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"There's only room for one of us in this relationship": Examining the role of the dark triad in high-performance dyads

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ABSTRACT

The Dark Triad is highly relevant in high-performance environments as it offers explanation for feelings of superiority, opportunities to be ruthless in the pursuit of victory, and a heightened belief of influence over others for individual success. High-performance dyads focus on achieving a collective goal to achieve additional individual glory. The aim of this study was to investigate how levels of these traits and (dis)similarity in them was associated with relationship quality of 316 high-performance dyads. Greater dissimilarity in narcissism resulted in higher relationship quality for both dyadic members. Actor effects indicated that higher levels of narcissism, psychopathy, and Machiavellianism were related to a reduction in coaches' own perceptions of relationship quality, whilst only higher levels of Machiavellianism were associated with a reduction in athletes' own perceived levels of relationship quality. Partner effects showed higher levels of athlete Machiavellianism reduced the relationship quality of coaches.

Individuals who operate within high-performance settings are exposed to high-risk, high-stress and highly demanding environments (Molan et al., 2019). These occupations, such as, but not exclusively, fire and rescue, law enforcement, and elite sport, require individuals to work together effectively to produce optimal, predictable performances in often highly abnormal, unpredictable environments (Ungureanu & Bertolotti, 2020). Dyadic relationships influence performance by affecting intrapersonal feelings, interpersonal stability, and dyadic cohesion (Jowett, 2017), resulting in individuals having an intense desire to be victorious over others, exceed expectations, and/or experience heightened success above the norm. Therefore, high-performance environments can often attract people with the propensity to feel superior, be ruthless in pursuit of winning, and have a heightened belief they can influence others for their own success (Pegrum & Pearce, 2015; Schiffer et al., 2021; Vaughan & Madigan, 2021). Yet, little is known about how personality traits associated with these characteristics (i.e., The Dark Triad; DT) can impact relationship quality in high-performance dyads.

The DT are three interrelated but distinct personality traits (Paulhus & Williams, 2002). Despite the aforementioned potential advantages of the DT for performance outcomes in elite domains, high levels of narcissism (a trait associated with feelings of self-centeredness, self-aggrandizing, entitled, dominant, and a need to manipulate others; Morf & Rhodewalt, 2001), psychopathy (a trait associated with individuals not feeling remorse or guilt as well as a difficulty in empathizing with others; Lilienfeld et al., 2016), and Machiavellianism (a trait associated with a propensity to lie, manipulate, and exploit others for one's own needs; Christie & Geis, 1970), may negatively impact interpersonal relationships. Although research demonstrates that the DT reflect a collection of socially malevolent traits in relationship settings (e.g., betrayal, exploitation), recent research also suggests that the DT may be beneficial in performance domains (Geukes et al., 2012). This potential positive impact of the DT can be explained by high performance contexts being environments that provide individuals with continuous opportunities to show the world how good they are (see Roberts et al., 2018 for a review of narcissism within performance settings) and allow them to achieve superior performances due to their naturally more competitive orientation (Vaughan & Madigan, 2021).

High-performance relationships are unique because they have clear objectives intrinsically linked to measurable outcomes (e.g., becoming an Olympian). However, there is little evidence on how the DT impacts these types of relationships. Preliminary research has focused on the

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domain of high-performance sport. Cook et al. (2021) found that Olympic gold medal winning coaches, when compared to Olympic level coaches, have lower levels of narcissism. It could be that sports coaches higher in narcissism are using a controlling interpersonal style that could hinder both coaches and athletes' dyadic performance (Matosic et al., 2020). Even though relationships may not present with high relationship quality, it is still possible to produce positive developmental outcomes for performance. For example, when performance directors' express elements of psychopathy, such as the use of derogatory/vindictive comments towards an elite athlete, it results in positive developmental characteristics, such as enhanced motivation, resilience, and coping strategies being acquired (Arnold et al., 2018). Machiavellian techniques have shown to be most effective in dyads where one-to-one interactions are used to create positive relationships (Hacker & Gaitz, 1970), comparable to an elite sport environment with coaches only working with a few athletes. Indeed, head coaches of elite teams have frequently demonstrated Machiavellian approaches to shape interpersonal relationships and performance (Cruickshank & Collins, 2015). However, at present these studies do not consider the interdependence of dyadic relationships.

To build on the current DT literature, the coach-athlete relationship is the ideal context to examine the intrapersonal, interpersonal, and personality similarity associations in high performance relationships. The most established model to understand coach-athlete relationships is the 3 + 1Cs relationship model (Jowett, 2007), whereby the quality of the coach-athlete relationship is defined as a situation in which coaches' and athletes' affective bonds (e.g., trust, "closeness"), cognitions (e.g., relationship maintenance, "commitment"), and behaviors (e.g., responsiveness, "complementarity") are interdependent. This process allows for the coach-athlete relationship to be based solely on a "give and take" co-operative approach. Therefore, this relationship is not as constrained by procedural (e.g., medical processes; Bozic et al., 2010) or hierarchical structures (e.g., military ranking systems; Browning, 1992) that could occur in other performance dyads. Consequently, the coach-athlete relationship relies exclusively on interpersonal thoughts, feelings, and behaviors of both members to achieve performance success (Phillips et al., 2023).

1. The present study

Given the relevance of the coach-athlete relationship when examining the DT in high-performance dyads, it provides an ideal context to examine how these traits interact. Yet, to date no study has examined the association between the DT and the quality of the coach-athlete relationship. The present study addresses this gap in the literature by examining how coach and athlete levels of DT traits, and the similarity in these traits, relate to their perceptions of the coach-athlete relationships. Based on the existing literature we formulated and tested two hypotheses: (i) higher levels of the DT would reduce coaches' and athletes' own and partner relationship quality; and (ii) similarity on DT traits would reduce relationship quality in a current performance relationship (Fig. 1).

2. Methods

2.1. Participants

A total of 316 coach-athlete dyads from three individual sports (Swimming = 158 dyads, Triathlon = 102 dyads, Cycling = 56 dyads,) participated in the study. Athletes reported competing at regional (n = 56), university (n = 26), national (n = 102), and international level (n = 132). The coach-athlete dyads consisted of 126 coach participants and 316 athlete participants resulting in mean score of 2.5 athletes per coach. As recommended by Jowett and Ntoumanis (2004), all participating dyads had been working together for a minimum of six months to ensure their relationship was established ($M_{\text{relationship length}} = 3.0 \pm 1.8$ years). Coaches had 15.2 years (SD = 10.7) coaching experience in their sport, with dyads working together for an average of 13.3 h (SD = 6.32) per week.

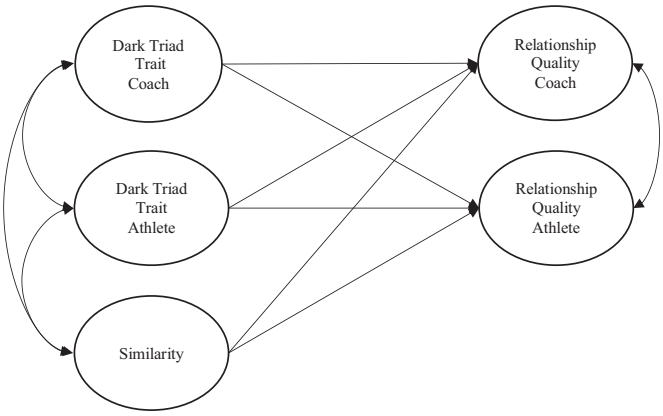

Fig. 1. Model specification for the three traits with trait similarity and the DT of both partners as predictors of each partner's relationship quality.

2.2. Procedure

The study was approved by the institutional research ethics committee. Due to coaches being gatekeepers to their athletes, they were initially contacted via email to provide information outlining the purpose and procedures of this study. Coaches then identified all current athletes meeting the study criteria and asked to randomly select a maximum of five athletes to participate.

2.3. Measures

2.3.1. Personality traits

The Dark Triad Dirty Dozen (DTDD; Jonason & Webster, 2010) questionnaire measured three personality traits: narcissism, psychopathy, and Machiavellianism. Both dyadic members responded to statements that reflected narcissism (e.g., "I tend to want others to admire me"), psychopathy (e.g., "I tend to lack remorse"), and Machiavellianism (e.g., "I have used flattery to get my own way"). All items were rated on a 1 (*Strongly Disagree*) to 5 (*Agree Strongly*) Likert scale. Previous evidence supports the acceptable factorial validity and internal consistency (Spurk et al., 2016).

2.4. Relationship quality

The Coach-Athlete Relationship Questionnaire (CART-Q: Jowett & Ntoumanis, 2004) assessed coaches' and athletes' perceptions of relationship quality. The CART-Q measures three positive dimensions of the relationship: closeness (affect), commitment (cognitive), and complementarity (behavioral). Closeness was measured via a three-item subscale that assessed the level to which a dyads member trusts, respects, and appreciates their partner (e.g., "I feel close to my coach/athlete"). Commitment was measured by a four-item scale that assessed the willingness and dedication to maintain the athletic partnership over time (e.g., "I am committed to my coach/athlete"). Complementarity is a four-item scale that measured relationship cooperative actions (e.g., "When I am coached/coaching by my coach/athlete, I am ready to do my best"). Contextualized stems were used to address the appropriate half of the dyad. Both dyads members completed all eleven questions, which were rated on a 1 (*Strongly Disagree*) to 7 (*Agree Strongly*) Likert scale. Previous evidence supports the factorial validity and internal consistency of this instrument (Wekesser et al., 2021).

2.5. Data analysis

Similarity variables for each trait were created and bivariate correlations were conducted (Table 1). To ensure dyadic interdependence (Jackson et al., 2011), similarity between dyads was calculated by the absolute difference of trait scores to create an index of similarity; values closer to 0 represented greater similarity.

We used the Actor-Partner Independence Model to test the hypotheses (APIM; Cook & Kenny, 2005). Fonteyn et al. (2022) recommended this approach when studying dyads as the APIM approach considers the interdependencies between both members by modelling the associations between each person's own personality and relationship outcome (e.g., actor effect) as well as on the partner's relationship outcome (e.g., partner effect). This is achieved by linking two individuals through the measurement of one person's score, which provides information about the other person's score. For example, "actor effects" represent within-person associations of individual's DT traits (e.g., athlete narcissism in relation to athlete own levels of closeness), whilst "partner effects" provide a prediction of the person's outcomes which are consequential of their partner's traits (e.g., athlete narcissism in relation to coach's closeness). For appropriate power (0.80), Ledermann et al. (2022) suggests a minimum of 91 dyads for actor effects (β 0.15) and 249 dyads for partner effects (β 0.25) are required. Nine separate models were computed, one for each trait and dimensions of relationship quality, so that independent associations of each trait could be established without any interference of a global score (Fig. 1). Structural Equation Modelling was performed, using robust maximum likelihood estimation method. The TYPE = COMPLEX command controlled for the nested structure of the data (i.e., coaches nested within athlete groups; Fransen et al., 2020). This procedure adjusted the standard errors to prevent them from being inflated due to clustering (McNeish et al., 2017). Composite reliability (CR) assessed the internal consistency of each subscale.

The adequacy of the model to the data was evaluated using multiple fit indices: chi-square statistic (χ^2), comparative fit index (CFI; Bentler, 1990), root mean square error of approximation (RMSEA; Steiger, 1990), and standardized root-mean-square residual (SRMR; Hu & Bentler, 1998). Each model was evaluated against Marsh et al., (2004) guidelines, whereby good fit was acknowledged by the following lower limits $\chi^2/df \leq 2$, CFI ≥ 0.95, SRMR ≤ 0.06, RMSEA ≤ 0.08. However, standardized cut-off values will always include sensitivity of fit index to model misspecification, small sample bias, estimation method effect, effects of violation of normality and independence, and bias of fit indexes resulting from model complexity. The selection of the "rules of thumb" conventional cut-off criteria for given fit indexes used to evaluate model fit can often be conflicting. Therefore, any fit indices should be looked at as an overall guide and not as an absolute (Hu & Bentler, 1999).

3. Results

3.1. Descriptive statistic and bivariate correlations

Descriptive statistics, bivariate correlations, and scale reliability estimates are reported in Table 1. For coaches, lower levels of narcissism were associated with greater levels of complementarity behaviors. Psychopathy was associated with greater relationship quality for coaches across all three sub-scales of relationship quality. Lower levels of coach Machiavellianism were associated with coaches having greater levels of commitment and complimentary behaviors in their relationships. These were all indicated by negative significant correlations. Similar relations were found in athletes. Whilst no significant correlations were found for athletes' narcissism, lower levels of psychopathy and Machiavellianism were associated with greater athlete commitment and complimentary behaviors. Similarity associations indicated that greater dissimilarity on trait narcissism was associated with higher relationship quality, specifically coaches' closeness. There were no relations between similarity for psychopathy and the indicators of relationship quality. For athletes, similarity on Machiavellianism showed a negative relationship with both commitment and complementary.

3.2. Structural equation modelling

All models demonstrated adequate fit (see Table 2 in supplementary material).

3.2.1. Narcissism

The only significant actor effect for trait narcissism within the model was for coach complementarity (β = −0.21, p = .001). Partner effects across the three subscales were non-significant. Similarity effects showed that narcissism similarity was significantly associated with closeness for coaches (β = 0.12, p = .007) and athletes (β = 0.12, p = .017) showing that, within dyads, dissimilarity in levels of narcissism was significantly related to increased levels of perceived relationship closeness.

3.2.2. Psychopathy

Actor effects for psychopathy were found for coaches' levels of commitment (β = −0.24, p = .04), closeness (β = −0.21, p = .03), and

Table 1
Descriptive statistics, composite reliabilities, and bivariate correlations.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Coach Narcissism															
2. Coach Psychopathy	.15**														
3. Coach Machiavellianism	.29**	.47**													
4. Coach Commitment	−.08	−.16**	−.12*												
5. Coach Closeness	−.08	−.20**	−.01	.58**											
6. Coach Complementarity	−.14**	−.23**	−.16**	.64**	.67**										
7. Athlete Narcissism	.00	−.14*	−.03	.08	.06	.04									
8. Athlete Psychopathy	.02	.06	.07	−.06	−.07	−.06	.26**								
9. Athlete Machiavellianism	.04	.00	.02	−.06	−.08	−.07	.47**	.36**							
10. Athlete Commitment	−.04	−.02	−.02	.24**	.06	.10	−.06	−.15**	−.22**						
11. Athlete Closeness	−.10	−.08	−.07	.16**	.03	.05	−.03	−.10	−.17	.74**					
12. Athlete Complementarity	−.06	−.07	−.07	.14*	.17*	.12*	−.07	−.23**	−.24**	.63**	.62**				
13. Narcissism Similarity	−.04	−.05	.00	.05	.11*	.08	.24**	.06	.11*	.04	.10	.02			
14. Psychopathy Similarity	.00	.21**	.08	−.09	−.02	−.08	−.00	.30**	.09	−.07	−.04	−.04	.06		
15. Machiavellianism Similarity	.18**	.28**	.59**	−.01	.05	−.01	.07	.18**	.26**	−.12*	−.10	−.17**	.13*	.18**	
M	2.5	1.9	1.8	6.0	6.5	6.4	2.7	1.7	1.6	6.0	6.5	6.2	3.7	3.0	3.3
SD	0.8	0.7	0.8	0.8	0.7	0.7	0.9	0.7	0.7	1.0	0.7	0.8	2.8	2.4	3.1
CR	.74	.73	.89	.73	.92	.82	.84	.75	.85	.81	.90	.86	–	–	–

Note. N = 316 dyads. Where appropriate, *p < .05, **p < .01.; two-tailed.

complementarity (β = −0.38, p = .001). Athlete actor effects on trait psychopathy were also significant for commitment (β = −0.15, p = .01) and complementarity (β = −0.17, p = .007). All partner effects were non-significant, and the relations between similarity on psychopathy and both coaches' and athletes' relationship quality were also non-significant.

3.2.3. Machiavellianism

Actor effects for Machiavellianism were significant for coaches' level of complementarity only (β = −0.36, p = .02). There were also significant athlete actor effects for relationship commitment (β = −0.23, $p \leq$ .001), closeness (β = −0.21, p = .003), and complementarity (β = −0.24, $p <$ .001). There were no partner effects of coach Machiavellianism on athlete outcomes, however we obtained significant athlete partner effects. Specifically, increases in athlete Machiavellianism were associated with lower levels coach complementarity (β = −0.22, p = .01) and closeness (β = −0.19, p = .01). No significant relations for similarity emerged for Machiavellianism with either coaches' or athletes' relationship quality.

4. Discussion

This study examined the association between the DT on coaches' and athletes' own and partner's relationship quality. We also investigated the role of similarity on the DT. The first hypothesis was partially supported as actor effects were observed for coaches across all DT traits, whereas for athletes, actor effects were only found in trait psychopathy and Machiavellianism. We found partner effects for Machiavellianism whereby coaches' perceptions of relationship quality were reduced because of higher levels of athlete Machiavellianism. The second hypothesis was also partially supported, as greater levels of dissimilarity on narcissism increased levels of closeness (i.e., affective bonds) for coaches and athletes.

Narcissism was significantly associated with coaches' own perceptions of relationship complementarity behavior. Coaches consider it their responsibility to set the direction and vision in a dyads (Lara-Bercial & Mallett, 2016). As the DTDD focuses on the grandiose, rather than the vulnerability of this trait (Maples et al., 2014), high-performance coaches may believe that their behaviors would provide the relationship with objective performance success. Coaches who are particularly high in narcissism have shown to be more aggressive towards their athletes (Bryan et al., 2023). While these behaviors might stem from a belief that they (coaches) are critical in achieving success, these behaviors might lead to feelings of being underappreciated, resulting in continuously low levels of relationship complementarity.

For both dyadic members, greater levels of dissimilarity on narcissism resulted in increased positive feelings about their relationship quality. In the general population, individuals high in narcissism have shown to be more tolerant and fonder of their narcissistic peers due to a perceived level of similarity (i.e., narcissistic-tolerance hypothesis; Hart & Adams, 2014), however, this is only applicable to newly formed relationships. With our study being the first to focus on similarity in established relationships, we found that dissimilarity in narcissism enhanced relationship quality through greater positive feelings. This dissimilarity may allow individuals high in narcissism to express their natural inclination to obtain admiration and express self-assured, charming, and entertaining behaviors to reach their performance goal, providing that the other member of the relationship is relatively low in narcissism. However, if a performance objective is not achieved, both individuals might feel the need to defend their own superior status and use selfish, hostile, and aggressive behaviors to do so (Wurst et al., 2017).

Greater levels of psychopathy were associated with lower levels of all elements of coaches' own relationship quality and athletes' own commitment and complementary behaviors. Generally, we would expect that any reduction in relationship quality would lead to poorer performance (Davis et al., 2018), with psychopathic traits negatively linked to performance success (Hassall et al., 2015) because of the inclination towards self-serving and interpersonally cold, calculating behaviors (Furnham et al., 2013). Interpersonal associations of psychopathy are related to an aggressive and coercive social style (Jonason & Webster, 2012) through enhanced verbal and physical aggression (Jonason et al., 2015). However, surprisingly, no evidence of negative interpersonal associations of psychopathy on relationship quality (i.e., partner effects) were found in this study. High-performance dyads might be emotionally disengaged from each other whilst in pursuit of mutual goals or they may not perceive their dyadic partner to be as important as the mutual goal if they achieve their desired success. For example, in a sporting context, coaches are required to make decisions which may be unpalatable to athletes, such as player selection, for the benefit of performance results. Individuals high in psychopathy also tend to score low in neuroticism (Garcia et al., 2015). Therefore, the negative interpersonal associations with psychopathy might not be relevant to high-performance relationships where individuals choose to utilize the fearlessness, emotional detachment, and calculating nature of this trait to be ruthless in the pursuit of triumph. Interestingly, we did demonstrate that psychopathy was linked to lower levels of dyadic members' own relationship quality, illustrating that this trait might be linked to more intrapersonal associations within high-performance domains.

The current study found that willingness to manipulate, deceive, and exploit others to achieve goals was negatively associated with both coaches' and athletes' own relationship quality. For both coaches and athletes, higher levels of Machiavellianism reduced complementary behaviors within the relationship. This finding may be explained due to hostile Machiavellian attitudes being based on a symbiotic merging between both dyadic members whereby each receive benefits from this trait whilst avoiding harming the other member. In this case it could be that coaches and athletes consider their partner to be an exploitable object, whose existence depends exclusively on the ability to satisfy self-related needs (Paal & Bereczkei, 2007). Within a high-performance dyad, coaches are often seen as the individual who evaluates objective performance (Denison, 2007) and are perceived by their athletes to control the power within the relationship (Rylander, 2015). Therefore, it may be that athletes are exhibiting more aggressive behaviors because of higher Machiavellian tendencies (Bryan et al., 2023), to try and equal out this power imbalance.

4.1. Practical implications

Our findings suggest a need to consider who individuals are and highlight the importance of reflecting on how individual characteristics impact performance dyads. For example, individuals high in narcissism can form an effective relationship if assigned to work with someone who is considerably lower to them. Therefore, a consideration of how personalities are likely to interact together seems appropriate. Additionally, all traits seemed to be associated with coaches own intrapersonal relationship outcomes, therefore, additional support should be provided to those who are in a leadership position within a dyads (e.g., a fire fighter and their station commander or an assistant director reporting to the company's director). This support could be delivered by psychologists, line managers or human resource departments, aiding those in leadership positions to consider personalities within dyads to maximize effectiveness and reduce friction.

4.2. Strengths and limitations

It is worth noting the strengths and limitations of this study. High performance dyads are a difficult group to reach, forming only a small percentage of the general population. This study offers findings based on a substantial sample size. However, we are unable to provide evidence for temporal precedence or causality due to our cross-sectional approach. Thus, the work does not capture the mechanisms through

which this relationship functions and how the relationship quality has impacted performance success. In addition, the reliance on a self-reported measure and its cross-sectional nature limits it ability to capture the effects of the DT over time.

4.3. Further research

Based on our results, we propose several recommendations for future research. The present study represents an important first investigation of the influence of the DT in high-performance dyads. However, the quantitative approach adopted in the present study limits the depth to which we can understand the ways in which these traits influence these relationships. As such, studies may wish to utilize a qualitative methodology, as this would generate a richer understanding of how high-performance relationships function. Research might want to consider methods such as informant or behavioral ratings of the DT and/or relationship quality so that findings are not exclusively reliant on self-reported approaches. Further research should also identify how the DT impacts relationship quality over the course of a financial year or athletic season, to understand how these relations may change over time. Additionally, extending the links between the DT, dyadic relationship quality and performance outcomes would be worthwhile. Finally, exploring the generalizability of our findings across other high-performance domains (e.g., the business sector) is warranted.

5. Conclusion

This study provides the first examination of the relationship between the DT and relationship quality in high-performance dyads. Greater dissimilarity in narcissism was associated with better relationship quality for both dyadic members. Actor effects indicated that higher levels of Narcissism, Psychopathy, and Machiavellianism were related to a reduction in coaches' own relationship quality, whilst only higher levels of Machiavellianism were associated with a reduction in athletes' own levels of relationship quality. Partner effects showed that higher levels of athlete Machiavellianism were associated with the relationship quality of coaches. These findings indicate the importance of understanding high-performance dyadic personalities in determining each other's relationship outcomes.

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CRediT authorship contribution statement

Joseph R. Stanford: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Ross Roberts:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization. **Julie P. Johnston:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Mustafa Sarkar:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Laura C. Healy:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

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