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Research Article

Dispositional Goal Orientation and Perceptions of Coach Motivational Climate on Attitudes towards Doping among Kenyan Endurance Runners

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Abstract

Changing athletes' attitudes towards doping has been shown as crucial in prevention efforts in combating doping in sports, with dispositional goal orientation and perceptions of coach motivational climate identified as factors shaping doping attitudes among athletes. The purpose of this study was to examine the relationships between dispositional goal orientation and motivational climate attitudes towards doping among Kenyan Endurance runners. A cross- sectional survey design was used to collect data from 323 Kenyan runners with 215 males (66.6%) and 108 females (33.3%). The study assessed athletes' goal orientation through the Task and Ego Goal Orientation Sport Questionnaire, perceptions of coach motivational climate through Perceived Motivational Climate in Sport Questionnaire, and attitudes towards doping through Performance Enhancement Attitude Scale. Descriptive statistics, correlation analysis, Mann-Whitney U tests and Kruskall-Wallis H tests was used for data analysis. The study found significant inverse relationships between mastery climate and doping attitudes (rho = -.242; p < .001), as well as between task orientation and doping attitudes (rho = -.158; p < .004). Conversely, performance climate (rho = .362; p < .001) and ego orientation (rho = .362; p <.001) showed significant positive relationships with doping attitudes. There were no significant differences in doping attitudes based on age (U = 11582.500, p <.191), gender (U = 11437.500, p <.827) and athlete's length of experience ($\chi 2$ (2) = 1.359, p < .507). The study concludes that fostering mastery-oriented coach motivational climate and promoting task-oriented goal orientation could effectively cultivate anti-doping attitudes among athletes and enhance clean sport.

Key words: achievement motivation; clean sport; doping; performance; enhancing substances

Introduction

INnOtTrEo: dThuiscptrieoprnint reports new research that has not been certified by peer review and should not be used to guide clinical practice.

Doping is a is a worldwide problem that affects both competitive and non-competitive athletes, posing serious negative consequences to athletes' health, as well as threatening the integrity and reputation of sports (Barkoukis et al., 2013; Donovan et al., 2002). Although, various preventive and deterrence measures have been instituted and implemented to combat this problem, changing athletes' attitudes towards doping is seen as crucial in prevention efforts (Barkoukis et al., 2022;Donovan et al., 2014; Ntoumanis et al., 2014).Alongside these measures, studies have opined that identifying individual athletes and understanding situational factors that may positively or negatively influence athletes' doping attitudes may assist in doping prevention (Lazuras et al., 2015; Petróczi et al., 2015).

Attitude encompass dispositions and evaluations individuals possess regarding an object or thought (Banaji & Heiphetz, 2015). Therefore, attitudes towards doping represents athletes' beliefs, values, and opinions regarding the utilization of prohibited substances and techniques to enhance performance in sports (Petróczi & Aidman, 2009). Attitudes ranges from strong anti-doping stances to more favourable views on doping. Research on athletes' attitudes towards doping indicates that athletes with positive attitudes toward doping are more inclined to engage in doping compared to those with negative attitudes (Allen et al., 2015; Nicholls et al., 2020). Hence, understanding the factors that shape athletes' attitudes towards doping is crucial in formulation of effective interventions and prevention strategies towards preventing doping and protecting clean athletes (Allen et al., 2015).

Dispositional goal orientation and perceptions of coach motivational climate in sport are crucial constructs influencing athletes' attitudes towards doping. Achievement Goal Theory (AGT) (Nicholls, 1989), suggests that how individuals define success and competence (goal orientations) and their social context (motivational climate) influence motivated behaviors in sports. This highlights the importance of understanding the interaction between personal goals and situational factors in predicting athletes' attitudes towards doping. Achievement Goal Theory (AGT) proposes two types of goal orientation: task and ego orientation (Nicholls, 1989). Task orientation refers to individuals who focus on self-referential success, personal improvement, and effort and are more likely to adhere to rules, support fair play, and have negative attitudes towards doping, while ego-oriented individuals focus on outperforming others, winning at all costs, and demonstrating superior performance and exhibit more positive attitudes towards doping (Allen et al., 2015; Ring & Kavussanu, 2018; Sas-Nowosielski & Swiatkowska, 2008).

Motivational climate refers to the situational goal structure affecting athletes' task and ego involvement in sports (Ames, 1992). Coaches play a significant role in creating the motivational climate for athletes (Allen et al., 2015; Hoppen & Sukys, 2024; Newton et al., 2000). Coach created mastery climate emphasizes on cooperation, personal improvement, and effort, while performance climate emphasizes competition, intra-team rivalry, punishment for mistakes, unequal recognition of athletes, and winning at all costs (Newton et al., 2000). Empirical evidence has shown that coach created motivational climate that empowers athletes and a mastery climate created by coaches can lead to prosocial behavior, respect for the game, and anti-doping attitudes, while a performance climate and coach controlling style and disempowering climate can lead to anti-social behavior and pro-doping attitudes (Allen et al., 2015; Bae et al., 2017; Hoppen & Sukys, 2024).

Research has shown inconsistent findings in the relationship between goal orientation, motivational climate and doping attitudes. For instance, athletes with task goal orientation and mastery motivational climate have been associated with negative attitudes towards doping and protective against risky doping behaviors, while athletes with ego goal orientation and performance motivational climate have been linked with positive attitudes towards doping and risky attitudes towards drug use (Allen et al., 2015: Sage & Kavussanu, 2008). On the other hand, task orientation has been reported to be weak negative predictor of doping attitudes, while ego orientation is not related with doping attitudes in meta-analysis of psychosocial predictors of doping (Ntoumanis et al., 2014). Another inconsistency indicate that task orientation is not related with doping attitudes, while ego orientation is positively associated with doping attitudes (Hardwick et al., 2021). Given demonstrated associations and inconsistent findings between goal orientations, motivational climate, and doping attitudes, little is known about these relationships among Kenyan endurance runners and particularly concerning the role of coaches in shaping motivational climate.

Kenya is a global leader in distance running but faces a growing doping issue, as evidenced by a high number of positive tests and sanctions against Kenyan athletes (ADAK, 2023; AIU, 2023; Henning & Dimeo, 2018). Further information from ADAK reveals that between August 5th, 2017, and September 14th, 2023, a total of 44 Kenyan athletes from different sport disciplines have faced sanctions ranging from bans of one year to lifetime from either ADAK or International Sports Federations due to violations of anti-doping rules (ADAK, 2024). Similar reports indicate that endurance runners in Kenya account for a majority of the positive doping tests compared to other sports disciplines (WADA, 2018). This threatens Kenya's reputation as sporting power and athletics which is regarded as Kenya's national heritage and the country's number one sport (ADAK, 2023). Research has cited various factors that contribute to doping among Kenyan athletes, including inadequate training on doping rules, the influence of athlete support personnel (ASP), and financial pressures such as sponsorships and endorsements (Boit et al., 2012; Wambui & Waiya, 2018).

In terms of demographic factors, research has found male athletes have been reported to have positive doping attitudes, whereas female athletes view it negatively, citing reasons such as the belief that doping is wrong, fear of being banned from sport, concerns about fertility issues, and potential media exposure (Overbye et al., 2013; Tsivitanidou et al., 2023; Zaletel et al., 2015). Male athletes may be motivated by the desire for increased muscle mass and long-term financial stability (Overbye et al., 2013). However, studies in East Africa indicate that gender does not significantly influence doping intentions and attitudes among students and athletes (Mwangi et al., 2019; Muwonge et al., 2015; Rintaugu & Mwangi, 2020). In regards to age, older athletes tend to have more negative attitudes towards doping compared to younger athletes due to their greater knowledge and ability to make informed decisions about doping (Ćorluka et al., 2011; Mwangi et al., 2019). In contrast, younger student athletes have been reported to have negative perceptions about doping compared to other age groups (Rintaugu & Mwangi, 2020). Athletes with more length of sporting experience have been reported to have negative attitudes towards doping as they are believed to have better understanding about doping compared to athletes with short length of sporting experience (Chebet, 2014; Ćorluka et al., 2011; Singhammer, 2012). However, playing experience did not predict attitudes towards doping among East African athletes (Mwangi et al., 2019).

Researchers in Kenya have focused on demographic and situational factors influencing doping attitudes, emphasizing the need to explore psychological factors affecting Kenyan athletes. Therefore, the purpose of this study was to examine the relationships between Kenyan endurance runners' dispositional goal orientations, coach-created motivational climate, and attitudes towards doping and PED use. Based on Achievement Goal Theory (AGT) and existing research, it was hypothesized that a task goal orientation and a mastery climate would be associated with negative attitudes towards doping, while an ego goal orientation and a performance climate would be associated with more positive attitudes towards doping. The study also investigated whether there were significant differences in athletes' attitudes towards doping based on age, gender, and length of running experience.

2. Materials and methods

2.1. Study design

This study utilized a cross-sectional analytical survey design and used stratified random sampling to select the participants. The research targeted Kenyan endurance runners participating in events ranging from 800 meters to marathons, including track, road, and cross- country races. Eligible participants included runners who had been training for at least 6 months, were at least 14 years old, and had no history of failing doping control tests.

2.2. Participants

The study involved 323 Kenyan endurance runners with 215 males (66.6%) and 108 females (33.3%). The participants were categorized by age: junior runners (14-20 years) and senior runners (20-45 years). Running length of experience was classified as short (1-7 years), medium (8-14 years), and long (15 -21 years). Descriptive variables of the athletes are presented in **Table 1**.

Variable	Classes	Frequency	Percentage
Gender	Male	215	66.6
	Female	108	33.4
Age	Junior runners	134	41.5
	Senior runners	189	58.5
Running experience	Short Length	243	75.2
	medium length	65	20.1
	long length	15	4.6

Table 1. Demographic variables of the athletes.

2.3. Measures

2.3.1Dispositional Goal Orientation

Dispositional goal orientation was assessed using the 13-item Task and Ego Orientation in Sport Questionnaire (TEOSQ)) (Duda & Nicholls, 1992).Participants rated their agreement with the statement "I feel really successful in athletics when..." followed by 13 questions related to task orientation (e.g., "when I work really hard" and "when I learn a new skill and it makes me want to practice more") and ego orientation (e.g., "when others mess up and I don't" and "when I can do better than my friends "). Responses were rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The Mean scores for both task and ego orientation subscales were calculated for analysis with higher scores indicating more characteristic goal orientations. Castillo et al. (2010) found good reliability index for the task subscale ($\alpha = 0.78$) and ego subscale ($\alpha = 0.91$).

2.3.2Perceptions of Coach Motivational Climate

Athletes' perceptions of coach-created motivational climate were measured by the Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2) (Newton et al., 2000). The questionnaire consisted of 17 mastery climate items that contained three dimensions of the existence of important roles ("each athlete contributes in some important way"), cooperative learning ("athletes' help each other learn"), and effort/improvement ("athletes feel good when they try their best) and 16 performance climate with three dimensions that that assessed unequal recognition ("only the best athletes get praise"), intra-team rivalry ("athletes are encouraged to outperform the other athletes") and punishment for mistakes ("the coach gets mad when an athlete makes a mistake"). The 33 items were prefaced with the heading "In this athletics team…". A five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5), was used to answer the items. The Mean scores for both mastery climate and performance climate subscales were calculated for analysis with higher scores reflecting more characteristic motivational climates. Newton et al. (2000) have shown good reliability index of the motivational climate ($\alpha = 0.87$) and performance climate subscales ($\alpha = 0.89$).

2.3.3Attitudes towards Doping

The 17-item Performance Enhancement Attitude Scale (PEAS) was used to measure athletes' attitudes towards doping (Petróczi & Aidman, 2009). Participants used a Likert scale from 1 (strongly disagree) to 5 (strongly agree) to express their level of agreement with various statements. A higher score indicates a more positive attitude towards doping. Previous research has demonstrated strong reliability index of the scale, with reported Cronbach's alpha values ranging from 0.71 to 0.91 (Moran et al., 2008;Petróczi & Aidman, 2009)

2.4. Procedures

Kenyatta University Ethical Review Board granted the permission for the study, under the approval number PKU/1074/11124. After receiving ethical approval from the Kenyatta University, athletes were recruited from various athletics clubs in Elgeyo-Marakwet County, Kenya from September 23, 2019 to December 6, 2019. Prior to data collection, written informed consent was obtained from all participants who agreed to participate in the study and for the minors under the age of 18 years their legal representatives signed an informed consent form. They were informed of the study's purpose and the voluntary nature of their participation, including the option to withdraw at any time. They were also assured that their data would remain confidential and be used only for research purposes. Once participants gave their consent, they completed the questionnaire in presence of research assistants who were on hand to answer any questions and address any immediate concerns.

2.5. Statistical analysis of data

Data analysis was performed using IBM SPSS 26 software. The normality of the data was assessed based on skewness values between -2 and +2 and kurtosis values between -7 and +7. Questionnaire reliability was evaluated using Cronbach's alpha. Descriptive statistics such as mean and standard deviation were calculated, and bivariate correlations were examined using Spearman's correlation to explore the relationships between variables. Mann-Whitney U tests were used to evaluate significant differences in doping attitudes based on age and gender. To assess significant differences in doping attitudes across three levels of running experience, the Kruskal-Wallis H test was applied. A significance level of $p < 0.05$ was adopted.

3.0 Results

3.1. Descriptive statistics and internal reliability coefficients

Table 2 presents the mean values, standard deviations, and normal distribution of the study variables, based on the values of the skewness and kurtosis coefficients. Additionally, the internal reliability coefficients for all subscales of the questionnaire are provided.

Variable	Mean ± SD	Skewness	Kurtosis	Cronbach α
Task Orientation	(4.14±.65)	-.921	1.170	0.66
Ego Orientation	(3.07±.79),	-.118	.237	0.47
Mastery Climate	(4.17±.62),	-1.338	2.784	0.82
Performance Climate	(2.88±.62)	-.059	086	0.76
Doping Attitudes	(2.32±.70)	.518	0.612	0.89

Table 2: Descriptive statistics and internal reliability coefficients

Results returned a mean and standard deviation of (4.14±.65) in task orientation, ego orientation (3.07±.79), mastery climate (4.17±.62), performance climate (2.88±.62) and (2.32±.70) in attitudes towards doping. The results of Skewness and kurtosis tests show that the distribution of data fall below -2 to +2, and the kurtosis values fall below -7 to +7. This indicate that the data was not normally distributed and this necessitated the choice of non- parametric inferential tests. The questionnaires were considered reliable as the Cronbach's alpha values for the variables were above the acceptable level of 0.7 (Shaughnessy et al. 2003).

3.2. Correlations among study variables

	Variable		1	2	3	4	5
1	Task Orientation	*(rho)*	1.000	.219**	.684**	-.103	-.158**
		Sig. (2-tailed)	.	.000	.000	.064	.004
2	Ego Orientation	*(rho)*	.219**	1.000	.092	.396**	.362**
		Sig. (2-tailed)	.000	.	.099	.000	.000
3	Mastery Climate	*(rho)*	.684**	.092	1.000	-.076	-.242**
		Sig. (2-tailed)	.000	.099	.	.171	.000
4	Performance Climate	*(rho)*	-.103	.396**	-.076	1.000	.362**
		Sig. (2-tailed)	.064	.000	.171	.	.000
5	Doping Attitudes	*(rho)*	-.158**	.362**	-.242**	.362**	1.000
		Sig. (2-tailed)	.004	.000	.000	.000	.

Table 3: Correlations relationships between the study variables (N=323)

**. Correlation is significant at the 0.01 level (2-tailed).

The results in Table 3 indicate that there was a significant inverse relationship between task orientation and doping attitude (rho = -.158; p = .004) and a significant positive correlation between ego orientation and doping attitude (rho = .362; p < .001) in goal orientation. In motivational climate the results indicated significant inverse relationship between mastery climate and doping attitude (rho = -.242; p < .001) and a significant positive correlation between performance climate and doping attitude (rho = .362; p < .001).

Mann Whitney U Test						
Variables	Class	N	Mean rank	Sum of Ranks	U	
Age	Junior runners	134	153.94	20627.50	11582.500	
	Senior runners	189	167.72	31698.50		
Gender	Male	215	161.20	34657.50	11437.500	
	Female	108	163.60	17668.50	.827	

Kruskal-Wallis Test

Variable	Class	N	Mean rank	$\chi 2$	Df	*P*
Running experience	Short Length	243	159.61	1.359	2	.507
	Medium Length	65	173.50			
	Long Length	15	150.90			

Table 4: Differences between selected demographic variables on attitudes towards doping as analyzed through Mann Whitney U test and Kruskal Wallis tests (N=323)

The results of the Mann-Whitney U test indicated no significant differences by age (U = 11582.500, p <.191) and gender (U = 11437.500, p <.827) on athletes' attitudes towards doping. Similarly, Kruskal- Wallis H test indicated that there was no significant differences by athlete's length of experience on attitudes towards doping among the runners across age categories ($\chi 2$ (2) = 1.359, p < .507).

4. Discussion

The purpose of this study was to examine the relationships between dispositional goal orientation and motivational climate on attitudes towards doping among Kenyan endurance runners. The study also established the differences of selected demographic variables of age, gender, and length of running experience on attitudes towards doping. Kenyan endurance runners have been reported to have been associated with the use of doping or performance- enhancing substances (PES). The study hypothesized that a task goal orientation and a mastery climate would be associated with negative attitudes towards doping, while an ego goal orientation and a performance climate would be associated with positive attitudes towards doping.

The findings of this study revealed that Kenyan endurance runners demonstrated negative attitudes towards doping, with low scores on attitudes

towards doping. This suggests a low inclination towards engaging in doping behaviors and practices among these athletes, aligning with previous studies associating negative doping attitudes with anti-doping stances in sports (Allen et al., 2015; Mwangi et al., 2019; Petroczi & Aidman, 2009). Further, the study found no significant differences in attitudes towards doping based on gender, age, or length of athletic experience among Kenyan endurance runners. This finding aligns with previous research in Africa where gender did not significantly influence athletes' attitudes towards doping (Mwangi et al., 2019; Muwonge et al., 2015; Rintaugu & Mwangi, 2020). However, it contrasts with research outside Africa, which has often shown male athletes to have more permissive attitudes towards doping than female athletes (Overbye et al., 2013; Tsivitanidou et al., 2023; Zaletel et al., 2015). In terms of age, the findings contradict some earlier research suggesting that younger athletes may be more prone to pro-doping attitudes than older athletes (Boit et al., 2012; Mwangi et al., 2019; Rintaugu & Mwangi, 2020). Similarly, the study found no significant differences between athletes' length of running experience on attitudes towards doping. This finding aligns with previous studies among East African athletes, which indicated that length of experience did not significantly impact doping attitudes (Boit et al., 2012; Mwangi et al., 2019). These findings suggest that the athletes in EMC share similar attitudes towards doping and performance-enhancing substance (PES) use, regardless of their gender, age, or length of athletic experience. The lack of significant differences among Kenyan endurance runners could be due to the similar coaching environments and opportunities for competition, education and training that both male and female athletes receive irrespective of age and athletes' years of running experience.

The study found that Kenyan endurance runners exhibited a high task orientation, compared to a lower ego orientation. This suggests that Kenyan endurance runners value effort, personal improvement, and learning over comparing their performance to others in judging their athletic competence and success. Further analysis showed a significant inverse relationship between task orientation and doping attitudes, while ego orientation showed a significant positive correlation with doping attitudes. This finding aligns with previous research which has associated task-oriented athletes to negative doping attitudes and linking ego orientation to positive doping intentions and risky behaviors in sports (Allen et al., 2015; Ring & Kavussanu, 2018; Sas-Nowosielski & Swiatkowska, 2008). Further, the findings of this study revealed that Kenyan endurance runners perceived their coach motivational climate as being more mastery- focused compared to performance-focused. This indicates that Kenyan coaches emphasize cooperative learning, individual development, and effort, rather than intra-team competition, punishment of mistakes or favoritism and external validation. Moreover, the findings revealed that mastery climate was negatively associated with doping attitudes, while a performance- focused climate was positively correlated with doping attitudes. This finding aligns with previous studies that have found athletes high in mastery climate and low in performance climate associated with negative attitudes towards doping and performance climates with positive doping attitudes (Allen et al., 2015; Bae et al., 2017; Hoppen & Sukys, 2024).

These findings observed among Kenyan endurance runners underscore the significance of coaching environments and anti-doping education in shaping athletes' attitudes towards doping. The unique training environment in Kenyan athletic camps, along with anti-doping education and measures by Athletics Kenya and the Anti-Doping Agency of Kenya, in promoting ethical behavior and discouraging doping and the use of performance-enhancing substances may have contributed to the observed relationships and attitudes among Kenyan endurance runners.

Limitations and Future Research

The study offers valuable insights into the relationships between dispositional goal orientation, motivational climate, and attitudes towards doping among Kenyan endurance runners. However, there are several limitations that warrants further research. First, the study was confined to Elgeyo-Marakwet County, limiting its generalizability to Kenyan endurance runners from other prominent counties. Future research should replicate the current study across other prominent Kenyan counties to provide a more comprehensive understanding of attitudes towards doping and inform broader policy and actions. Secondly, future studies could delve into examining the impact of ongoing education and preventive measures on attitudes towards doping in order to inform targeted interventions to promote clean sports. Thirdly, longitudinal studies could offer insights into the long-term effects of motivational climate and goal orientation on athletes' attitudes towards doping providing a more nuanced understanding of how these factors evolve over time and their implications for anti-doping efforts. Lastly, researchers could explore the perspectives of other stakeholders involved in performance sports, such as coaches, governing bodies, and support staff in understanding their perceptions and roles in promoting anti-doping attitudes in order to have a more comprehensive interventions aimed at fostering a culture of clean and fair competition in sports. Therefore, by addressing these limitations and pursuing future research avenues, scholars can contribute to a more comprehensive understanding of doping attitudes and develop targeted interventions to promote clean and fair competition in sports.

5.Conclusions

The study concludes that task orientation and mastery climate were found to be negatively associated with doping attitudes, while ego orientation and performance climate were positively associated with doping attitudes among Kenyan endurance runners. These findings hold important implications for coaches, sports organizations, and policymakers in athletics, suggesting the need for anti-doping interventions and strategies that promote task orientation and mastery climates. Such initiatives can help cultivate attitudes against doping, promote ethical sportsmanship, and reduce the risk of doping among athletes. Additionally, the study underscores the importance of implementing and maintaining anti-doping deterrence measures, including ongoing education and prevention efforts from organizations like the Anti-Doping Agency of Kenya (ADAK) and Athletics Kenya (AK) to across all gender, age groups and levels of running experience to enhance clean sport among Kenyan endurance runners.

Author Contributions: Study Design, KK and ER; Data Collection, KK and BG; Statistical Analysis, KK and FM; Data Interpretation, KK, ER, FM and BG; Manuscript Preparation, KK, ER, FM and BG; Literature Search, KK, ER and FM, where: KK (Kevin Kipchumba), ER (Elijah Rintaugu), FM (Francis Mwangi) and BG (Benson Gathoni). All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement:

The study was conducted in accordance with the Declaration of Helsinki, and approved by the Kenyatta University Ethical Review Board (KUERB) UNDER approval number PKU/1074/11124, issued on September 17, 2019 and research permit from National Commission for Science, Technology, and Innovation (NACOSTI) under license number NACOSTI/P/19/985.

Informed Consent Statement:

Informed consent was obtained from all participants who agreed to participate in the study and for the minors under the age of 18 years their legal representatives signed an informed consent form

Data Availability Statement:

The data that support the findings of this study are available from the corresponding author (KK) on request

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Conflicts of Interest:

The authors declare no conflict of interest

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