



The Psychology and Psychopathology of Ultrarunning: Mental Health and Psychiatric Insights into Extreme Endurance Athletes

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Ultrarunning, characterized by covering distances beyond the standard 42.195 km marathon, has emerged as a compelling model for exploring the interplay between extreme endurance performance and mental health. Recent ultrarunning psychology research underscores that these athletes often possess remarkable mental toughness, emotional intelligence, and self-efficacy. However, they are also at heightened risk for psychopathological issues such as depression, anxiety, obsessive-compulsive tendencies, disordered eating, exercise addiction, and sleep disturbances. While participating in ultramarathons can yield psychological benefits—enhanced mood regulation, cognitive clarity, flow states, and a strong sense of community—there remain significant concerns about overtraining syndrome, chronic fatigue, and motivational

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maladjustments. This review synthesizes current scholarly findings, including systematic reviews and meta-analyses, to provide actionable insights for clinicians, coaches, and researchers. Understanding the nuanced relationship between ultrarunning and psychopathology is paramount for developing targeted mental health interventions, promoting athlete well-being, and informing evidence-based training practices.

Keywords: Ultrarunning psychology research; extreme endurance athletes; mental health; psychopathology; depression, anxiety; eating disorders; obsessive-compulsive traits; mental toughness; emotional intelligence.

1. INTRODUCTION

Ultrarunning—long-distance running events beyond the traditional marathon distance—has surged in global popularity and scholarly interest. This trend has positioned ultrarunners as a unique population to study, bridging exercise physiology, sports psychology, and mental health research. Participants often strive to test their physical and mental limits, driven by factors that can include emotional regulation, escapism, and personal transformation (Blum, 2024; Roebuck et al., 2018). Although ultrarunners frequently exhibit exceptional mental toughness, emotional intelligence, and self-efficacy (Niering et al., 2024), emerging evidence reveals that they may also contend with increased risks of depression, anxiety, obsessive-compulsive behaviors, disordered eating, and exercise addiction (Thuany et al., 2023). Understanding these complex psychological dimensions and psychopathological patterns is essential for optimizing athlete care, enhancing performance, and informing future ultrarunning psychology research.

2. THE COMPLEX INTERPLAY OF ULTRARUNNING AND MENTAL HEALTH

Studies indicate that ultrarunners often pursue the sport not solely for performance gains but as a means of psychological exploration. Long-distance running can serve as a coping mechanism, channeling stress, trauma, or anxiety into focused endurance training (Ströhle, 2019; Colangelo et al., 2023). Although running stimulates endorphin and endocannabinoid release, promoting improved mood and reduced stress (Raichlen et al., 2013), it can also intensify underlying vulnerabilities if training volumes become excessive or motivations turn maladaptive (Freimuth et al., 2011; Schweizer et al., 2023).

2.1 Psychopathological Traits in Ultrarunners

2.1.1 Depression and anxiety

Research highlights that depression and anxiety are among the most commonly reported mental health concerns in ultrarunners (Morgan et al., 2018; Onate, 2019). Up to one-fifth of these athletes may experience moderate to severe depressive symptoms (Niering et al., 2024). While the repetitive, meditative aspect of ultrarunning can provide temporary relief, training stress, race pressure, and post-race “letdown” periods can exacerbate mood disturbances.

2.1.2 Obsessive-compulsive tendencies

Ultrarunners often exhibit high conscientiousness and perfectionistic tendencies (Hauck et al., 2022), which, although beneficial for strict training adherence, can tip into obsessive-compulsive behaviors. Excessive focus on mileage, strict diet regimens, and performance optimization can become maladaptive if not properly managed (Lopes et al., 2019).

2.1.3 Disordered eating and exercise addiction

Among ultrarunners, restrictive eating patterns and body dysmorphia have been reported, sometimes culminating in conditions like anorexia athletica (Wasserman et al., 2021; Thuany et al., 2023). Exercise addiction—a compulsive need to train despite adverse consequences—further underscores the vulnerability of some ultrarunners to behavioral health issues (Cook et al., 2020).

2.1.4 Sleep disturbances and cognitive decline

Ultramarathon events often involve sleep deprivation, negatively impacting mood

regulation, cognitive performance, and decision-making (Brennan et al., 2020). Chronic sleep loss may trigger hallucinations, fatigue, irritability, and impaired recovery, potentially unmasking or aggravating pre-existing mental health conditions.

Motivational Profiles: Adaptive vs. Maladaptive Drivers Effective mental health outcomes are closely tied to an athlete's core motivations. Adaptive motivators—such as goal achievement, adventure, personal growth, and stress relief—are positively correlated with psychological well-being. Conversely, maladaptive motives rooted in escapism, perfectionism, and fear of failure increase the risk of burnout, mood instability, and psychopathological outcomes (Freimuth et al., 2011; Schweizer et al., 2023).

3. PSYCHOLOGICAL BENEFITS OF ULTRARUNNING

3.1 Flow States, Emotional Intelligence, and Mental Toughness

Ultrarunners frequently report achieving flow states—peak experiences of complete immersion and focus—leading to enhanced mood regulation and emotional stability (Csikszentmihalyi, 2002; Roebuck et al., 2018). Research also links successful ultrarunners with higher emotional intelligence, mental toughness, and self-efficacy, all factors contributing to improved resilience under extreme stress (Niering et al., 2024).

3.2 Community and Social Support

The ultrarunning community provides robust social networks that alleviate feelings of isolation and foster a shared identity. This communal support can buffer against mental health challenges by offering emotional resources, empathy, and mentorship (Rauch et al., 2017).

Psychiatric Risks: Overtraining and Identity Crises.

3.3 Overtraining Syndrome (OTS)

Excessive training loads without adequate recovery can result in overtraining syndrome, characterized by persistent fatigue, mood disturbances, and heightened irritability (Meeusen et al., 2013). OTS mirrors symptoms

of depression and anxiety, underscoring the importance of balanced training regimens.

3.4 Injury and Psychological Impact

Injuries are inevitable in extreme endurance sports, and for some ultrarunners, the disruption of training can precipitate identity crises, mood disturbances, and self-doubt (Nordin-Bates et al., 2019). Psychological interventions are critical in helping injured athletes maintain mental well-being and mitigate negative self-appraisals.

3.5 Personality Traits and Gender Differences

High conscientiousness, introversion, neuroticism, and perfectionism are frequently observed among ultrarunners (Hagan et al., 2020). Gender differences are also evident, with women reporting higher rates of disordered eating and anxiety, while men may exhibit more obsessive-compulsive behaviors and behavioral addictions (Carter et al., 2018; Joyce et al., 2019).

4. PREVALENCE AND PATTERNS OF MENTAL HEALTH ISSUES IN ULTRARUNNERS

Systematic reviews consistently find elevated rates of mental health disorders—especially depression, anxiety, and eating disorders—among ultra-endurance runners (Thuany et al., 2023; Roebuck et al., 2018). These patterns suggest that, while ultrarunning can be psychologically enriching, vigilance in screening, prevention, and early intervention is needed.

4.1 Recommendations for Mental Health Interventions

- **Regular Screening:** Routine psychological assessments and standardized screening tools can help identify at-risk ultrarunners before issues escalate.
- **Evidence-Based Therapies:** Cognitive-behavioral therapy (CBT), mindfulness-based interventions, and stress management programs can foster adaptive coping strategies (Wolff et al., 2020).
- **Holistic Coaching Approaches:** Coaches and sports psychologists should advocate

balanced training loads, proper nutrition, and scheduled rest days to prevent overtraining and burnout.

- Educational Workshops: Psychoeducation on mental health, early warning signs, and coping techniques can empower ultrarunners to seek help proactively.

5. CONCLUSION

The ultrarunning landscape, with its extreme physical and psychological demands, provides a rich context for examining the complexity of human resilience and vulnerability. While many ultrarunners benefit from enhanced emotional intelligence, mental toughness, and community support, others face elevated risks of anxiety, depression, obsessive-compulsive behaviors, and disordered eating. Future ultrarunning psychology research should focus on longitudinal and interdisciplinary approaches to refine our understanding of how these athletes navigate mental health challenges. By doing so, stakeholders can implement evidence-based interventions, promoting not only athletic excellence but also long-term psychological well-being.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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