Original Article

Correlations between competitive sports' characteristics and the dark triad

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Abstract:
Investigated here were correlations between factors characteristic of competitive sports, for instance, type of athletic event and level of competition and the dark triad—Machiavellianism, psychopathy, and narcissism. A questionnaire survey was conducted with 506 Japanese university athletes (217 male and 289 female, mean age = 19.9, *SD* = 0.8). Three-way analysis of variance (ANOVA) indicated significant and marginally significant main effects of gender (male/female), type of athletic event (record-style events/game-style events), and competitive level (low-competitive group/high-competitive group) on total dark triad score and its sub-scale scores (Machiavellianism, psychopathy, and narcissism), as well as marginally significant two-way and three-way interactions among their specific combinations. These results suggest correlations between the dark triad and gender, type of athletic event, and competitive level. Future studies should likely investigate causal relationships between the dark triad's strength and athletes' processes of exhibiting performance and problem behaviors.
Key Words: dark triad, type of athletic event, competitive level, gender, athletes

Introduction

In recent years, athletes' problem behaviors—violence, delinquency, and drug dependence, among others—have been increasing (e.g., Anderson, Albrecht, McKeag, Hough, & McGrew, 1991; Pappas, McKenry, & Catlett, 2004). Such tendencies are not only considered athletes' personal problems; they also have a significant effect on society at large because athletes are regarded as public role models. The dark triad consists of normal personality traits that tend to cause problem behaviors: Machiavellianism, characterized by manipulation and exploitation of others; psychopathy, characterized by interpersonal and emotional qualities such as selfishness and remorselessness, and behavioral features such as impulsivity; and narcissism, characterized by the search for status and fame and by competitive, aggressive attitudes toward others (Jonason & Webster, 2010; Tamura, Oshio, Tanaka, Masui, & Jonason, 2015). To date, only a few studies have been conducted internationally on the dark triad's role in competitive sports. One of them has reported that people participating in competitive sports have higher scores for the dark triad than nonparticipants (Strout & Carter, 2015). From an evolutionary perspective, the dark triad is considered to express socially maladaptive responses. However, in specific settings and occupations, it could have adaptive functions (Jonason, Li, Webster, & Schmitt, 2009; Paulhus & Williams, 2002).

Conducting research on athletes with high dark triad scores to understand the triad's multiple functions in sports would be useful. Furthermore, in order to provide appropriate psychological support to future athletes, researchers should investigate the dark triad's adaptive and maladaptive effects on athletes, including development of athletic abilities, psychological effects like inhibition of problem behaviors, and adaptation to groups.

Therefore, this study investigated correlations among the dark triad and gender (male/female), type of athletic event (record-style events/game-style events), and competitive level (low-competitive group/high-competitive group). Previous studies have indicated that the dark triad is more adaptive in interpersonal settings (e.g., Furnham, Richards, & Paulhus, 2013; Jonason et al., 2009; Paulhus & Williams, 2002). Thus, we compared game-style athletic events, such as football, baseball, and badminton, in which athletes with high dark triad characteristics are expected to show evolutionary advantage, and record-style athletic events, such as track-and-field sports, gymnastics, and swimming, in which personal records are important.

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Material and Methods
Participants and Period of Study
        In a survey conducted from August 2015 to January 2016, participants were 506 Japanese students (217 male and 289 female, mean age = 19.9, *SD* = 0.8) enrolled in physical education universities in Tokyo. The total number of events performed by participants was 42, including record-style events, such as track and field, swimming, gymnastics, and speed skating (*n* = 22, performed by 142 participants) and game-style events, such as baseball, basketball, football, and badminton (*n* = 20, performed by 364 participants). Athletes' competitive levels were as follows: international leagues (*n* = 26), national leagues (*n* = 175), regional leagues (*n* = 281), and less than regional leagues (*n* = 24).

Procedures
        Questionnaires were administered using the collective survey method. The survey was conducted before the beginning of lecture classes conducted by this study's third author. The study followed the ethical guidelines of the Declaration of Helsinki: The survey was conducted anonymously, responses were entirely voluntary, and prior to the survey, participants were provided information about the survey's purpose and about protection of personal information. Furthermore, approval by the ethics committee of the third author's institutional affiliation was obtained before commencing the study.

Questionnaire Sheet
        On the questionnaire's face sheet, items included athletes' personal attributes: gender and age, athletic events in which each athlete had participated, and best results in 1) international, 2) national, 3) regional, and 4) other competitions. Athletes' dark triads were assessed using the Dark Triad Dirty Dozen-Japanese version (DTDD-J), a Japanese translation (Tamura et al., 2015) of the Dark Triad Dirty Dozen (Jonason & Webster, 2010). This scale consists of 12 items on three sub-scales: Machiavellianism, psychopathy, and narcissism. The scale's reliability and validity have been established previously (Tamura et al., 2015). Respondents select answers from a five-point scale from 1 (*not at all*) to 5 (*very true*).

Statistical Analysis
        Correlations among DTDD-J scores, gender, type of athletic event, and competitive level were examined using three-way analysis of variance (ANOVA) with gender (male/female), type of athletic event (record-style events/game-style events) and competitive level (low-competitive group: lower than the national level and high-competitive group: higher than the national level) as independent variables. Total DTDD-J scores and sub-scale scores for Machiavellianism, psychopathy, and narcissism were dependent variables. Data were analyzed using the statistical analysis software IBM SPSS Statistics Ver. 22.0.

Results

        Results of three-way ANOVA indicated three-way interaction for narcissism ($F_{(1, 498)} = 2.96$, $p = .086$, $\eta^2 = 0.01$) and two-way interaction between gender and type of athletic event for total DTDD-J scores ($F_{(1, 498)} = 4.89$, $p = .028$, $\eta^2 = 0.01$) and for psychopathy ($F_{(1, 498)} = 3.55$, $p = .060$, $\eta^2 = 0.01$). Moreover, Machiavellianism indicated main effects of gender ($F_{(1, 498)} = 35.37$, $p < .001$, $\eta^2 = 0.06$), type of athletic event ($F_{(1, 498)} = 3.05$, $p = .081$, $\eta^2 = 0.01$), and competitive level ($F_{(1, 498)} = 7.24$, $p = .007$, $\eta^2 = 0.01$) (see Tables 1 and 2). Interactions' *p*-value was less than 0.10, and η^2, expressing effect size, was small. Therefore, a simple-simple main effect test and a simple effect test, as well as a main effect test were conducted for two-way and three-way interactions and main effects using the Bonferroni method. Results of three-way interaction for narcissism indicated that males in the high-competitive group had significantly higher scores for game-style events when compared to those in record-style events ($p = .021$, $d = 1.00$).
        Moreover, males participating in record-style events in the low-competitive group had higher scores than females ($p = .006$, $d = 0.80$). Furthermore, males participating in game-style events had significantly higher scores than females, regardless of competitive level (low-competitive group: $p < .001$, $d = 0.83$; high-competitive group: $p < .001$, $d = 0.86$). For males, total DTDD-J scores indicated two-way interaction, with game-style events' scores being significantly higher than those for record-style events ($p = .027$, $d = 0.62$). Moreover, for game-style events, males' DTDD-J scores were significantly higher than females' ($p < .001$, $d = 0.86$). For males, psychopathy showed two-way interaction, with game-style events being significantly higher than record-style events ($p = .063$, $d = 0.52$); for game-style events, males' psychopathy scores were significantly higher than females' ($p = .086$, $d = 0.20$). Moreover, Machiavellianism showed a significant main effect in male athletes, who scored higher than female athletes ($p < .001$, $d = 0.72$). Overall, game-style events' scores were higher than record-style events' scores ($p = .081$, $d = 0.21$). Furthermore, the high-competitive group showed significantly higher Machiavellianism scores than the low-competitive group ($p = .007$, $d = 0.32$).

Table 1 Fundamental Statistics

	Male (n = 217)								Female (n = 289)							
	Record-style events (n = 29)				Game-style events (n = 188)				Record-style events (n = 113)				Game-style events (n = 176)			
	Low (n = 16)		High (n = 13)		Low (n = 151)		High (n = 37)		Low (n = 45)		High (n = 68)		Low (n = 93)		High (n = 83)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total Score	32.06	8.06	30.92	7.52	33.64	6.72	35.73	8.46	28.31	6.95	30.09	7.83	27.54	5.41	29.86	6.99
Machiavellianism	10.06	3.73	10.69	2.95	10.85	2.95	12.11	3.37	8.40	2.70	9.13	3.25	8.31	2.31	9.48	2.93
Psychopathy	8.56	2.95	8.77	2.45	9.76	2.71	9.65	2.51	9.16	2.80	9.52	3.08	8.99	2.37	9.33	2.58
Narcissism	13.44	3.42	11.46	3.64	13.03	3.36	13.97	4.34	10.76	3.41	11.44	3.08	10.24	2.91	11.05	3.50

Note. Male/Female: Gender, Record-style events/Game-style events: Type of athletic event, Low/High: Competitive level

Table 2 Three-way Analysis of Variance Results

	Gender			Type of athletic event			Competitive level			G×T			G×C			T×C			G×T×C		
	F-value	p-value	η²	F-value	p-value	η²	F-value	p-value	η²	F-value	p-value	η²	F-value	p-value	η²	F-value	p-value	η²	F-value	p-value	η²
Total Score	24.53	<.001	0.04	2.59	.108	0.01	2.27	.132	0.00	4.89	.028	0.01	0.89	.347	0.00	1.27	.261	0.00	0.65	.422	0.00
Machiavellianism	35.37	<.001	0.06	3.05	.081	0.01	7.24	.007	0.01	1.89	.170	0.00	0.00	.993	0.00	0.57	.449	0.00	0.02	.891	0.00
Psychopathy	0.04	.851	0.00	1.78	.183	0.00	0.37	.542	0.00	3.55	.060	0.01	0.22	.642	0.00	0.07	.791	0.00	0.05	.818	0.00
Narcissism	26.95	<.001	0.05	0.54	.462	0.00	0.08	.776	0.00	3.46	.063	0.01	2.44	.119	0.01	3.51	.061	0.01	2.96	.086	0.01

Note. G: Gender (Male/Female), T: Type of athletic event (Record-style events/Game-style events), C: Competitive level (High-comptitive group/Low-competitive group)

Discussion

Results indicated main effects and two- and three-way interactions among total dark triad scores and sub-scale scores for Machiavellianism, psychopathy, and narcissism, as well as characteristic factors of competitive sports. In general, males participating in game-style events showed high total dark triad scores and high psychopathy scores. In the high-competitive group, males participating in game-style events had higher Machiavellianism and narcissism scores. Furthermore, the dark triad, which tends to cause problem behaviors, might have adaptive effects, depending on individual attributes, such as gender, type of athletic event, and competitive level. An increasing number of athletes would do anything to win games and achieve good results, including intentional fouling, doping, participating in overly aggressive and dangerous behaviors, and hurting opponents. Indeed, these behaviors strongly correlate with the dark triad (e.g., Paulhus & Williams, 2002; Jonason et al., 2009; Furnham et al., 2013). The present study's fundamental findings on the dark triad can be useful for understanding athletic and psychological characteristics of competitors with high dark triad scores. Moreover, such athletes have personality traits that contradict social expectations. Researchers must investigate from multiple perspectives the dark triad's evolutionary functions in athletic settings by examining how athletes adapt themselves to competitive sports and demonstrate high performance.

The current study has certain limitations. First, this study was conducted with Japanese athletes, but cultural differences among countries or nationalities have not been examined. Second, correlations with the dark triad should be examined separately for various types of game-style events, such as one-to-one, two-to-two, and group-to-group events. Third, this study's results should be examined carefully because the p-value and effect size of the statistical analysis were small. Additional testing should be conducted with a variety of samples.

Conclusion

This study's results showed correlations between the dark triad and gender, type of athletic event, and competitive level. Taking its limitations into consideration, researchers should conduct further studies to understand characteristics of athletes with high dark triad scores. Moreover, investigating events to which athletes could adapt in an evolutionary sense and then providing support for improving athletes' competitive abilities and their psychological well-being are future tasks for dark triad research.

Acknowledgement

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