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Grow through what you go through: a multiple-case study of competitive bodybuilders' experiences of learning to manage the demands of their engagement in the sport

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ABSTRACT

To date, most research amongst competitive bodybuilders has focused on highlighting the demands of competitive bodybuilding, competitors' emotional and behavioural responses to these demands, and the subsequent psychosocial outcomes, with limited attention to the process of coping. The current study aims to address this gap in the literature by providing insight into how competitors learn to manage and cope with the demands of their sport. Using a multiple-case study design, five high-profile competitive bodybuilders (with over 211,000 Instagram followers and 82,000 YouTube subscribers combined) engaged in semi-structured interviews and provided Instagram and personal journal data. Using reflexive thematic analysis, three overarching themes were constructed: (a) learning by trial and error, (b) understanding the self, the substances and the process, and (c) flexible guiding priorities. These findings have implications for informing future harm reduction initiatives amongst competitive bodybuilders (e.g. accelerating the experiential learning process), as well as enhancing social support for competitors (e.g. encouraging communal coping). Furthermore, this study illustrates the value of combining traditional methods (e.g. semi-structured interviews, journals) and social media data (e.g. Instagram posts, vlog-style videos) when conducting qualitative case studies in order to provide a comprehensive understanding of the phenomenon of interest.

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Introduction

Competitive bodybuilding is a sport requiring a structured routine of resistance training, caloric manipulation, cardiovascular exercise, and often, the use of image and performance enhancing drugs/substances (IPED; Steele et al. 2019). Engaging in cyclical periods commonly referred to as offseason and competition preparation (also known as 'prep'), competitive bodybuilders aim to build muscle in the offseason, and later reduce their body fat percentage by implementing a caloric deficit alongside their strict training routines in the months leading up to competition, in order to present

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a lean, symmetrical musculature on stage (see Hackett, 2022). Worldwide, the number of competitive bodybuilders is currently estimated to be in the hundreds of thousands (Steele et al. 2020).

Scholars have long discussed the history and cultural underpinnings of competitive bodybuilding and the broader physical culture (e.g. Klein, 1993), touching upon notions of gender construction and masculinity (e.g. Liokaftos, 2017), and the emergence of competitive bodybuilding as a contemporary sport (e.g. Locks & Richardson, 2012). In alignment with its increase in popularity, competitive bodybuilding has also received growing attention amongst researchers interested in the nature and characteristics of this competitive endeavour (Steele et al. 2019). For example, researchers have provided an in-depth understanding of the unique demands (e.g. strenuous training regimes, IPED use; Hackett, 2022), how these demands change at specific timepoints in the competitive seasons (e.g. peak week; Escalante et al. 2023), as well as potential negative physical (e.g. injury; Siewe et al. 2014) and physiological impacts (e.g. hormonal changes; Pardue et al. 2017).

Although most of this body of literature has focused on the potential physical and physiological impacts of participation, there has been a growing interest amongst researchers in relation to the psychosocial responses and outcomes. For instance, utilising qualitative approaches to gain insight into competitors' experiences, studies conducted amongst male and female competitors have found that particularly during competition preparation, competitors often experience emotional and mental fatigue, mood swings, and reduced cognitive functioning (Probert & Leberman 2009; Probert et al. 2007). Similar psychological responses have also been noted in the post-competition phase, in which competitors have reported low mood and irritability due to 'post-competition blues' and loss of their competition physiques (Aspridis et al. 2014). Furthermore, competitors have reported experiences of binge-eating and bulimia (Chaba et al. 2019; Probert & Leberman, 2009; Probert et al. 2007), as well as feelings of body dissatisfaction (e.g. Chaba et al. 2019).

While these studies have focused on the short-term unfavourable psychological responses (e.g. surrounding competition preparation), over the course of their careers, competitors have also reported broader and more stable favourable psychological outcomes of competitive bodybuilding. For example, competitors have expressed feelings of empowerment, improved self-confidence, self-belief, and stress relief, and have also highlighted the important values (e.g. testing personal limits, developing self-agency) associated with their involvement (e.g. Aspridis et al. 2014; Probert & Leberman, 2009). However, the many factors that may influence the varied experiences reported by competitors are not clear from the literature.

One factor which may account for some of the negative psychosocial outcomes of competitive bodybuilding specifically is the use of anabolic-androgenic steroids (AAS). In addition to perceived psychological and behavioural changes such as aggression and loss of empathy, competitive bodybuilders have reported changes and breakdowns in their relationships as a result of AAS use, indicating that the outcomes of AAS use extend far beyond their primary user (e.g. Harvey et al. 2020; Piatkowski et al. 2023). This notion is supported by a number of studies discussing the relationships between AAS use and interpersonal violence, risk-taking behaviour, and anger issues (e.g. Nelson et al. 2022).

Such adverse social outcomes of competitive bodybuilding are not limited to AAS use. For instance, competitors have also discussed their experiences of social withdrawal and isolation, the curtailing of social activities, and the overall detrimental outcomes that competitive bodybuilding can have on relationships and friendships (e.g. Aspridis et al. 2014; Chaba et al. 2019; Probert et al. 2007). However, through finding balance and learning from experience, competitors may be able to manage the social risks associated with competing (Willmott et al. 2023), such as by making efforts to revive relationships within the offseason (Probert et al. 2007). Furthermore, competitors have conversely reported that friendships and connections can be forged through competitive bodybuilding, and have emphasised a sense of camaraderie (e.g. Parent et al. 2022).

Whilst a considerable proportion of the aforementioned studies allude to the potential pathological or deviant aspects, this body of literature has nevertheless provided valuable insights into the demands of competitive bodybuilding, competitors' emotional and

behavioural responses to these demands, and the subsequent psychosocial outcomes. Yet, little is known about the ways in which competitors may learn to manage and cope with these demands and responses more effectively over time to enable better psychosocial outcomes (e.g. Lazarus & Folkman, 1984). Coping refers to the voluntary thoughts and actions an individual takes to manage psychologically and physically demanding situations, and the way in which an athlete copes (such as by increasing their effort, seeking social support, or planning) influences their personal and social outcomes (Crocker et al. 2015; Lazarus, 2000). For instance, coping outcomes may be adaptive or maladaptive, and may include goal attainment, psychological wellbeing, and alterations in interpersonal relationships and functioning (Crocker et al. 2015). Outside of the competitive bodybuilding context, research has indicated that learning to cope amongst athletes is an experiential process, and studies have highlighted the dynamic nature of athletes' coping strategies, in which they change and develop over the course of competitive phases and seasons (e.g. Crocker et al. 2015; Nicholls & Polman, 2007; Tamminen & Holt, 2012). Yet, the nuanced ways in which competitors learn to cope at different timepoints has been largely overlooked within the competitive bodybuilding literature, in part due to an overreliance on retrospective interview-based designs in which data were captured from only one timepoint (e.g. Aspridis et al. 2014; Chaba et al. 2019). Therefore, to address these gaps within the literature, the current study aimed to develop a detailed understanding of the coping process amongst competitive bodybuilders, for the purposes of support provision and harm reduction. Specifically, the study was underpinned by the following research questions: how do competitors learn to manage and/or cope with the demands associated with competitive bodybuilding (a) across the competitive seasons?; and (b) throughout the course of their competitive careers?

Methodology

Design and positioning

The current study was conducted within the interpretivist paradigm, which is grounded in a relativist ontology (i.e. there are multiple individual realities) and a subjective epistemology (i.e. knowledge is socially constructed and subjective), and places emphasis on understanding the meaning that individuals construct and attribute to their experiences (i.e. a process of meaning-making; Sparkes & Smith, 2014; Willig, 2017). Consistent with this philosophical position, and in order to address the research questions, a case study approach was selected. Case studies are particularly suited to the study of contemporary phenomena rooted within a specific context (e.g. competitive bodybuilding) and characteristically, they are bound in time and place, involve a small sample, and utilise multiple data collection methods (Yin, 2018). Specifically, a multiple-case study, in which numerous cases are investigated concurrently or consecutively, was used in the current study to construct a comprehensive understanding of competitive bodybuilders' experiences, and draw comparisons between them (Baxter & Jack, 2008).

Whilst interviews, documents, and personal journals are commonly utilised data collection methods (Yin, 2018), the emergence of social media has provided qualitative case study researchers with a new window into people's outer (e.g. online) and inner (e.g. offline) worlds, their experiences, and their interpretation of these (McKenna et al. 2017). From a psychological perspective (see section below), social media posts can also be used as a 'magnifying glass' for understanding how individuals want to be perceived and understood through interpretive practices (Marshall et al. 2020). As Hockin-Boyers et al. (2021) highlighted, posting on social media is not merely an act of self-presentation but also a strategy for participation in culture, community, and social life.

The researchers

The first author is a white British female, undertaking a PhD in Sport and Exercise Psychology within the United Kingdom. The first author has both conducted and published previous research within this topic area, and although not personally involved in competitive bodybuilding, positions herself within the 'space between' an 'insider' and an 'outsider' of the competitive bodybuilding community (Dwyer & Buckle, 2009). The second and third authors are both experienced researchers, who have published research in areas such as stress, coping, and IPED use. They contributed methodological (second author), topical (third author), and theoretical (second and third authors) knowledge to the current study.

Participants

To allow researchers to understand the uniqueness of each case in depth, a sample of four to ten cases is most beneficial when conducting a multiple-case study (Stake, 2006). Therefore, purposeful sampling was used to select information-rich cases that met the inclusion criteria (Sparkes & Smith, 2014). To be considered for inclusion, participants were required to (a) be a current or past competitive bodybuilder, and (b) own at least one active social media account (e.g. Instagram or YouTube) containing posts related to their competitive career. These criteria ensured that participants had lived experience of competitive bodybuilding, and that their experiences could be explored through temporal, naturally occurring data sources (i.e. Instagram and personal journal data) in addition to interview data. The final participant group included five competitive bodybuilders (M = 3, F = 2), who ranged in age from 25 to 35 years (M_{age} = 29.6, SD = 3.6), and had been competing for between three and 12 years (M = 7.0, SD = 3.4). Collectively, the group had competed in over 90 bodybuilding competitions, ranging from six to 26. In addition, competitors had over 211,000 Instagram followers and over 82,000 YouTube subscribers combined. Three competitors resided in the United Kingdom, one in the United States of America, and one in the United Arab Emirates. A detailed written summary of each case is provided in Table 1.

Procedure and data collection

Ethical approval for the current study was granted by the first author's institution. Participants were contacted by the first author via Instagram and/or email. Upon agreement to participate, they were informed of the study aims and asked to complete informed consent and demographics forms. All participants were allocated a culturally appropriate pseudonym. Consistent with previous multiple-case studies (e.g. Jackman et al. 2017) and to facilitate an in-depth understanding of their experiences, this study prioritised the competitors' voice by capturing data only from those embedded in the sport (i.e. not from others in their social networks). In line with the characteristics of a multiple-case study (Baxter & Jack, 2008; Yin, 2018), data for each case were triangulated from numerous sources (i.e. semi-structured interviews, Instagram data, personal journal data). Due to geographical dispersion, semi-structured interviews were conducted via Microsoft Teams with all competitors between April and August 2023, in English. The bounded timeframe of each case was determined individually to attend to significant events in the competitors' lives, some of which were also discussed during the interviews (see Table 1).

Semi-structured interviews

The semi-structured interviews comprised of open-ended questions to promote a conversational manner of discussion (Yin, 2018). Section one of the interview guide explored the demands associated with competing (e.g. how do your daily demands differ throughout different phases of the competitive cycle?), and section two explored competitors' psychosocial responses to these demands, as well as the psychosocial outcomes (e.g. how do competitive bodybuilding demands

Table 1. Summary of cases.

Name	Gender	Age	Competitive background	IPED user (including anabolic-androgenic steroids, fat burners, exogenous hormones, and/or diuretics)	Data collection methods	Case boundedness (social media/personal journal data)
Lilly	Female	25	Lilly has been competing for three years, and has participated in six competitions. She is a professional Bikini competitor in one federation, and an amateur Bikini competitor in another federation.	No	• Semi-structured interview • Instagram data • Personal journal data (daily coaching log)	January 2022 to March 2023 *This timeframe was chosen to incorporate both offseason and prep phases, and competition periods. The journal data obtained (in the form of Lilly's daily coaching log) relates to her competitive season from October to December 2022, as well as the period from March to April 2023 (when Lilly's interview was conducted).*
Rose	Female	29	Rose has been competing for seven years, and has participated in 25 competitions. She is a professional Figure competitor and has competed multiple times at the Olympia.	3 years of use	• Semi-structured interview • Instagram data • Personal journal data (YouTube vlogs)	October 2020 to November 2021 *This timeframe was chosen to incorporate both offseason and prep phases, as well as significant moments in Rose's competitive journey such as her first pro show win and subsequent Olympia competitions.*
Jack	Male	29	Jack has been competing for eight years and has participated in 15 competitions. He is a professional Classic competitor.	5 years of use	• Semi-structured interview • Instagram data • Personal journal data (YouTube vlogs)	August 2022 to June 2023 *This timeframe was chosen incorporate Jack's temporary exit from competitive bodybuilding, during which he engaged in a period of IPED cessation and began participating in alternative forms of training. This period also incorporates Jack's return to competitive bodybuilding and IPED use.*
James	Male	30	James has been competing for five years and has participated in 19 competitions. He is a professional Classic competitor.	5 years of use	• Semi-structured interview • Instagram data • Personal journal data (YouTube vlogs)	August 2022 to April 2023 *This timeframe was chosen to incorporate both offseason and prep phases, and is a period of time in which James navigated some social occasions/ events, took part in competitions, and transitioned from the men's physique to the classic competitive division.*
Danny	Male	35	Danny has been competing for 12 years and has participated in 26 competitions. He is an amateur Classic competitor.	10 years of use	• Semi-structured interview • Instagram data • Personal journal data (Members' site vlogs)	April 2022 to June 2023 *This timeframe was chosen to incorporate Danny's final competition prep and his experiences of transitioning into competitive bodybuilding retirement. The vlog data obtained was filmed during Danny's final competition prep.*

Age, number of years competing, number of competitions, and number of years using IPED correct at the time of data collection.

impact you and your life?). Section three looked at how competitors managed and coped with these psychosocial responses and outcomes (e.g. how do you cope with or manage the outcomes of your competitive bodybuilding behaviours?), and section four explored competitors' thoughts surrounding future generations of competitors, and their preparation for competitive bodybuilding (e.g. what advice would you give to the next generation of competitors?). Interviews ranged from 52 to 130 minutes ($M = 74.2$, SD = 31.9) and were recorded for transcription.

Instagram data

Instagram is one of the most popular social media platforms (Marshall et al. 2020), and is widely utilised by competitive bodybuilders documenting and sharing their experiences and journeys. Therefore, data from each competitor's Instagram profile was obtained. In order to interpret the context and meaning of posts, Dutton (2013) suggested that researchers should look beyond the sources of information gathered from social media and explore the relationship of posts to particular events. Within the current study, Instagram offered a particular benefit in terms of gaining specific insight into the nuances and changes in competitors' coping strategies (in response to specific events/demands) at different timepoints. Instagram posts within the bounded timeframe of each case were screened for relevance and subject to the inclusion and exclusion criteria in Table 2. Informed by previous social media researchers' methods (e.g. Kassing, 2018), the content of Instagram posts meeting the inclusion/exclusion criteria (i.e. the post date, number of likes, image content and caption) was transferred into a spreadsheet for analysis. In total, 309 Instagram posts met the inclusion criteria, providing an additional 102 pages of data.

Personal journal data

Reflecting the ways in which the competitors already documented their journeys outside of the current study, public or private journal data were also collected from all competitors. This naturally occurring data provided further insights into relevant events and experiences which may not have otherwise been gathered through traditional data collection methods such as interviews. Four competitors provided public journal data in the form of vlog style videos on YouTube or a private members' website, and one competitor provided a private daily coaching log containing data relating to their weight, caloric intake, training performance, and psychological state.

Vlogs within the bounded timeframe of each case were screened for relevance and subject to the inclusion and exclusion criteria in Table 2. The titles of the videos were initially screened for relevance against the inclusion/exclusion criteria, before potentially relevant videos were then watched in full. Those satisfying the criteria were subject to a second viewing, during which data were extracted. In line with recent shifts away from complete transcription (e.g. Eaton et al. 2019), only relevant sections of the videos were transcribed verbatim into a working spreadsheet. In total, 210 videos

Table 2. Social media inclusion and exclusion criteria.

	Included if:	Excluded if:
Instagram Posts	(a) the caption discussed the psychosocial responses/outcomes of competitive bodybuilding (b) the caption was about a personal experience, thought, belief, encounter, or story	(a) the caption was not relevant to the psychosocial responses/outcomes of competitive bodybuilding (b) the caption discussed a professional or third-party experience (e.g. a coaching client's experience) (c) the caption was not written in English
YouTube/ Members Website Videos	(a) the video discussed the psychosocial responses/outcomes of competitive bodybuilding (b) the video was about personal experience, thought, belief, encounter, or story	(a) the video focused on a professional or third-party experience (e.g. a coaching client's experience) (b) the video was a collaboration video with another individual (c) the video was not relevant to the psychosocial responses/ outcomes of competitive bodybuilding (e.g. it was a tutorial, or educational/information-based video) (d) the video was not spoken in English

were screened, with 19 meeting the inclusion criteria, resulting in an additional 16.5 pages of transcribed data. The daily coaching log spanned a total of 14 weeks, providing an additional four pages of data.

Data analysis

In the absence of standardised guidance on how to analyse a case study, analysis instead depends on the researcher's style of empirical thinking (Yin, 2018). Therefore, consistent with the philosophical positioning of the current study, data were analysed using reflexive thematic analysis; an approach which views the researcher as a key agent in knowledge production through their thoughtful and purposeful engagement with the data (Braun & Clarke, 2019).

Braun et al.'s (2023) six phases of reflexive thematic analysis were used to broadly guide the analytic process. First, the first author engaged in initial familiarisation with the data via transcription and repeated reading of the data. Second, to begin the individual case analyses, the interview, Instagram, and personal journal data were compiled into separate NVivo files for each competitor, and were open-coded in both a semantic (i.e. 'empathic' interpretation) and latent manner (i.e. 'suspicious' interpretation; see Willig, 2017). Within the individual case analyses, the triangulation of the data sources provided a means for the researcher to become familiar with each competitors' experiences, and draw comparisons between their interview, Instagram and personal journal data. As Hockin-Boyers et al. (2021) stated, our online (i.e. outer) and offline (i.e. inner) lives are not ontologically separable but are profoundly entangled. Third, codes relating to each participant were reviewed and refined through repeated iterations, and collated into initial 'topic summaries' (Braun & Clarke, 2023), before relationships between the codes were actively construed to craft themes and subthemes. In phase four, these themes were reviewed again, and iterations of themes along with the first author's thoughts and interpretations were broadly tracked. Maintaining a reflexive log in this way, detailing aspects relating to the analytic process (i.e. the steps taken), the evolution of the subthemes and themes (i.e. how they were constructed, reconsidered, and eventually finalised), and personal thoughts and feelings regarding the analysis, enabled the first author to remain aware of their own influences and assumptions over the data. Short summaries of each theme and subtheme were then written to define the essence of the theme in phase five, before moving into phase six, the write up. This process was conducted for all individual cases, with the first author remaining aware of broad variations and similarities between cases (Baxter & Jack, 2008).

To conduct the cross-case analysis, all data sources (i.e. interview, Instagram, and personal journal data) from all five cases were combined into one NVivo file, and phases three (i.e. refining codes and themes) to six (i.e. the write up) were conducted on the full dataset, to explore similarities and differences between cases. Whilst the individual case analyses were instrumental in the first author's development of a nuanced understanding of each case (i.e. the breadth of the data), it was ultimately the cross-case analysis which provided the richest insight into the broad and complex ways in which competitors learn to manage the demands of their sport (i.e. the depth of the data). Therefore, aligning with previously published case studies (e.g. Harlow et al. 2022), a thorough account of the cross-case analyses is provided within the results, with data sources combined to portray how competitors' private and public accounts were reflective of one another (e.g. Hockin-Boyers et al. 2021). It is also noteworthy to add that although participants consented to the use of their social media data verbatim, to prevent traceability, data were 'cleansed', and direct quotes from the Instagram and personal journal data were edited slightly in the write up of the study so that they could not be traced back to participants, but retained their meaning and context (e.g. Goodyear, 2017).

Quality criteria

A relativist approach, which involves judging quality based on a set of characteristics relevant to the approach to inquiry (Sparkes & Smith, 2014), should be used to judge the quality of this study. For

example, Yin's (2018) five characteristics of an 'exemplary' case study offer a starting point for quality appraisal. First, the current study is *significant*, as indicated within the introduction and discussion, which demonstrates that this research is timely, and has important practical implications. Second, the study is *complete*, as evidenced through extensive data collection (i.e. multiple sources of data), prolonged engagement with the data, and comprehensive data analysis and reporting. Third, *alternative perspectives* relating to each case were considered during the analysis through dialogues with co-authors acting as 'critical listeners' (Yin, 2018), and through the maintenance of reflexive logs. Furthermore, the initial transcripts, followed by a draft manuscript, were sent to the competitors, allowing them to offer their member reflections (i.e. to share any thoughts, feedback, questions and critique regarding the study; Smith & McGannon, 2018). Three competitors responded, describing the study as *'great'* and *'fascinating'*. One competitor commented: *'What an absolutely fascinating read and very introspective. Congratulations on such a high level analysis and really shows the deep inherent psychological aspects of bodybuilding some of us never really escape'*. No changes were made to the manuscript based on competitors' responses. In addition, *sufficient evidence* is displayed in the form of participant quotes to enhance readers' understanding of the results derived, which also contributes to the *engaging* manner of the reporting. Finally, it is important to note that several steps were also taken to mitigate power imbalance between the researcher and the participants, including providing participants with clarity around the study aims and how their data would be used, as well as allowing participants to ensure they were portrayed in a manner that they were comfortable with.

Results

When discussing the demands of competing and their associated psychosocial responses, competitors described similar experiences including being stuck in a routine, engaging in eating behaviours that they deemed as disordered, psychological fatigue, mood disturbance, reduced focus and effort within their occupations, and withdrawal from their social and romantic relationships. On the other hand, competitors also described more favourable psychosocial outcomes of competitive bodybuilding, such as forging new connections, achieving their personal goals, embarking on travel and business opportunities, and overall self-improvement. Although these responses and outcomes resonated with all competitors in some way, they were experienced to different degrees of severity. In relation to the ways in which competitors learnt to manage the demands and the emotional and behavioural responses associated with competing, three themes and seven subthemes were constructed. The themes were as follows (a) learning by trial and error (i.e. *becoming attuned to the body, learning from mistakes*, and *normalising behaviours)*, (b) understanding the self, the substances and the process (i.e. *pharmacological training* and *self-learning and receiving social support*), and (c) flexible guiding priorities (i.e. *temporary shifts in priorities* and *appreciating the bigger picture*).

Learning by trial and error

Amongst all competitors there was an essence of learning from experience and prior mistakes that they had made during previous competitive seasons. For example, reflecting on her experiences of bingeing and restricting after her first competition preparation, Lilly said: *'I look back at that now and think that was a really stupid thing to do . . . whereas at the time, I think I was eighteen when I started, so I was still quite young . . .'* [Interview]. Similarly, James and Jack explained how over the course of numerous competitive seasons, they had become better able to manage their hunger (e.g. through fasting, with improved awareness of their hunger signalling), and thus refrain from bingeing in the post-competition phase. In addition to their eating behaviours, some competitors such as James, Jack, and Danny became attuned to the ways in which other behaviours impacted them negatively (e.g. using certain IPED, engaging in training practices they later acknowledged were *'risky'*). In James' case, the use of Nandrolone Phenylpropionate (NPP) caused psychological responses such as anxiety and low mood, so he ceased use of it. In Danny's case, his *'all or nothing mentality'*

surrounding training, coupled with his perceived increased physical resilience as a result of oral IPED, led to two potentially career-ending injuries. In an Instagram post following these injuries, Danny wrote: *'The days where I'd go into the gym and absolutely annihilate myself, just because I wanted to beat my logbook, are over'*. Thus, learning from his mistakes, Danny adopted a more risk-averse approach to training during his final competition preparation. Furthermore, despite being the least experienced competitor of the group, Lilly recognised that negative experiences were part and parcel of a competitors' journey: *'I think everyone has a bad experience at some point, but I think you definitely learn from that, and you know, what to do and what not to do'* [Interview]. Throughout the course of their careers, competitors experiences were closely linked to their perceived self-improvement and personal growth, and their experiences served as life lessons which could be applied both within and outside of the competitive bodybuilding context.

A common feature of competitors' learning experiences was that they often utilised their social network to assist them with navigating particularly challenging periods. For example, in Lilly's case, her partner helped her to normalise off-plan meals and eating out during the offseason, whereas for Rose, it was her coach who encouraged her to do so: *'He would make sure that once a week I was going out to eat and like being more social . . . I think no matter what age you are, you cling onto every single word that your coach says'* [Interview]. For James, it was a friend who helped him to identify NPP as the root cause of his anxiety and low mood, and for Danny, his wife and rehabilitation practitioner helped him to understand the extent of his injuries, and thus the importance of adopting safer approaches to training. Therefore, competitors' experiences reflect the importance of having trusted individuals within their social networks, that they may both lean on and learn from in times of need.

Over the course of multiple competitive seasons, competitors also developed ways to mitigate the social outcomes of their behaviours. For example, James explained how he and his partner *'put a pause'* on their relationship during competition preparation:

> For her to not feel the warmth, for me to walk in and go 'hi you alright, gonna cook my food' like rather than 'hi', kiss, hug, like none of that stuff. Like, when the affection leaves, where it once was, it can lead to insecurity . . . And it's never her, it's just me being an absolute zombie. [Interview]

James' attitude within competition preparation represents a 'tunnel-vision' mentality and his lack of warmth and affection signifies an emotional check-out from their relationship. However, a mutual understanding between the couple and an acceptance of this as a unique norm within their relationship may indicate how both James and his partner learned to manage the toll of competition preparation on their relationship.

This notion of the social outcomes of competitive bodybuilding becoming normalised with time was also apparent in the cases of Lilly, Rose, and Jack. Describing how her behaviours had become normalised amongst her family, Lilly said:

> Yeah, it's definitely been time. Also education . . . And I guess because my Mum has accepted it and just, you know, educated my stepdad about it, educated my grandparents about it. That's why it's become obviously normal now, like 'Oh Lilly's on prep' or 'Lilly's not on prep' sort of thing. [Interview]

Alternatively for Rose, this process of her behaviours becoming normalised began much earlier in life during her years competing as a young athlete in a different sport. With time, and throughout her prolonged athletic experiences, Rose learnt and developed behaviours which helped to facilitate psychosocial harmony (e.g. not projecting her low mood onto those around her). This was particularly evident in Rose's levels of emotional control, cognitive control, and social balance, which seemed to surpass those of other competitors in this study. Hence, the importance of time and experience in developing ways to manage the demands of competing, and as such, the knock-on social outcomes, were reinforced.

Understanding the self, the substances and the process

Building upon the notion of experiential learning, competitors discussed how the continual acquisition of knowledge, both by themselves and those around them (i.e. the social network), helped them to manage the demands and subsequent psychosocial outcomes of competitive bodybuilding. For instance, despite both having five years' experience of IPED use, James and Jack continued to engage with educational resources (e.g. seminars) to further their knowledge about IPED use. Similarly, Rose's own education as well as the knowledge of her coaches helped her to prevent any negative psychological responses arising as a result of her IPED use. When reflecting upon whether her IPED use had ever impacted her psychologically, Rose responded:

> No, and I only say that because I'm very lucky to have had, since starting using them, is knowledgeable coaches. And PEDs [performance enhancing drugs] is something that even when I was doing my degree as well, I have always seen the negative side effects and coming into bodybuilding, especially in females seeing the negative side effects. And it's scary to me that coaches can allow that to happen and scary to me that the athlete can't see what's happening. [Interview]

Here, Rose alluded to the importance of competitors' own awareness of IPED and their outcomes. This was a belief shared by all the other competitors, who emphasised the importance of open and transparent discussions surrounding IPED use within the community to promote healthier behaviours amongst future generations entering the sport. However, IPED information and knowledge sharing represented a grey area of sorts. On one hand, competitors had the knowledge and information sharing platforms to encourage safe(r) IPED use, yet on the other hand, they may be seen as promoting, or advocating for it.

In another vein, James shared his unique experiences and indicated how working with a therapist had helped to improve his self-knowledge of his reactive tendencies. In turn, this helped James to understand his emotional responses, and deal with his frustrations and anxieties during competition preparation in more effective ways:

> I feel armed in mental warfare, because now I have tactics and techniques, I've had therapy for some time . . . I'm not perfect, I still lose it and get into a bad mood, I still feel shit but I feel much more in control now. So although physically, prep is much harder . . . mentally, I feel stronger, I feel better, I feel armed, I feel in a good place. [YouTube vlog]

Through enhancing his knowledge of the self, taking back control of his emotions, and ultimately regaining autonomy over his choices and behaviours, James was able to manage the psychological outcomes, and knock-on social outcomes of his competitive bodybuilding behaviours during competition preparation.

In addition to the knowledge of the competitors themselves, the knowledge levels of the social network also appeared to influence the extent of the social outcomes and particularly, the social support they experienced. In Jack's case, his family shared his interests in competitive bodybuilding, and helped to facilitate his goals (i.e. catering to his macros when eating as a family). Likewise, Danny's wife could relate to the demands of competitive bodybuilding having previously been a competitor herself. Therefore, she provided practical support, such as taking care of their children whilst Danny engaged in rest and recovery during competition preparation. In another way, Lilly alluded to how her partner's educational background had helped him to support her throughout competition preparation: *'@[partner] who really is so patient throughout my prep, your [psychology] degree is really being put into practice and I am so grateful for you'* [Instagram]. Thus, the knowledge of the social network in relation to competitive bodybuilding and its associated behaviours in part influenced the levels of understanding, and psychological, practical, and social support offered.

Flexible guiding priorities

In addition to learning from prior experience and acquiring knowledge, competitors negotiated the psychosocial outcomes of competing by adopting a level of flexibility in their guiding priorities. For example, Rose's ritual of *'remembering the bigger picture'* and reminding herself of her priorities (i.e.

her overarching competitive and personal goals) allowed her to overcome psychological responses such as self-doubt and low confidence:

> Sometimes half my battle is my mind, which makes me feel guilt, and a knock on my self-confidence, and sometimes like I've failed … But even on my dark and clouded days my love for this sport and what I do never gets smaller, and I know that once I get through these days, the passion inside me grows even more. [Instagram]

In another manner, for Danny, prioritising his competitive bodybuilding behaviours through the meticulous planning of his routine and upcoming social events helped him to mitigate psychological responses such as worry and anxiety: *'I remember like being afraid, going to sleep, worried, what am I going to anticipate the next night, and would I be able to fulfil what needs to be done as a competitor with working'* [Interview]. Control over his routine appeared to be pivotal in enabling Danny to juggle the demands of competitive bodybuilding and his full-time work, and may have served to lessen the unique stressors he faced occupying a professional job outside of the competitive bodybuilding context.

Although it was apparent that competitive bodybuilding remained the underlying priority for all competitors, in some cases, their priorities appeared to be somewhat flexible, changing on both a short-term (i.e. throughout the competitive seasons) and long-term (i.e. over the course of their careers) scale. On a short-term scale, competitors such as Lilly, Jack, and James shifted their priorities between competition preparation and offseason, allowing themselves more flexibility to socialise, spend time with friends and family, and experience increased food freedom during the offseason.

Relating to this point, competitors primarily prioritised making social efforts amongst those who were believed to support their competitive behaviours. Thus, their social networks were shaped over time in line with their goals. For instance, when asked about how he managed the social outcomes of competing, James said: *'I just make my effort where I need to and I don't where I don't want to … I've been competing for eight years, so the people who didn't like it, they're not in the circle anymore'* [Interview]. Jack similarly stated: *'I'm actually fairly at peace with any outcomes my bodybuilding's had on relationships was probably the right thing if that makes sense, like we're probably just not aligned which is all good'* [Interview]. By prioritising those within the social network who supported and understood their competitive journeys, James and Jack were able to mitigate some of the psychological (e.g. loneliness) and social (e.g. hostility amongst friends, strained relationships) responses and outcomes associated with competing.

Finally, on a longer-term scale, Danny and Jack alluded to how their changing priorities were a catalyst to making significant transitions in their competitive careers, which served to protect their family relationships and psychological wellbeing, respectively. For example, Jack experienced a shift in his priorities towards leading a *'normal'* life. In a YouTube vlog, Jack rationalised his decision to take a short hiatus from the sport, stating:

> I don't want the stress of thinking I need to jab, I need to take this and that, so I can't go on holiday, you know worrying about my health, getting my bloodwork done, I don't want to worry about all that, I don't want the pressure, I want to live my life for a bit.

Whilst Jack's experiences indicated how competitors may be able to temporarily alter their priorities, for Danny, the shifts in his priorities were more permanent. In this case, his retirement from the sport was driven by a shift in his priorities towards family life:

> … the two [children] are definitely a big factor contributing to me wanting to retire and be content with achieving my own personal goals, when you have kids they become your life priority and your focus, and you want to make sure they have the best possible life … bodybuilding is quite selfish, and now that I've achieved my goal, I think I'm ready to give up that aspect of selfishness and pour my efforts into family life … [Members' site vlog]

Although this shift in priorities signified the end of Danny's competitive bodybuilding career, he continued with some of the behaviours associated with competitive bodybuilding (e.g. regular training, controlled food consumption). Maintaining ties with his competitive bodybuilding lifestyle in this way seemed to facilitate his transition into retirement, providing a level of comfort in a time of

change. Considered together, Danny and Jack's experiences indicate how competitors may become psychologically tied to the sport, particularly in terms of the direction and discipline it provides, and are somewhat trapped within the cyclical competitive bodybuilding lifestyle.

Discussion

Utilising a multiple-case study design, the current study sought to understand the ways in which competitive bodybuilders manage the demands of competitive bodybuilding, as well as their emotional and behavioural responses to these demands at different timepoints, in order to facilitate better psychosocial outcomes. Gaining insight from five competitors, the findings support previous research highlighting a number of favourable (e.g. self-improvement, forging new connections) and unfavourable (e.g. mood fluctuations, lost emotional connection with partner) psychosocial responses and outcomes experienced by competitors (e.g. Probert & Leberman, 2009; Probert et al. 2007). Moreover, the current study builds upon these findings, shedding light on how competitors' experiences, knowledge levels, and guiding priorities helped them learn to navigate these demands and responses, as well as the important role that the social support network plays in this experiential process.

Regarding competitors' experience levels, findings indicated that over the course of numerous competitive seasons, competitors learnt to implement coping strategies in order to manage the demands of competitive bodybuilding. Drawing upon an example within the current study, Lilly, Jack, and James coped by engaging in conscious and deliberate cognitive efforts to manage their binge-eating, which included learning about hunger signalling, implementing fasting techniques, and adopting a different mindset towards eating. Furthermore, these coping strategies were seen to develop over the course of numerous competitive seasons, and were implemented continually as their competitive careers progressed. Considering this, the findings of the current study provide an initial indication that amongst competitive bodybuilders, coping strategies develop with time and experience (e.g. Crocker et al. 2015; Nicholls & Polman, 2007), as has been found amongst athletes in mainstream, team-based sports (e.g. basketball; Tamminen & Holt, 2010).

In a similar vein, competitors' education and knowledge levels also played a role in enabling them to manage the demands associated with competitive bodybuilding. This included competitors educating themselves about specific demands, responses, and psychosocial outcomes (e.g. learning about IPED through online courses), and informing their wider social networks about the behaviours and norms involved with competing, in order to facilitate greater social support. Specifically, the current findings reflect previous research indicating that IPED users control and contain the negative outcomes of their behaviours by searching for information and educating themselves about IPED and their side effects (Ainsworth et al. 2018). Similar to Ainsworth et al.'s (2018) findings, it may be suggested that through the acquisition of knowledge, competitors in this study experienced enhanced perceptions of control over their bodies and behaviours, and these perceptions of control may have served as a coping strategy against unfavourable psychosocial responses and outcomes, such as concern and worry over IPED-related risks.

Moreover, expanding upon Ainsworth et al.'s (2018) work, the current study indicates that control was not limited to IPED use alone, as control pertained to all facets of competitors' lives, including their training routines, social schedules, caloric consumption, and mindset. Elsewhere in the literature, such regimented behaviours have been closely linked with concepts such as eating disorders and exercise addiction, with the exception of the control element (e.g. Juwono et al. 2022). Considering that competitors within the current study displayed high levels of control over their behaviours, and were in fact able to alter these levels of control where they deemed appropriate (e.g. allowing themselves periods of increased food freedom and greater flexibility in routine), it may be reasoned that their behaviours do not demonstrate an addiction. Instead, these behaviours and levels of control are coping strategies which serve to promote task success (i.e. achieving their best

competitive outcomes) and emotional regulation (i.e. managing the psychological outcomes of competing), and thus, demonstrate coping effectiveness (Crocker et al. 2015).

Overall, it was apparent that with greater experience and knowledge, competitors were able to learn from their mistakes, adapt, and develop following set-backs (e.g. periods of perceived disordered eating), conflict (e.g. conflicts with partners), and misfortune (e.g. perceived poor competition placing). Since all competitors emphasised overall psychosocial improvements as a result of competitive bodybuilding, the current findings indicate that competitors experienced stress-related growth (i.e. personal growth as a result of negative or stressful events; Park, 2004). In fact, competitors demonstrated stress-related growth across all four domains identified by Park (2004), including their competencies (e.g. increasing their knowledge), life philosophies (e.g. realising their values and priorities), relationships with others (e.g. widening their social networks), and lifestyle changes (e.g. attempting to maintain social balance). Furthermore, considering the crucial role that the social network was found to play in terms of helping competitors navigate particularly challenging times, these findings build upon previous research emphasising the importance of social support amongst competitors (e.g. Parent et al. 2022), providing exemplars of the ways in which communal coping (Lyons et al. 1998) occurs in competitive bodybuilding. This was evident within all cases in the current study, whereby those within the competitors' social networks not only appeared to cooperate with their competitive bodybuilding behaviours but also engage in proactive efforts to support and encourage them over time.

A final way in which competitors in this study managed the demands of competitive bodybuilding, on both a short-term and long-term scale, was by adopting a level of flexibility relating to their guiding priorities. Echoing the findings of previous studies (e.g. Probert et al. 2007), competitors in the current study described how their priorities were somewhat dynamic, and changed on a short-term scale in line with the competitive seasons (i.e. prioritising relationships and friendships more in the offseason). However, the findings of the current study also expand upon this notion, as it was found that on medium- and long-term scales, shifts in competitors' priorities acted as significant turning points in their careers (i.e. Danny and Jack leaving the sport, permanently and temporarily). Given that values represent the ultimate driver behind decisions and therefore play an important role in guiding behaviour (Lee et al. 2013), it may be considered that competitors priorities in fact reflected their values at different moments in time (e.g. family, structure, longevity). In this regard, competitors' personal priorities and/or values were seen to somewhat guide the behaviours they engaged at each point in time, thus determining the extent of the psychosocial outcomes experienced.

The findings of the current study provide new knowledge as to how theories of coping, particularly those within sport (e.g. Tamminen & Holt, 2012), can also be applied to competitive bodybuilding. Considering this, the current study has important practical implications. Firstly, in line with previous research, the current findings shine a light on the value of harm reduction information and the need for education around safe practices in competitive bodybuilding, particularly relating to IPED use. Widespread stigma and the stereotypical assumption of IPED use as an inherently detrimental behaviour has the potential to deter users from seeking medical advice, which in turn, increases harm (e.g. Cox et al. 2024). In the absence of support from healthcare professionals, research has evidenced a 'grassroot' movement amongst IPED users, in which experienced community members act as gatekeepers to use, and provide practical support for others utilising IPED (e.g. Ainsworth et al. 2018; Gibbs et al. 2022). Therefore, in light of the knowledge this study provides around competitors' control and management of their behaviours, including their IPED use, efforts should be made to educate healthcare professionals about the practices of competitive bodybuilders, in order to destigmatise IPED use. For instance, using a collaborative approach, healthcare professionals, harm reduction experts, competitive bodybuilding coaches, and 'anabolics coaches' (Gibbs et al. 2022) should explore the ways in which the experiential process of learning to cope with the demands of competitive bodybuilding, such as IPED use, can be

accelerated amongst competitors. Harnessing this process of learning and placing efforts into relevant public health initiatives, such as encouraging interaction between experienced and inexperienced competitors, may help to prevent some of the unfavourable psychosocial outcomes arising amongst future competitors, within the realms of IPED use and beyond.

Secondly, this study highlighted that the social network (e.g. families, friends, partners, coaches, and therapists) played a key role in assisting competitors with navigating challenges, particularly when they themselves were knowledgeable about competing or understood what the process entailed. Therefore, given that communal coping can have positive outcomes in terms of relationship maintenance and the wellbeing of significant others (Lyons et al. 1998), communal coping should be encouraged, for instance through competitive bodybuilding coaches interacting with competitors' wider social networks to enhance their understanding of competitive bodybuilding and subsequently, the support they offer.

These practical implications should nevertheless be considered in view of the limitations of the current study. Firstly, all competitors were well-known current or recently retired competitors occupying jobs surrounding the sport. Therefore, it is plausible that these competitors experienced the psychosocial outcomes of competitive bodybuilding more positively than negatively and as a result, the study does not capture the voice of those with negative experiences. To capture the full scope of competitors' experiences, researchers should attempt to recruit individuals who may not have managed the psychosocial outcomes of competing so effectively. Whilst this study prioritised the competitors' voice, future researchers should gather multiple perspectives (i.e. from families, friends, partners, and coaches) within single case studies, given that single case designs offer more scope to integrate additional voices. Furthermore, researchers in other disciplines (e.g. social psychology) may wish to explore theories of 'the self' in relation to competitive bodybuilders. Although the competitors within this study were not found to portray different narratives within their interviews and on social media, this was not a focal point of the current study. Given that competitive bodybuilders with a large online presence often use their social media platforms for financial gain, researchers could apply discourse analysis to explore the ways in which competitors portray their experiences across different platforms (e.g. self-disclosure and self-presentation). A second limitation was that although competitors in this study raised some interesting points regarding education circulating within the community (e.g. gatekeepers to IPED use, knowledge sources such as 'university style courses' for competitors), it was beyond the scope of this study to explore these points further. Future research should explore the nature and content of the educational information circulating within the community, as this appears to be a primary source of knowledge for competitors and may therefore contribute greatly towards harm reduction initiatives.

In conclusion, the current study was the first to adopt a multiple-case study design to shed light on the ways in which competitive bodybuilders learn to manage the demands of competitive bodybuilding, and their emotional and behavioural responses to these demands, in order to facilitate better psychosocial outcomes. By integrating semi-structured interview, Instagram, and personal journal data, this study explored new dimensions of competitive bodybuilding and developed more holistic and contextually grounded interpretations of the experiences shared by prominent members of this community. Specifically, the findings of this study provide new knowledge relating to effective coping strategies employed amongst competitors, as well as the importance of communal coping amongst competitors and their social networks. These findings have implications in relation to the development of harm reduction and support provision amongst competitors, highlighting future avenues for research regarding competitors' knowledge acquisition and learning processes. Moreover, this study indicates the importance of combining conventional and novel data sources to obtain differing perspectives within a multiple-case study design. By combining data sources in this manner, future qualitative researchers can explore the ways in which individuals represent themselves both publicly and privately, contributing to a comprehensive understanding of each case.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials.

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