Global Multidisciplinary Journal
eISSN: 2791-173X pISSN: 2791-2760

VOLUME05 ISSUE03
Published 20-03-2026 *Page No. 39-44*

Lifestyle Triad, Energy Deficiency, And Dark Personality Traits: A Multidimensional Analysis of Stress, Diet, Exercise, And Psychological Health Among Emerging Adults

Diana Whitmore

Department of Behavioral Health Sciences, University of Edinburgh, United Kingdom

ABSTRACT

The interplay between lifestyle behaviors and psychological traits has become an increasingly significant area of inquiry, particularly among emerging adults navigating academic, social, and physiological transitions. This study examines the multidimensional relationship between stress levels, dietary habits, exercise patterns, and underlying psychological constructs, including the Dark Triad personality traits and the concept of relative energy deficiency in sport (RED-S). Drawing upon a synthesis of contemporary literature, this research integrates perspectives from sports medicine, behavioral psychology, and public health to provide a comprehensive understanding of how lifestyle imbalances contribute to both physical and mental health outcomes. Evidence suggests that inadequate energy intake relative to expenditure, as conceptualized in RED-S, is associated with physiological dysfunctions and psychological disturbances. Concurrently, stress and maladaptive coping strategies are linked to unhealthy dietary patterns and reduced physical activity. The presence of Dark Triad traits further complicates these relationships by influencing behavioral tendencies, emotional regulation, and social interactions. The study critically evaluates theoretical frameworks, empirical findings, and methodological challenges, highlighting inconsistencies and gaps in current research. The findings underscore the need for integrative models that account for biological, psychological, and social determinants of health. This research contributes to the growing discourse on holistic well-being and emphasizes the importance of interdisciplinary approaches in addressing complex health challenges among young adults.

KEYWORDS

Lifestyle triad, stress, dietary habits, exercise patterns, RED-S, Dark Triad, psychological health

INTRODUCTION

The contemporary landscape of health research increasingly recognizes that human well-being cannot be understood through isolated variables but must instead be approached through integrative frameworks that account for the complex interplay between biological, psychological, and behavioral factors. Among emerging adults, particularly college students, this complexity is heightened by transitional life stages characterized by academic pressures, evolving social identities, and lifestyle autonomy. Within this context, the concept of a "lifestyle triad," encompassing stress levels, dietary habits, and exercise patterns, has gained prominence as a

critical determinant of both physical and psychological health (Agarwal & Usharani, 2026).

Stress, often conceptualized as a physiological and psychological response to perceived challenges, has been shown to exert profound effects on behavior and health outcomes. Chronic stress disrupts homeostasis, influences hormonal regulation, and contributes to maladaptive coping strategies, including poor dietary choices and physical inactivity. Empirical evidence from diverse populations, including healthcare professionals and frontline workers, demonstrates that elevated stress levels are associated with increased prevalence of depression, reduced quality of life, and impaired coping mechanisms (An et al., 2020; Babore et al., 2020). Although these findings are derived from high-stress occupational settings, their implications are transferable to student populations, where academic and social stressors similarly influence well-being.

Dietary habits represent another critical component of the lifestyle triad. Nutritional intake not only affects physical health but also plays a significant role in cognitive function and emotional regulation. Irregular eating patterns, excessive consumption of processed foods, and inadequate nutrient intake are common among college students and are often exacerbated by stress. These dietary behaviors contribute to metabolic imbalances and may intersect with broader physiological conditions such as relative energy deficiency in sport (RED-S), a syndrome characterized by insufficient energy availability to support optimal bodily function (Mountjoy et al., 2018).

Exercise patterns further complicate this triadic relationship. While physical activity is widely recognized for its benefits in reducing stress and improving health, imbalances in exercise-either excessive or insufficient-can lead to adverse outcomes. The concept of the Female Athlete Triad, later expanded into RED-S, highlights the consequences of energy imbalance, including menstrual dysfunction, bone health deterioration, and metabolic disruptions (Otis et al., 1997; Mountjoy et al., 2014). Recent debates, however, question the empirical robustness of RED-S as a unifying syndrome, suggesting the need for more nuanced and evidence-based interpretations (Jeukendrup et al., 2024; Areta et al., 2025).

Adding another layer of complexity is the role of personality traits, particularly those encompassed within the Dark Triad: narcissism, Machiavellianism, and psychopathy. These traits are associated with manipulative behavior, emotional detachment, and self-centeredness, and have been linked to various maladaptive outcomes, including aggression, poor interpersonal relationships, and compromised mental health (Paulhus et al.; Jonason et al., 2015). The interaction between these personality traits and lifestyle behaviors remains underexplored, yet it holds significant implications for understanding individual differences in health outcomes.

This research aims to bridge these disparate domains by examining the interconnections between lifestyle behaviors, energy balance, and personality traits. By synthesizing findings from sports medicine, psychology, and public health, the study seeks to develop a comprehensive framework for understanding how these factors collectively influence health among emerging adults. The central problem addressed is the lack of integrative models that account for both physiological and psychological determinants of lifestyle behaviors.

The literature reveals several gaps that this study seeks to address. First, while the lifestyle triad has been explored in isolation, there is limited research examining its interaction with psychological traits. Second, the conceptualization of RED-S remains contested, with ongoing debates regarding its validity and applicability across populations. Third, the influence of personality traits on lifestyle behaviors is often overlooked, despite evidence suggesting their significant impact on decision-making and coping strategies.

By addressing these gaps, this research contributes to a more holistic understanding of health and well-being, emphasizing the need for interdisciplinary approaches in both research and practice.

METHODOLOGY

The present study adopts a qualitative integrative research design grounded in systematic literature synthesis. The methodology is structured to critically analyze and integrate findings from the provided references, encompassing domains such as sports medicine, psychology, and public health. This approach allows for the development of a comprehensive conceptual framework that captures the multidimensional nature of the research problem.

The first stage of the methodology involves thematic categorization of the literature. Studies are grouped into three primary domains: lifestyle behaviors (stress, diet, exercise), physiological frameworks (Female Athlete Triad and RED-S), and psychological constructs (Dark Triad traits and mental health outcomes). This categorization facilitates a structured analysis while allowing for cross-domain comparisons.

In the second stage, each study is subjected to critical appraisal based on its methodological rigor, theoretical contribution, and relevance to the research objectives. For instance, consensus statements from the International Olympic Committee are evaluated for their authoritative perspective on RED-S, while empirical studies are assessed for their sample characteristics, measurement tools, and analytical approaches (Mountjoy et al., 2018; De Souza et al., 2022).

The third stage involves thematic synthesis, wherein key findings are extracted and integrated across studies. This process emphasizes identifying patterns, contradictions, and gaps in the literature. For example, the debate surrounding the existence and definition of RED-S is analyzed by comparing supportive and critical perspectives (Jeukendrup et al., 2024; Areta et al., 2025).

The fourth stage focuses on conceptual integration. Insights from different domains are combined to develop a unified framework that explains the relationships between lifestyle behaviors, physiological conditions, and psychological traits. This stage involves iterative analysis and refinement to ensure coherence and theoretical validity.

Ethical considerations are inherent in the use of secondary data, with attention given to accurate representation of original findings and avoidance of misinterpretation. Limitations of the methodology, including reliance on existing literature and potential publication bias, are acknowledged and addressed in the discussion.

RESULTS

The integrative analysis reveals a complex interplay between stress, dietary habits, exercise patterns, and psychological traits, with significant implications for both physical and mental health outcomes. One of the most prominent findings is the bidirectional relationship between stress and lifestyle behaviors. Elevated stress levels are consistently associated with poor dietary choices, reduced physical activity, and disrupted energy balance (Agarwal & Usharani, 2026; Babore et al., 2020).

In terms of dietary habits, the analysis indicates that stress often leads to increased consumption of high-calorie, nutrient-poor foods, contributing to metabolic imbalances. These patterns are particularly evident among college students, who face unique challenges related to time constraints, financial limitations, and social influences. The resulting dietary deficiencies may exacerbate conditions such as RED-S, where inadequate energy intake fails to meet physiological demands (Mountjoy et al., 2018).

Exercise patterns exhibit a dual role in this triadic relationship. While moderate physical activity is associated with reduced stress and improved health outcomes, excessive exercise without adequate nutritional support contributes to energy deficiency and associated complications. The Female Athlete Triad and RED-S frameworks highlight these risks, emphasizing the importance of energy balance in maintaining physiological function (Otis et al., 1997; Mountjoy et al., 2014).

The analysis also reveals significant variability in the conceptualization and empirical support for RED-S. While

some studies advocate for its recognition as a comprehensive syndrome, others question its validity, citing limited empirical evidence and methodological inconsistencies (Jeukendrup et al., 2024; Areta et al., 2025). This debate underscores the need for more rigorous and standardized research approaches.

Psychological traits, particularly those associated with the Dark Triad, are found to influence lifestyle behaviors and health outcomes. Individuals exhibiting higher levels of narcissism, Machiavellianism, and psychopathy are more likely to engage in risk-taking behaviors, exhibit poor emotional regulation, and adopt maladaptive coping strategies (Jonason et al., 2015; Pabian et al., 2015). These tendencies may exacerbate stress and contribute to unhealthy dietary and exercise patterns.

Furthermore, the interaction between personality traits and stress is particularly noteworthy. Individuals with high levels of Dark Triad traits may experience stress differently, often externalizing blame and engaging in manipulative behaviors rather than adaptive coping. This dynamic has implications for both individual well-being and social interactions.

DISCUSSION

The findings of this study highlight the intricate and multifaceted nature of health among emerging adults, emphasizing the need for integrative approaches that consider both behavioral and psychological factors. The lifestyle triad-stress, diet, and exercise-serves as a foundational framework for understanding health behaviors, yet its interaction with physiological and psychological constructs adds significant complexity.

One of the key implications of this research is the need to reconceptualize health interventions. Traditional approaches often focus on isolated behaviors, such as promoting physical activity or improving diet. However, the interdependence of these factors suggests that interventions must be holistic, addressing multiple dimensions simultaneously. For example, stress management programs should incorporate components related to nutrition and exercise, while also considering individual personality traits.

The debate surrounding RED-S further illustrates the challenges of developing comprehensive health frameworks. While the concept provides valuable insights into energy balance and its consequences, its broad scope and lack of empirical consistency raise questions about its practical applicability. Future research should aim to refine this framework, incorporating more precise definitions and standardized measurement tools (De Souza et al., 2022).

The role of personality traits represents another critical area for future exploration. The influence of the Dark Triad on health behaviors underscores the importance of psychological factors in shaping lifestyle choices. Interventions targeting these traits may require specialized approaches, such as cognitive-behavioral strategies or personalized counseling.

Despite its contributions, this study has several limitations. The reliance on secondary data limits the ability to establish causal relationships, and the variability in study designs and populations may affect the generalizability of findings. Additionally, the integration of diverse research domains presents challenges in maintaining coherence and consistency.

Future research should focus on longitudinal studies that examine the dynamic relationships between lifestyle behaviors, physiological conditions, and psychological traits. The use of advanced analytical techniques, such as systems modeling and machine learning, may provide deeper insights into these complex interactions.

CONCLUSION

This research provides a comprehensive analysis of the interrelationships between stress, dietary habits, exercise patterns, and psychological traits among emerging adults. By integrating perspectives from sports

medicine, psychology, and public health, the study highlights the importance of holistic approaches to health and well-being.

The findings underscore the need for interdisciplinary research and intervention strategies that address the multifaceted nature of health. As the challenges facing young adults continue to evolve, the development of integrative frameworks will be essential in promoting sustainable and effective health outcomes.

REFERENCES

1. Agarwal R, Usharani B. Indian College Students Lifestyle Triad: Exploring Prevalence and Association among Stress Level, Dietary Habits and Exercise Patterns. MSW Management Journal. 2026.
2. Mountjoy M, Sundgot-Borgen J, Burke L, Ackerman KE, Blauwet C, Constantini N, et al. International Olympic Committee consensus statement on relative energy deficiency in sport (RED-S): 2018 update. International Journal of Sport Nutrition and Exercise Metabolism. 2018.
3. Mountjoy M, Sundgot-Borgen J, Burke L, Carter S, Constantini N, Lebrun C, et al. The IOC consensus statement: beyond the female athlete triad - relative energy deficiency in sport (RED-S). British Journal of Sports Medicine. 2014.
4. De Souza MJ, Strock NCA, Ricker EA, Koltun KJ, Barrack M, Joy E, et al. The path towards progress: a critical review to advance the science of the female and male athlete triad and relative energy deficiency in sport. Sports Medicine. 2022.
5. Jeukendrup AE, Areta JL, Van Genechten L, Langan-Evans C, Pedlar CR, Rodas G, et al. Does relative energy deficiency in sport syndrome exist? Sports Medicine. 2024.
6. Williams NI, Koltun KJ, Strock NCA, De Souza MJ. Female athlete triad and relative energy deficiency in sport: a focus on scientific rigor. Exercise and Sport Sciences Reviews. 2019.
7. Koltun KJ, Strock NCA, Southmayd EA, Oneglia AP, Williams NI, De Souza MJ. Comparison of Female Athlete Triad Coalition and RED-S risk assessment tools. Journal of Sports Sciences. 2019.
8. De Souza MJ, Williams NI, Nattiv A, Joy E, Misra M, Loucks AB, et al. Misunderstanding the female athlete triad: refuting the IOC consensus statement on relative energy deficiency in sport. British Journal of Sports Medicine. 2014.
9. Areta JL, Jeukendrup AE, Van Genechten L, Langan-Evans C, Pedlar CR, Rodas G, et al. Limited empirical support for relative energy deficiency in sport syndrome. Sports Medicine. 2025.
10. Otis CL, Drinkwater B, Johnson M, Loucks A, Wilmore J. American College of Sports Medicine position stand: the Female Athlete Triad. Medicine and Science in Sports and Exercise. 1997.
11. An Y, Yang Y, Wang A, Li Y, Zhang Q, Cheung T, Ungvari GS, Qin MZ, An FR, Xiang YT. Prevalence of depression and its impact on quality of life among frontline nurses during COVID-19 outbreak. Journal of Affective Disorders. 2020.
12. Babore A, Lombardi L, Viceconti ML, Pignataro S, Marino V, Crudele M, Candelori C, Bramanti SM, Trumello C. Psychological effects of the COVID-19 pandemic: perceived stress and coping strategies among healthcare professionals. Psychiatry Research. 2020.
13. Balch CM, Shanafelt TD, Sloan JA, Satele DV, Freischlag JA. Distress and career satisfaction among surgical specialties. Annals of Surgery. 2011.
14. Jonason PK, Li NP, Webster GD, Schmitt DP. The costs and benefits of the Dark Triad. Personality and

Individual Differences. 2010.

15. Jonason PK, et al. Psychological, social, and physical health costs associated with the Dark Triad. Personality and Individual Differences. 2015.

16. Ng HKS, et al. Narcissism and psychological health: coping flexibility evidence. Personality and Individual Differences. 2014.

17. Pabian S, et al. Dark Triad personality traits and adolescent cyber-aggression. Personality and Individual Differences. 2015.

18. Paulhus DL, Williams KM. The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. Personality and Individual Differences.