our analysis. All 21 runners reported goal persistence at some point in their race, with 10 also reporting disengagement from a goal and re-engagement with an alternative (see Supplementary File 6 for overview). As depicted in Fig. 1, we interpreted that these within-event

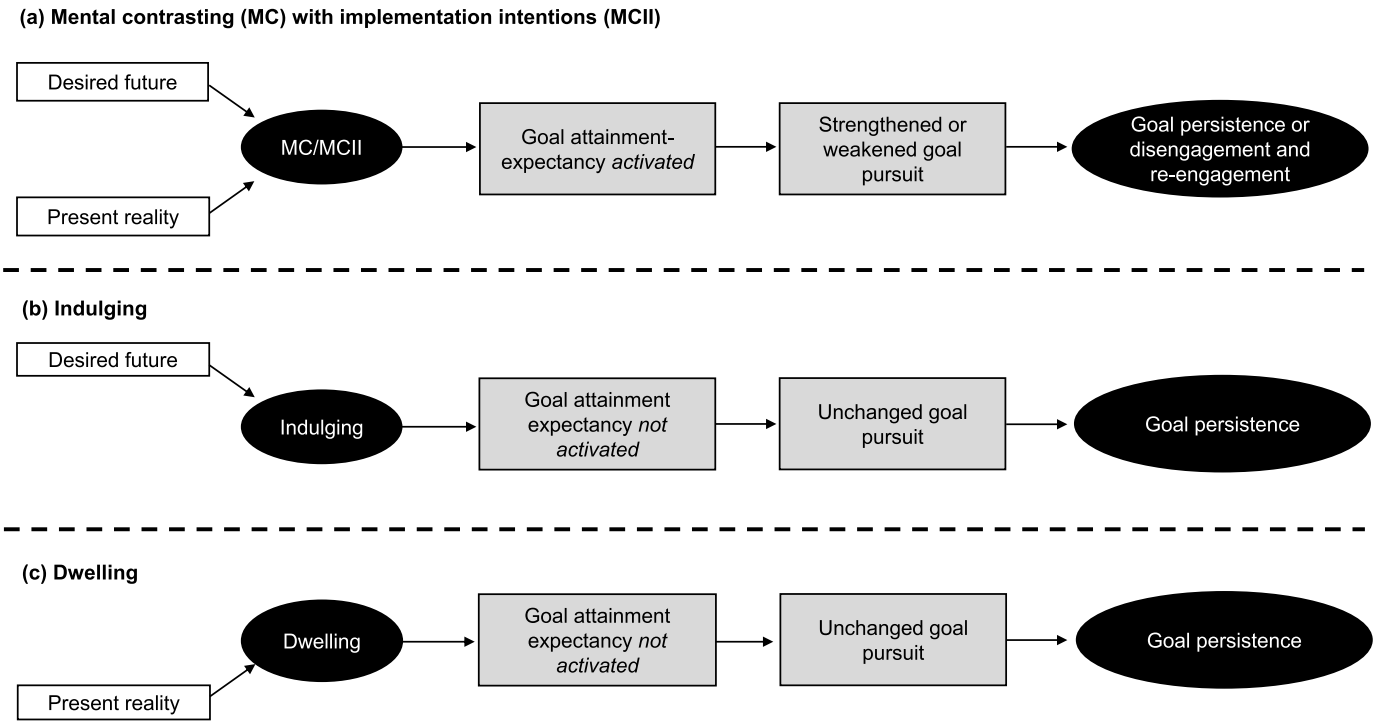

Fig. 1. Self-regulatory processes described by participants during goal striving.
Notes: In some cases for process (a), mental contrasting was described without implementation intentions. Alt Text (alternative text) for this figure is presented in Supplementary File 8.

goal-striving decisions were facilitated by a process analogous to mental contrasting (Oettingen, 2000), as the runners reflected on the *desired future* (i.e., goal) and elements of the *present reality* that impeded achievement of this. We interpreted that goals set by the runners before and during the races differed in proximity (i.e., distal vs. proximal), specificity (e.g., specific vs. non-specific), content (i.e., outcome, performance, or process goals – Hardy, 1997), and/or priority (i.e., prioritising one goal in a hierarchy of multiple goals) (see Supplementary File 7 for coding frame). The *present reality* included descriptions such as: the GPD (i.e., behind, equalling, or ahead of their goal); the race stage, competitive situation, and obstacles (e.g., physical duress); and perceptions of the runners' physical, affective, and cognitive state. By conjointly elaborating their *desired future* and *present reality*, this activated a *goal-attainment expectancy*, with the perceived expectation of success (i.e., high/low) influencing whether the runner decided to persist with their goal or to disengage from it and reengage with an alternative. In some cases, the runners also described what we interpreted as implementation intentions (Gollwitzer, 1993), by establishing a plan to achieve their goal. Although this process of MCII (Oettingen, 2012) was generally described during the runners' excellent performance, we also noted instances when the runners could have been susceptible to solely dwelling on the obstacles they faced or indulging in a wished-for-future (see Fig. 1), both of which may result in a sub-optimal performance (Oettingen, 2000). We draw upon these concepts to depict these self-regulatory processes and illustrate how the use of MCII aided the runners' goal-striving decision-making.

In line with our analysis, we structure our findings into three sections based on the GPDs (i.e., negative, no, positive) and goal-striving decisions (i.e., goal persistence, and goal disengagement and re-engagement) reported. We organised our findings in this way to convey the complex, dynamic self-regulatory processes involved in goal striving and how contrasting goal-striving decisions played out across contexts during which runners described situations with similar and different GPDs. Throughout the narrative for each sub-section, we also integrate other categories (italicised in text) from our analysis depicted in Fig. 1 to illustrate the linkages between these processes.

3.1. *Goal-striving decisions when performance is not meeting a goal set*

Four runners made decisions about goal striving in the final quarter of their race after their performance fell below the standard required to achieve their goal (i.e., negative GPD). As these runners had already invested extensive effort and the achievement of their goal was threatened, these scenarios resembled an action crisis (Brandstätter et al., 2013). Using MCII (Oettingen, 2012) helped these runners to make decisions about goal striving and to negotiate the action crisis.

3.1.1. *Goal persistence*

Two 5-km runners discussed the use of MCII (Oettingen, 2012) when deciding to persist with goal striving in the final kilometre of their races. Exemplifying the process of mental contrasting, the *desired future* for both runners was the goal of finishing the race in a specific time, while the obstacles in the *present reality* included the negative GPD, the goal-achievement pace required, and need to cope with the rising feeling of difficulty, all of which could be catalysts for an action crisis (Brandstätter et al., 2013). Illustrating the use of *implementation intentions* (Gollwitzer, 1993), both recognised that if they were to get back on track, then they would need to exert additional effort, increase their pace, and, in turn, cope with the physical duress that these changes could produce. This process of MCII provided a platform to activate a *goal-attainment expectancy*, with the runners' high expectations of success resulting in a decision to persist with their goal (Ntoumanis & Sedikides, 2018). An excerpt from one of these runners describing the decisional conflict encountered in the final kilometre of their race portrays these points:

> I had a guy who surged past. That made a difference and made me think "right, obviously the pace has slowed down, and if I do want to run quick, I need to go with it. Otherwise, if I settle with the people

> behind me, I'll never PB [personal best]". The main thought was, "it is going to be hard, and it is going to hurt, but do it and go for it". Another thought was, "if I do get to 200 or 300m left and I have nothing left, then at least I gave it a good crack, rather than saving all my energy for the last 100m and outsprinting someone, and still running 14.40 and not PB-ing. The fact that I knew the PB was on and was reachable, that was the main thing that made me, not forget the pain, but battle through it. It's a pain that you're aware of, but you know you can push through. (5-kilometre runner 1)

The above example illustrates how mental contrasting can help a runner to avoid the potential for dwelling on impeding obstacles in an action crisis and, when this activates an expectation of success, it can strengthen a runner's commitment to achieving a goal (Oettingen, 2012).

3.1.2. Goal disengagement and re-engagement

In contrast, the two remaining runners who fell behind the performance standard required to achieve their goal used MCII (Oettingen, 2012) to revise their goal and cope with an action crisis (Brandstätter et al., 2013) in the final quarter of their longer-distance races (marathon and 24-h race). Drawing on fantasy realisation theory (Oettingen, 2000), we interpreted that by considering both the *desired future* and aspects of the *present reality* simultaneously, the resultant *goal-attainment expectancy* helped them to realise that the goal was no longer feasible. Both runners subsequently revised their goals (Donovan & Williams, 2003), disengaging from their original goal and swiftly re-engaging with a more feasible alternative, which enabled them to avert the action crisis and finish the race (i.e., rather than quitting). The use of mental contrasting thus appeared to help these runners to avoid the potentially negative consequences of indulging about a no-longer-feasible goal or dwelling on the barriers impeding their goal (Oettingen, 2000). These interpretations were supported through our member-reflection interviews, when other participants recalled action-crises situations in which they responded less adaptively. The following excerpt exemplifies this process of mental contrasting for one runner and reveals how disengagement from an unfeasible goal and re-engagement with an alternative helped to maintain their motivation in a 24-h race:

> [At 18 hours] I knew the 264 [-kilometre target] was gone, but mentally that didn't affect me. I accepted the fact that we had missed the A-target. That's okay, because now I have a B-target to still aim for. The race hasn't gone perfect, but 24 hours is a very long time to get something to go perfect, so I'm still thinking positively, as positively as I can. (Ultra-runner 3)

The above example for Ultra-runner 3 also illustrates the potential for a 'tiered' performance-goal (i.e., A-goal, B-goal, C-goal) to support the enaction of an implementation intention (Gollwitzer, 1993), as this runner had a response prepared (i.e., B-goal) if a scenario arose in which their *desired future* was out of reach in the race. Applying the combined use of MCII here, we interpreted that mental contrasting (Oettingen, 2012) enabled timely goal-disengagement from a goal that was no longer feasible, while drawing upon an implementation intention (Gollwitzer, 1993) accelerated the switch to an alternative and more feasible goal.

3.2. Goal-striving decisions when performance is equalling a goal set

Twenty participants reported being on track to achieve their pre-performance-set goal (i.e., no GPD) at some point in their race and persisting with that goal. Eight runners recounted being on track to achieve their pre-performance-set goal yet decided to pursue an alternative goal, with these decisions described at the halfway stage or after.

3.2.1. Goal persistence

Runners who were on track to achieve their goal reported making decisions to persist with their goal when they formed a positive *goal-attainment expectancy* about the achievement of their *desired future* after contrasting this with their *present reality* (Oettingen, 2000). Yet, in instances when they felt they were close to, or at, their limit, these runners recalled feeling that any pace or effort increase could have deleterious consequences. In recounting their races chronologically, most specified a point at which they felt that the running task became more difficult – and thus the *present reality* appeared to verge on that of an action crisis (Brandstätter et al., 2013). This is illustrated in the following extract, where an Olympian discussed the "fine line" of managing the pace during a record attempt:

> You're always worried in the middle of a race that the wheels could come off, that you could run out of energy, or something happens and you just slow down. You're always worried about that, but you're going, "let's deal with this pace, let's keep going, let's keep going, let's keep going". You just keep taking it a bit at a time. I wouldn't really break it into miles or anything like that. I just keep going, "yeah I feel okay", and then in another bit, "yeah I feel okay", and in the last two miles, I was going, "I'm going to have to dig deep now and, even to hold the same pace I've been doing, I'm going to have to hurt a bit more". I knew what was coming. (Half-marathon Runner 1)

Interpreting the above example through the lens of mental contrasting (Oettingen, 2012), this runner identified the effort and discomfort associated with maintaining their goal pace throughout the event as a goal-achievement obstacle (*present reality*) that may have impeded their goal (*desired future*). By forming implementation intentions (Gollwitzer, 1993), this runner recognised that engaging task-relevant, cognitive strategies (Brick et al., 2014, 2015), including instructional (i.e., "I'm going to have to dig deep now") and motivational (i.e., "let's keep going") self-talk statements could help them to persevere and maintain their performance despite anticipating an elevated perception of effort (i.e., "I'm going to have to hurt a bit more"). Differences in goal-striving decision-making were also interpreted based on goal content, which had implications for challenges encountered during the race. Whereas runners pursuing time-oriented, performance goals tended to maintain a consistent pace and described a relatively gradual increase in difficulty, for runners pursuing outcome goals, increases in pace and exertional effort tended to be more variable and subsequent goal-striving decisions were strongly dictated by the competitive scenario and their perceived physical state. The following excerpt from 10-km Runner 4, who eventually won this national championship race, provides one such example of how mental contrasting (Oettingen, 2012) can aid decisions about running pace and race tactics, with this runner's decision to persist stemming from a *goal-attainment expectancy* that an alternative outcome-goal was not feasible at two moments in the race:

> After the 5-kilometre point, you start another lap, which involves going up a little bit of a hill. That was the first point at which I started to feel a bit of lactate build up. My legs felt a little bit heavier. It was the first time I had to take my foot off the gas a little and rally myself up. I had two little rough spots; maybe a little rough spot at around four miles, which I shook off pretty quickly and stayed in the group, but closer to that 7-kilometre point, a few people made some more aggressive moves. So, a guy that finished in fourth in the end, made a real aggressive move at seven kilometres, which I didn't feel like I was able to go with at the time. So, I just kind of focused on myself and keeping moving and keeping my legs going.

Here, the benefits of mental contrasting can also be interpreted through comparisons with other aspects of fantasy realisation theory (Oettingen, 2000); indulging on an alternative *desired future* (e.g., running more quickly) or dwelling on the obstacles in the *present reality* (e.g., physical duress, pace required to address move of opponent) might not have activated a *goal-attainment expectancy* and thus helped this

runner to persist with a feasible goal at that point in the race and avert an action crisis (Brandstätter et al., 2013). The effective use of mental contrasting (Oettingen, 2012) was also observed in scenarios when runners in a position to achieve their initial outcome-goal continued to persist with, rather than adjust, that goal. The decision to persist with their outcome goal and resist engaging with an alternative goal (e.g., run a specific time) stemmed from a concern that continuing to exert that level of effort could lead to an action crisis and an expectation that such a switch could jeopardise their primary goal. For instance, one runner (Half-marathon Runner 5) recalled how decisional errors from past races when they "went beyond that 'red line' for too long" influenced their decision to persist with their goal of winning after taking the lead in a race:

> Once I had broken away in the race, I did have a fear. There was more in the tank, and I could run faster, but then I was also like, "it only takes a minute or so of hard running and I will get a stitch". So, once I had broken away, I was like, "first and foremost, I need to win this race".

This extract shows how connecting with their past experiences through MCII aided this runner to make a strategic decision and illustrates how mental contrasting can help to protect one's resources (Oettingen et al., 2013). This also depicts how a *goal-attainment expectancy* about a current and alternative (or additional) goal formed through mental contrasting (Oettingen, 2012) can help to circumvent an action crisis when on track to achieve a goal.

3.2.2. Goal disengagement and re-engagement

The eight runners that disengaged from their pre-performance-set goal used mental contrasting (Oettingen, 2012) to contrast an alternative, *desired future* with their *present reality*, with this process subsequently leading to a *goal-attainment expectancy* that the obstacles impeding their goal were surmountable. A relatively consistent pattern among runners who decided to disengage from a pre-performance-set goal when on track to achieve it and to re-engage with an alternative was that these decisions took place in the second half of the race and these runners reporting disengaging from a non-specific or flexible goal set prior to the race. By engaging in mental contrasting (Oettingen, 2012) and forming implementation intentions (Gollwitzer, 1993) during the race, this appeared to help the runners to realise that a different (and usually more challenging) goal was feasible and enabled them to identify how to achieve this. This process was illustrated in the case of an international mountain runner, who set a non-specific goal prior to the race, but by comparing an alternative *desired future* and aspects of the *present reality* (i.e., making progress, feeling good) midrace, they realised a leading position was attainable and subsequently decided to commit towards achieving that new goal:

> It was quite a gradual incline up to the halfway point and then it got *really* steep in sections. I would say when I got to the halfway, my legs were feeling good and that was when I made the decision to have a go and see if I could go for the win. (Mountain Runner 1)

Rather than hold back when they felt good, this example illustrates how mental contrasting (Oettingen, 2012) during a race can encourage runners to expand potential futures and, subsequently, seize opportunities to pursue an alternative goal. Thus, thinking about the *desired future* and *present reality* concurrently not only helped the runners to make decisions about goal striving, but also enabled some to activate a positive *goal-attainment expectancy* about goals that related to unexpected or unprecedented levels of performance, with high expectations of success strengthening the runners' commitment to achieving these goals (Oettingen, 2012). These points are conveyed in the following example shared by 10-km Runner 2, an Olympian, whose main pre-performance-set goal was "to be competitive" in an elite race due to uncertainty concerning their capabilities:

> At 4K[ilometres], I went to the front a little bit and they came around me but then by 5K, I was at the front of the pack again and I pulled away a little bit. But then I came back, and it was more like a test, you know, to see if anyone comes with me. I knew that I was pushing then, and I knew that I didn't have as many people with me when I made that little semi-move up. By that point, I was like, "oh, okay, you can *actually* do this and you're over halfway now". And then I think at 6K, I went around a corner between 6 and 7K, and by that point, I saw my coach actually at 7K and I didn't even know he was going to be there. And he shouted, "you're away now". And I was thinking, "oh, God, if he's there now, I can't go back. So I best push on" [laughs]. So yeah, it was between like that middle section that I actually started to think, "OK, we could do all right here", and I could actually possibly make that podium.

Illustrating the value of mental contrasting (Oettingen, 2000) when goal striving has begun, this athlete envisioned an alternative *desired future* (i.e., finishing on the podium) and by contrasting this with their *present reality* (e.g., perceived capabilities, comparison to competitors, race stage) midrace, this activated a more positive *goal-attainment expectancy* about finishing on the podium compared to before the race. Thus, mental contrasting (Oettingen, 2000) helped this athlete to transition from a non-specific goal to a more specific and challenging goal during the performance.

3.3. Goal-striving decisions when performance is ahead of a goal set

Nine runners described moments within their races that involved making decisions about whether to persist with a goal or not when they found themselves exceeding the performance standard required to attain their goal (i.e., positive GPD). Five runners subsequently decided to persist with their pre-performance-set goal, three runners disengaged from their goal and re-engaged with an alternative, with one runner engaging in each of these decisions at contrasting race stages.

3.3.1. Goal persistence

All decisions to persist with goal striving in a situation involving a positive GPD occurred in the first-third of races. In these situations, the runners' adoption of MCII (Oettingen, 2012) made them recognise that continuing to stay ahead (*present reality*) of their goal (*desired future*) could yield a better outcome relative to their pre-performance-set goal, but they also recalled a realisation that they could not continue to exert the same level of effort until the finish-line and anticipated that an action crisis (Brandstätter et al., 2013) could arise if they were to switch to a more challenging goal. The use of MCII (Oettingen, 2012) appeared to safeguard the runners from making a goal-striving decision that stemmed solely from indulging (Oettingen, 2000) with an alternative *desired future* (e.g., running a quicker time). To give an example, an experienced international runner recalled the moment when she decided to slow her pace after realising that continuing to run at their early race-pace was not feasible, leading to a strategic decision to persist with the goal set pre-performance rather than adjusting to a more challenging and unfeasible alternative:

> I sped up with them [quicker male runners] as much as I could before I reached that point [2 km], and then I was like, "oh nooo! This isn't sustainable for another 4–5 miles". I was like, "I just need to settle, at my own pace". (10-kilometre Runner 2)

As illustrated in the above example, the use of MCII (Oettingen, 2012) helped the runners' pace-related decision-making based on their *goal-attainment expectations* of the original goal and of alternative goals. Some runners spoke about how memories of past races when they had struggled after setting off too quickly served as a useful reference point to inform their decision to refrain from running at an unsustainable pace. For instance, Ultra-runner 4 realised her pace was too quick in the first mile of a 33-mile race, but recalling a past experience aided her

decision to slow down:

> I did just go off at a steady pace, which was probably a good thing because the other (ultra-marathon) race I did was a 35-miler. That was on my mind, because that race went disastrously, well, not *disastrously* wrong, but I went way too fast in the first half of that and then I just hated the second half and was close to pulling out and then loads of people went past me.

Drawing on fantasy realisation theory (Oettingen, 2000), the above example of a less-than-excellent performance portrays how indulging in a *desired future* (i.e., goal that could be achieved by running quicker) without considering the *present reality* (e.g., consequences of running at this pace for 35 miles) can produce an action crisis (Brandstätter et al., 2013). This particular instance also highlights how drawing upon a past experience of indulging, and the consequences of this, through the process of MCII (Oettingen, 2012) helped her to refrain from repeating these in a subsequent event.

3.3.2. Goal disengagement and re-engagement

All four runners who disengaged from their goal, and shifted towards an alternative goal, while surpassing their goal reported these decisions specifically in the final-third of their races. Illustrating the use of MCII (Oettingen, 2012) when describing these decisions, the runners recalled positive *goal-attainment expectancies* about an alternative *desired future*, such that they could exert the additional effort required to achieve an even higher target. This process is conveyed in the following quote, when an international runner recalled reflecting upon his perceived physical state (*present reality*) before a decision to strive for a more challenging goal in a half-marathon:

> You're still aware that you're breathing really heavy at mile-10, but you're like, "I can still go a bit harder here", so you're still in the process of getting to that. You are still in control somewhat. You still have somewhere to go. You can still push a bit more. I think mile-10 was really about aiming for that guy ahead of me. (Half-marathon Runner 2)

Although several runners remarked on the intensifying difficulty of running as the finish neared, using MCII (Oettingen, 2012) enabled them to envision various future scenarios and derive an appropriate decision based on their *present reality* (e.g., current knowledge, perception of their capabilities, race context). This is exemplified in the following excerpt, in which Ultra-Runner 1 revised their goal upwards after exceeding their initial target distance (100 miles) 24 h into an elimination race (i.e., runners eliminated when they can no longer run 4.17 miles every hour):

> Because my [first] night was so tough, I did have that thought that I cannot go through another night. I did say to my friend, "I don't think I can go another night, but I do think I can put my head torch on again and go for a bit", but I just physically felt I couldn't put myself through another night like I had. That was how positive I felt. I did think I was going to get through to another night. And then, I did have those thoughts, if I could get to another night, I wouldn't have to do the whole night, if I could do until 1.00 a.m. in the morning, that would be 150 miles. How amazing would that be? So, I did start having distance goals in my head and I thought that I could do it at that point.

Illustrating the process of MCII (Oettingen, 2012), the above example depicts how this runner considered an alternative *desired future* and that based on various elements of their *present reality* (e.g., feeling good, perception of their capabilities), they believed another goal was feasible (*goal-attainment expectancy*), which they subsequently committed to trying to achieve.

4. General discussion

In the current study, we make a contribution towards addressing calls for research to expand understandings of goal striving and self-regulation in endurance sport (Wolff et al., 2019) by providing an in-depth account of the dynamics of goal-striving decision-making and the intricacies of the self-regulatory processes that lead to goal-striving decisions in this context. In response to our research questions, our findings illustrate the utility of MCII (Oettingen, 2012) as a self-regulatory process that can help runners to make decisions about goal persistence, goal disengagement, and goal reengagement. Furthermore, we offer detailed insights into how runners draw upon these self-regulatory processes to make such decisions when they perceived that they were: (1) not meeting a goal; (2) on track to achieve a goal; or (3) currently exceeding a goal.

Our findings offer new insights into the dynamic processes of goal striving and the application of MCII (Oettingen, 2012) to make decisions during competitive endurance races. Consistent with fantasy realisation theory (Oettingen, 2000), mentally contrasting a desired future and present reality periodically throughout their performances helped the runners to decide between goal persistence or goal disengagement. These runners recognised the need to manage the effort exerted to maximise performance, maintain goal striving, and avoid running excessively fast, which they anticipated could elicit an action crisis and hinder goal attainment. Rather than solely indulge in a desired future or dwell on current or potential obstacles (Oettingen, 2000), our findings illustrated how mental contrasting could help to protect the runners from an action crisis by aiding their decision-making about goal striving (e.g., to refrain from pursuing a more challenging goal). This was particularly important in the early stage of races, when several runners recalled intentionally slowing down after starting at a pace they perceived to be unsustainable until the finish. Our findings offer evidence to suggest that these pace-related decisions were influenced somewhat by previous experience, as some runners spoke about how memories from past races helped them to refrain from running too quickly. This complements past research indicating that less-experienced runners were more likely to run too fast in the early stages of endurance events and, by failing to effectively regulate their performance, experience an action crisis as a result (Deaner et al., 2015).

In addition to helping to protect athletes from an action crisis, our findings also highlight how the use of MCII (Oettingen, 2012) can be beneficial in actual moments of action crises. Runners who encountered an action crisis used mental contrasting to make expectancy-dependent decisions about goal striving, which helped them to avoid solely indulging in their desired future or dwelling on impeding obstacles (Oettingen, 2000). For runners who maintained an expectation of success despite being in an action crisis, the process of mental contrasting provided a platform for them to form an implementation intention (Gollwitzer, 1993) and to take the necessary actions required to reduce the GPD and achieve their goal. Conversely, runners who felt their goal was no longer attainable in an action crisis reported that revising their goal, via the processes of disengagement and re-engagement, enabled them to redirect their attention towards a new goal compatible with their current performance. Schüler and Langens (2007) demonstrated the utility of motivational self-talk during action crises to maintain higher performance levels in marathon running (Schüler & Langens, 2007). Insight into alternative, yet effective cognitive processes to manage or avert action crises is limited, however. Accordingly, we highlight the potential value of goal revision in such scenarios and provide insights into the dynamic processes involved in revising a goal during endurance performance.

Past research in sport has suggested that athletes revise their goals between competitive events and over the course of a season in response to GPDs (Donovan & Williams, 2003). The present study provides evidence of goal adjustments within a single event, however, and offers insight into the dynamic, self-regulatory processes underpinning goal

revision. The utility of goal revision to optimise endurance performance extends existing theoretical propositions within this domain (Brehm & Self, 1989; Marcora, 2019), such that goal revision can be viewed as a novel self-regulatory strategy to alter potential motivation. Applied to practice contexts, by increasing the difficulty of one's goal during a scenario involving a positive-GPD, for example, an endurance athlete could increase the effort they are willing to exert in pursuit of that goal. In contrast, when a goal no longer appears achievable, rather than abandoning goal pursuit completely (i.e., quitting), an athlete may lower their goal to maximise potential motivation and, consequently, continue to exert effort in pursuit of their revised goal. Our findings, for runners in marathon and ultra-marathon races in the present study, suggest athletes can prepare for such scenarios by adopting a more flexible approach to goal setting and being willing to make adjustments during races. Meijen et al. (2017) previously suggested that runners could benefit from applying different levels of goals in marathon races, but to our knowledge, the current study is the first to offer empirical insights into runners' experiences of implementing this strategy during long-distance running. Our findings suggest that such tiered goals can prepare an athlete to use MCII (Oettingen, 2012) during a race, as the primary goal (e.g., most challenging goal) provides a platform for mental contrasting (Oettingen, 2000), while the identification of obstacles to goal attainment, and of subsequent responses, supports the formation (and swift enaction) of implementation intentions (e.g., if the primary goal is unfeasible, then I will strive for a less challenging goal) (Gollwitzer, 1993).

Finally, the value of MCII for adaptive goal striving has traditionally been emphasised in situations of goal unattainability (Ntoumanis & Sedikides, 2018; Oettingen, 2012). Yet, in the current study, we present evidence that illustrates how MCII can be applied to situations in which runners decide to disengage from an easily *attainable* goal within a race and re-engage with an alternative, desirable, and compatible goal. Numerous runners reported situations, typically from the distance-midpoint or time-midpoint onwards, in which they found themselves equalling or exceeding their initial goal and subsequently decided to disengage from that goal and switch to an alternative goal. The initial goals the runners disengaged from were typically non-specific (e.g., open, do-your-best, range) or specific goals with flexibility, with the re-engaged goals usually being specific and either more challenging or qualitatively different (e.g., switching goal content from performance to outcome). Drawing upon fantasy realisation theory (Oettingen, 2000), a potential reason for this could be that as the runners would have mentally contrasted different information before and during the race, contrasting goal-attainment expectancies would have been formed. For instance, a runner who was feeling good in the second half of a race may have been able to envision alternative and new futures that might not have been considered pre-race (e.g., due to uncertainty). In sum, our findings suggest that goal disengagement and re-engagement might not only be adaptive processes in scenarios of goal unattainability (Ntoumanis & Sedikides, 2018; Wrosch & Scheier, 2020); rather, when exercised in appropriate situations (i.e., when MCII suggests high expectation of success), these processes might facilitate runners to reach for alternative, desirable, and feasible future end-states, which could allow them to seize new opportunities and to elevate their performances beyond the standard explicated in their initial goals.

4.1. Limitations and future research directions

Despite our efforts to enhance the rigour of this work, several limitations should be noted. First, each runner recruited for an event-focused interview discussed their experience in relation to a single competitive race and excellent performance. Although comparisons with other races, including poorer performances, were often discussed during these interviews and additional insights were generated through member-reflection interviews with our original and new participants, in future, researchers could explore experiences of goal striving over multiple performances. Second, although our event-focused interviews offered valuable insights and enabled us to construct timelines representing interpretations of the runners' experiences, interviews are not the only method that can yield such in-depth accounts (Smith & Sparkes, 2016). Future research could adopt alternative methods (e.g., diaries, go-along interviews, think aloud) that could yield potentially novel and complementary insights. Laboratory and field-based studies could explore findings regarding the influence of goal revision on perceptual and performance outcomes during endurance activity. Third, the current study sampled athletes from the self-paced activity of distance-running and although the findings might offer naturalistic generalisability within this sport, further research exploring athletes from other single-discipline (e.g., cycling) or multi-discipline (e.g., duathlon, triathlon) endurance events is warranted. Finally, given the diversity of goals reported and the prevalence of goal revision, a methodological implication is that future studies examining goal realisation within events could adopt a more open-ended approach when exploring pre-performance-set goals (i.e., go beyond specific running times) and ask whether athletes revised their goals in races.

4.2. Applied implications

Informed by our study findings, we offer several practical implications. Coaches and sport psychology practitioners should be aware of the need to move beyond focusing solely on goal *setting before* performances and help athletes prepare for the process of goal *striving during* performances. Guidelines for implementing goal setting in sport often highlight the importance of re-evaluating one's goals over time (Bird et al., 2023), yet these recommendations are generally focused on goals that performers might set over a more extended period (e.g., a season) or that may differ from one event to the next. Based on our interpretations of the use of goal revision, we suggest a need for greater awareness of the complexity of goal striving and to prepare endurance athletes for the various forms of decisional conflict that may arise within a single event. Additionally, we suggest that MCII (Oettingen, 2012) may provide a useful framework to help athletes make better decisions within performances. Some studies have explored the use of implementation intentions alone as part of a brief-contact educational intervention with endurance athletes (Meijen et al., 2021) and noted that implementation intentions were no better than self-talk training or a control condition (i.e., normal performance strategies) to facilitate goal attainment in running events. More recently, Riddell et al. (2023) included a brief (5-min) MCII intervention with cyclists about to perform a simulated, virtual competitive 500m race. The findings revealed that MCII training and subsequent use directly predicted a reduction in perceived obstacles to goal attainment (i.e., to beat a virtual opponent) and indirectly predicted easier goal striving via a reduction in perceived obstacles, though not goal attainment. These findings support the benefits of MCII highlighted in the current study, albeit Riddell et al. (2023) only included a binary win/loss as a measure of goal attainment, in contrast with the less clear-cut, more refined indicators of goal achievement inherent within our study. As mental contrasting helps people discriminate which goals to pursue or not, and provides the prerequisites for implementation intentions to enhance goal attainment (Oettingen, 2012), the findings of Riddell et al. (2023), added to those of the present study, suggest that combining MCII is more beneficial than either component alone. Further investigation of the utility of MCII is warranted both in controlled, experimental settings, and in real-life (e.g., competitive) contexts, however. Nevertheless, we suggest sport psychology practitioners could help athletes to achieve excellent performances and/or cope with action crises by educating them on the utility of MCII and the potential deleterious effects of indulging or dwelling. Practitioners could also support runners to adopt a more flexible approach to goal striving and bolster their contextual knowledge about when to apply specific strategies. Equally, educating endurance athletes, such as runners, on goal revision processes in performances could add to the array of evidence-based, brief-contact educational

interventions provided to enhance performance during such events (e.g., Meijen et al., 2017).

5. Conclusion

In this qualitative study, we extend understanding of goal striving and the self-regulatory processes endurance athletes employ to make decisions about goal striving in excellent performances in competitive races. Our findings provide novel insights into the dynamics of goal pursuit and illustrate how adaptive goal striving involves a continual process of committing to a goal, assessing the attainability of a goal (and alternate goals), and making expectancy-dependent decisions about goal persistence, goal disengagement, and goal re-engagement. Based on our analysis, we suggest that MCII (Oettingen, 2012) and goal revision represent adaptive self-regulatory processes that runners can employ to maximise performance and/or to avert or manage action crises during competitive events. Our findings have multiple theoretical and practical implications and offer a platform to develop goal-striving and self-regulation research in sport.

CRediT author statement

Patricia C. Jackman: Conceptualisation, Methodology, Formal analysis, Investigation, Writing - Original Draft, Writing - Review & Editing, Visualisation, Project administration; Amy E. Whitehead: Formal analysis, Writing - Review & Editing; Christian Swann: Formal analysis, Writing - Review & Editing; Noel E. Brick: Conceptualisation, Methodology, Formal analysis, Writing - Original Draft, Writing - Review & Editing; Visualisation.

Declaration of competing interest

The authors report there are no conflicts of interests to declare.

Data availability

The authors do not have permission to share data.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.psychsport.2023.102516.

References

Beauchamp, M. R., Kingstone, A., & Ntoumanis, N. (2023). The psychology of athletic endeavor. *Annual Review of Psychology, 74*, 597–624. https://doi.org/10.1146/annurev-psych-012722-045214

Bird, M. D., Swann, C., & Jackman, P. C. (2023). The what, why, and how of goal setting: A review of the goal-setting process in applied sport psychology practice. *Journal of Applied Sport Psychology*. https://doi.org/10.1080/10413200.2023.2185699. Advance online publication.

Brandstätter, V., & Bernecker, K. (2022). Persistence and disengagement in personal goal pursuit. *Annual Review of Psychology, 73*, 271–299. https://doi.org/10.1146/annurev-psych-020821-110710

Brandstätter, V., Herrmann, M., & Schüler, J. (2013). The struggle of giving up personal goals: Affective, physiological, and cognitive consequences of an action crisis. *Personality and Social Psychology Bulletin, 39*(12), 1668–1682. https://doi.org/10.1177/0146167213500151

Brandstätter, V., & Schüler, J. (2013). Action crisis and cost–benefit thinking: A cognitive analysis of a goal-disengagement phase. *Journal of Experimental Social Psychology, 49*(3), 543–553. https://doi.org/10.1016/j.jesp.2012.10.004

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology, 18*(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

Brehm, J. W., & Self, E. A. (1989). The intensity of motivation. *Annual Review of Psychology, 40*, 109–131. https://doi.org/10.1146/annurev.ps.40.020189.000545

Brick, N., MacIntyre, T., & Campbell, M. (2014). Attentional focus in endurance activity: New paradigms and future directions. *International Review of Sport and Exercise Psychology, 7*(1), 106–134. https://doi.org/10.1080/1750984X.2014.885554

Brick, N., MacIntyre, T., & Campbell, M. (2015). Metacognitive processes in the self-regulation of performance in elite endurance runners. *Psychology of Sport and Exercise, 19*, 1–9. https://doi.org/10.1016/j.psychsport.2015.02.003

Buman, M. P., Omli, J. W., Giacobbi, P. R., Jr., & Brewer, B. W. (2008). Experiences and coping responses of "hitting the wall" for recreational marathon runners. *Journal of Applied Sport Psychology, 20*(3), 282–300. https://doi.org/10.1080/10413200802078267

Cavallerio, F., Wadey, R., & Wagstaff, C. R. (2020). Member reflections with elite coaches and gymnasts: Looking back to look forward. *Qualitative Research in Sport, Exercise and Health, 12*(1), 48–62. https://doi.org/10.1080/2159676X.2019.1625431

Cooper, K. B., Wilson, M. R., & Jones, M. I. (2021). Fast talkers? Investigating the influence of self-talk on mental toughness and finish times in 800-meter runners. *Journal of Applied Sport Psychology, 33*(5), 491–509. https://doi.org/10.1080/10413200.2020.1735574

Deaner, R. O., Carter, R. E., Joyner, M. J., & Hunter, S. K. (2015). Men are more likely than women to slow in the marathon. *Medicine & Science in Sports & Exercise, 47*, 607–616, 10.1249%2FMSS.0000000000000432.

Donovan, J. J., & Williams, K. J. (2003). Missing the mark: Effects of time and causal attributions on goal revision in response to goal-performance discrepancies. *Journal of Applied Psychology, 88*(3), 379–390. https://doi.org/10.1037/0021-9010.88.3.379

Dwyer, S. C., & Buckle, J. L. (2009). The space between: On being an insider-outsider in qualitative research. *International Journal of Qualitative Methods, 8*(1), 54–63.

Everard, C., Wadey, R., & Howells, K. (2022). Sharing and discussing sports injury narratives with elite athletes: Reflecting on member reflections. *Qualitative Research in Sport, Exercise and Health*, 1–15. https://doi.org/10.1080/2159676X.2022.2152083

Gaudreau, P., Blondin, J. P., & Lapierre, A. M. (2002). Athletes' coping during a competition: Relationship of coping strategies with positive affect, negative affect, and performance–goal discrepancy. *Psychology of Sport and Exercise, 3*(2), 125–150. https://doi.org/10.1016/S1469-0292(01)00015-2

Gollwitzer, P. M. (1993). In W. Stroebe, & M. Hewstone (Eds.), *European Review of Social Psychology* (Vol. 4, pp. 141–185). Wiley.

Gollwitzer, P. M., & Oettingen, G. (2012). Goal pursuit. In R. M. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 208–231). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780195399820.013.0013.

Gollwitzer, P. M., & Oettingen, G. (2019). Goal attainment. In R. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 247–267). Oxford University Press.

Hagger, M. S., & Chatzisarantis, N. L. (2011). Never the twain shall meet? Quantitative psychological researchers' perspectives on qualitative research. *Qualitative Research in Sport, Exercise and Health, 3*(3), 266–277. https://doi.org/10.1080/2159676X.2011.607185

Hardy, L. (1997). The Coleman Roberts Griffith address: Three myths about applied consultancy work. *Journal of Applied Sport Psychology, 9*(2), 277–294.

Hutchinson, A. (2018). *Endure: Mind, body, and the curiously elastic limits of human performance*. HarperCollins.

Jackman, P. C., Hawkins, R. M., Whitehead, A. E., & Brick, N. E. (2021). Integrating models of self-regulation and optimal experiences: A qualitative study into flow and clutch states in recreational distance running. *Psychology of Sport and Exercise, 57*, Article 102051. https://doi.org/10.1016/j.psychsport.2021.102051

Jackman, P. C., Schweickle, M. J., Goddard, S. G., Vella, S. A., & Swann, C. (2022). The event-focused interview: What is it, why is it useful, and how is it used? *Qualitative Research in Sport, Exercise and Health, 14*(2), 167–180. https://doi.org/10.1080/2159676X.2021.1904442

Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1944). Level of aspiration. In J. McHunt (Ed.), *Personality and the behaviour disorders, 1* pp. 333–378). Ronald.

Marcora, S. (2019). Psychobiology of fatigue during endurance exercise. In C. Meijen (Ed.), *Endurance performance in sport: Psychological theory and interventions* (pp. 15–34). Routledge.

Markle, A., Wu, G., White, R., & Sackett, A. (2018). Goals as reference points in marathon running: A novel test of reference dependence. *Journal of Risk and Uncertainty, 56*(1), 19–50.

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach*. SAGE.

McCormick, A., Meijen, C., Anstiss, P. A., & Jones, H. S. (2019). Self-regulation in endurance sports: Theory, research, and practice. *International Review of Sport and Exercise Psychology, 12*(1), 235–264. https://doi.org/10.1080/1750984X.2018.1469161

McCormick, A., Meijen, C., & Marcora, S. (2015). Psychological determinants of whole-body endurance performance. *Sports Medicine, 45*(7), 997–1015.

McCormick, A., Meijen, C., & Marcora, S. (2018). Psychological demands experienced by recreational endurance athletes. *International Journal of Sport and Exercise Psychology, 16*(4), 415–430. https://doi.org/10.1080/1612197X.2016.1256341

McGannon, K. R., & Mauws, M. K. (2000). Discursive psychology: An alternative approach for studying adherence to exercise and physical activity. *Quest, 52*(2), 148–165. https://doi.org/10.1080/00336297.2000.10491707

Meijen, C., Day, C., & Hays, K. F. (2017). Running a psyching team: Providing mental support at long-distance running events. *Journal of Sport Psychology in Action, 8*(1), 12–22.

Meijen, C., McCormick, A., Anstiss, P., & Marcora, S. M. (2021). "Short and sweet": A randomized controlled initial investigation of brief online psychological interventions with endurance athletes. *The Sport Psychologist*. https://doi.org/10.1123/tsp.2020-0088

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. SAGE.

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications.

Neal, A., Ballard, T., & Vancouver, J. B. (2017). Dynamic self-regulation and multiple-goal pursuit. *Annual Review of Organizational Psychology and Organizational Behavior, 4*, 401–423. https://doi.org/10.1146/annurev-orgpsych-032516-113156

Ntoumanis, N., Healy, L. C., Sedikides, C., Duda, J., Stewart, B., Smith, A., & Bond, J. (2014). When the going gets tough: The "why" of goal striving matters. *Journal of Personality, 82*(3), 225–236. https://doi.org/10.1111/jopy.12047

Ntoumanis, N., & Sedikides, C. (2018). Holding on to the goal or letting it go and moving on? A tripartite model of goal striving. *Current Directions in Psychological Science, 27*(5), 363–368. https://doi.org/10.1177/0963721418770455

Oettingen, G. (2000). Expectancy effects on behavior depend on self-regulatory thought. *Social Cognition, 18*(2), 101–129. https://doi.org/10.1521/soco.2000.18.2.101

Oettingen, G. (2012). Future thought and behaviour change. *European Review of Social Psychology, 23*(1), 1–63. https://doi.org/10.1080/10463283.2011.643698

Oettingen, G., & Reininger, K. M. (2016). The power of prospection: Mental contrasting and behavior change. *Social and Personality Psychology Compass, 10*(11), 591–604.

Oettingen, G., Wittchen, M., & Gollwitzer, P. M. (2013). Regulating goal pursuit through mental contrasting with implementation intentions. In E. A. Locke, & G. P. Latham (Eds.), *New developments in goal setting and task performance* (pp. 523–548). Routledge/Taylor & Francis Group.

Pageaux, B. (2016). Perception of effort in exercise science: Definition, measurement and perspectives. *European Journal of Sport Science, 16*(8), 885–894.

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage Publications.

Riddell, H., Lamont, W., Lombard, M., Paduano, S., Maltagliati, S., Gucciardi, D. F., & Ntoumanis, N. (2023). Autonomous motivation promotes goal attainment through the conscious investment of effort, but mental contrasting with implementation intentions makes goal striving easier. *The Journal of Social Psychology*. https://doi.org/10.1080/00224545.2022.2163610. Advance online publication.

Roulston, K. (2022). *Interviewing: A Guide to Theory and practice. Sage*.

Schüler, J., & Langens, T. A. (2007). Psychological crisis in a marathon and the buffering effects of self-verbalizations. *Journal of Applied Social Psychology, 37*(10), 2319–2344.

Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology, 11*(1), 101–121. https://doi.org/10.1080/1750984X.2017.1317357

Smith, B., & Sparkes, A. C. (2016). Interviews: Qualitative interviewing in the sport and exercise sciences. In B. Smith, & A. C. Sparkes (Eds.), *Routledge handbook of qualitative research methods in sport and exercise* (pp. 103–123). Routledge.

Smyth, B. (2021). How recreational marathon runners hit the wall: A large-scale data analysis of late-race pacing collapse in the marathon. *PLoS One, 16*(5), Article e0251513.

Sparkes, A. C., & Smith, B. (2013). *Qualitative research methods in sport, exercise and health: From process to product*. Routledge/Taylor & Francis Group.

Stake, R. E. (1995). *The art of case study research*. SAGE.

Swann, C., Crust, L., Jackman, P., Vella, S., Allen, M., & Keegan, R. (2017). Psychological states underlying excellent performance in sport: Towards an integrated model of flow and clutch states. *Journal of Applied Sport Psychology, 29*(4), 375–401. https://doi.org/10.1080/10413200.2016.1272650

Thorne, S. (1994). Secondary analysis in qualitative research: Issues and implications. In J. M. Morse (Ed.), *Critical issues in qualitative research methods* (pp. 263–279). Sage.

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry, 16*(10), 837–851. https://doi.org/10.1177/1077800410383121

Venhorst, A., Micklewright, D., & Noakes, T. D. (2018). Perceived fatigability: Utility of a three-dimensional dynamical systems framework to better understand the psychophysiological regulation of goal-directed exercise behaviour. *Sports Medicine, 48*(11), 2479–2495.

Waleriańczyk, W., Stolarski, M., & Matthews, G. (2022). Perfectionism moderates the effects of goal-realization on post-competition mood in amateur runners. *Journal of Sports Science and Medicine, 21*(1), 1–12. https://doi.org/10.52082/jssm.2022.1

Wang, G., Wang, Y., & Gai, X. (2021). A meta-analysis of the effects of mental contrasting with implementation intentions on goal attainment. *Frontiers in Psychology, 12*, Article 565202.

Williamson, O., Swann, C., Bennett, K. J., Bird, M. D., Goddard, S. G., Schweickle, M. J., & Jackman, P. C. (2022). The performance and psychological effects of goal setting in sport: A systematic review and meta-analysis. In *International review of sport and exercise psychology*. https://doi.org/10.1080/1750984X.2022.2116723. Advance online publication.

Wolff, W., Bieleke, M., & Schüler, J. (2019). Goal striving and endurance performance. In C. Meijen (Ed.), *Endurance performance in sport: Psychological theory and intervention* (pp. 125–137). Routledge.

Wrosch, C., & Scheier, M. F. (2020). Adaptive self-regulation, subjective well-being, and physical health: The importance of goal adjustment capacities. In A. J. Elliot (Ed.), *Advances in motivation science, 7* pp. 199–238). Elsevier.