EXAMINATION OF COACHES DOPING KNOWLEDGE, MOTIVATIONAL CLIMATE, CONFRONTATION EFFICACY AND ATTITUDES TOWARDS DOPING OF COACHES IN SELECTED SPORT IN KENYA

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LIST OF ABBREVIATIONS AND ACRONYMS

ADAK: Anti-Doping Agency of Kenya

ADRV: Anti-Doping Rule Violations

ADO: Anti-Doping Organization

AIU: Athletics Integrity Unit

AGT: Achievement Goal Theory

AK: Athletics Kenya

ASP: Athlete Support Personnel

DCE: Doping Confrontation Efficacy

DS: Dietary Supplements

IF: International Federations

MPMC: Mastery Perceived Motivational Climate

NADO: National Anti-Doping Organization

NOCK: National Olympic committee of Kenya

NSF: National Sport Federation

PEAS: Performance Enhancement Attitude Scale

PEDS: Performance Enhancing Drugs

PES: Performance Enhancing Substances

POMP: Percentage of Maximum Possible

PPMC: Performance Perceived Motivational Climate

SCT: Social Cognitive Theory

SDT: Self-Determination Theory

TPB: Theory of Planned behaviour

WADA: World Anti-Doping Agency

WADC: World Anti-Doping Code

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PROJECT SUMMARY

There is no doubt that Kenya is a powerhouse in sports and especially her performance in middle and long distance running at the global stage has been phenomenon. However, in the recent past, Kenyan athletes especially in long-distance running have been failing anti-doping rule violations (ADRV's) at an alarming rate. This has made the country to be placed in category "A'' by the athletics integrity unit (AIU). For example, in the year 2022, more than 30 Kenyan athletes were suspended for flouting anti-doping rules. Thus it appears that the efforts of the Anti-Doping Organizations (ADO) in fighting doping in the country is not bearing the expected fruits. Anecdotal evidence and some studies indicate that athlete support personnel (ASP) such as coaches are abetting doping in Kenya (Juma, Woolf & Bloodworth ,2022). This is against the WADC (2021) which has stipulated the roles and responsibilities of coaches in championing the cause for clean sport. Therefore, the thrust of this study was to examine the coaches' knowledge on their anti-doping roles and actions, motivational climate (MC), doping confrontation efficacy (DCE) and attitudes towards doping and clean sport. The main research question was whether there are associations between coaches' knowledge, motivational climate, doping confrontation efficacy and attitudes towards doping in Kenya. Hypotheses were formulated to find out whether the above variables are mediated by coaches selected demographic and sport specific factors. The findings of the study have fundamental implications to coaches and other athlete support personnel (ASP), sport federations, ADAK, National Olympic Committee of Kenya (NOCK) and the Ministry of Sport in their efforts to curtail doping and championing clean sport in Kenya. Second, findings reveal the extent of success/failures of the anti-doping education and prevention programmes offered to coaches by ADAK. A cross-sectional analytical survey design was used. Through purposive and stratified sampling, data was collected through questionnaires from 417 coaches (gender-74.3% males and 25.7% females; aged (mean ±SD) -35.9± 8.14; and coaching experience (Mean ± SD) -7.25 ±6.58) sampled from the sports in individual (athletics and swimming), combat (boxing, judo and wrestling) and team sport (rugby, soccer and volleyball). Questionnaire items were derived from standardized protocols to collect data on coaches doping knowledge, motivational climate, (perceived motivational

climate in sport questionnaire -2 (PMCSQ-2) (Newton et al., 2000), doping confrontation efficacy (DCES) (Sullivan et al.,2015) and attitudes towards doping (Performance enhancement attitude Scale (PEAS) (Nicholls,Madigan & Levy, 2016; Vargo,James ,Agyeman ,Macphea ,McIntyre ,Ronica et al., 2014). The collected data was analysed through descriptive and inferential statistics of Spearman correlation of coefficient, Kruskal Wallis and Mann Whitney U test. The findings indicated that 62% of the coaches are well informed about anti-doping and their sources of doping information were ADAK, internet and Television. Over 70% of the coaches are aware of their anti-doping roles and responsibilities; they emphasize on mastery motivational climate; have reasonably high doping confrontation efficacy and negative attitudes towards doping. Coaches perceptions of their roles and responsibilities differed significantly ($p<0.05$) based on their type of sport in regards to the variables of familiarity/knowledge, perceived motivational climate and attitudes towards doping. There was a positive significant relationship between the coaches' motivational climate and DCE ($rho=0.447$, $p<0.001$); motivational climate had significant correlation to attitudes towards doping ($rho=0.300$, $p<0.001$); significant inverse relationship (negative correlation) between doping confrontation efficacy(DCE) and attitudes towards doping ($rho=-.217$, $p<0.001$). It is recommended that there is need for regular anti-doping education for coaches and this include training skills on how to enhance their DCE. Sport federations need to encourage coaches to continue emphasizing on mastery motivational climate and have negative attitudes towards doping. Further studies can consider the influence of coaches DCE on actual doping behaviour of athletes at their disposal. It will be apt to investigate the coaches' uptake of anti-doping education offered by WADA, ADAK, IFs National sport federations and Major Event Organizers. Future studies can focus on coaches in other sport (which were not included in this study) and other levels of competition.

CHAPTER ONE: INTRODUCTION

1.1. Background of the study

Doping is a global problem in competitive and recreational sports because it negatively hurts integrity, sports image, and dangerous to users' health (Barkoukis,Lazuras ,Tsorbatzoudis & Rodafinos , 2013). The World Anti-Doping Agency [WADA] (2018) defines doping as engagement in any of the eleven of the Anti-Doping Rule Violations (ADRV) as set forward in the World Anti-Doping Code (WADC) and established international standards. Beyond the athletes, the WADC (2021) stipulates that "athlete support personnel (ASP) should be knowledgeable of and comply with all anti-doping policies and rules adopted pursuant to the code and which are applicable to them or the athletes whom they support" (p.114). ASPs, such as coaches, are in a unique position to shape athlete's attitudes and influence their decisions on doping (Boardley,Smith ,Ntoumanis ,Gucciardi & Harris, 2019; Engelberg,Moston & Blank, 2017; Ntoumanis,Barkoukis ,Gucciardi & Chan , 2017) and are bound by the anti-doping rules. Failure to observe these rules amount to anti-doping rule violation (ADRV) leading to subsequent sanctions such as being declared ineligible from any competitive involvement in their sport up to four years (WADA, 2015).

However, studies have indicated that coaches have challenges in understanding and executing their roles and responsibilities in anti-doping. Fung and Yuan (2006) found that 74% of the coaches agreed that doping is a grave problem in global sport, but 34% of coaches differed with the behavioural intention to punish individuals who were using an illegal substance in Hong Kong. Similarly, Laure,Thouvenin and Lecerf , (2001) reported that approximately 80% of coaches in their sample observed that they were ill-trained in matters of doping prevention. Moreover, coaches feel that doping prevention practices are not effective and that their role in anti-doping process is unclear and problematic (Backhouse & McKenna, 2012). WADA (2018) reported that athletes in Kenya are insufficiently educated on doping and/or wilfully blind as to the consequences of doping and ASP are abetting and encouraging doping in Kenya. At the same time, studies on doping in Kenya have revealed that coaches are sources of information on doping among

athletes (Chebet, 2014; Boit,Dimeo ,Onywera ,Theuri ,Kiplamai ,Sigei, et al., 2013; Juma et al., 2022; Kamenju,Mwisukha ,Rintaugu & Muthomi, 2016; Kipchumba,Rintaugu & Mwangi , 2022). This raises doubts on the nature of doping knowledge transmitted by the coaches to the athletes and whether Kenyan coaches are playing their anti-doping roles and responsibilities effectively.

The coaches' ability to handle doping among their athletes is dependent on their doping knowledge and their psychological factors such as motivational climate, confrontation efficacy and attitudes towards doping. Coaches have significant influence on athlete's anti-doping attitudes and behaviours, thus implicating coaches both as risk and protective agents in athletes doping matters (Dimeo,Allen ,Taylor ,Robinson & Dixon, 2012; Lentillon-Kaestner & Carstairs, 2010; Huybers & Mazanov, 2012). Coaches have been identified as potential precipitating factor in athletes anti-doping (Allen,Taylor ,Dimeo ,Dixon & Robinson , 2015; Backhouse & McKenna, 2012; Lazuras et al., 2010; Lentillon-Kaestener & Carstairs, 2010; Smith,Stewart ,Oliver-Bennetts ,McDonald ,Ingerson ,Anderson et al., 2010) and also protective factors against doping (Goulet,Valois ,Buist & Cote , 2010; Kirby,Moran & Guerin, 2011). The position taken against doping among the coaches depends on the motivational climate they set for their athletes and this has implications on whether athletes will embrace clean sport.

Motivational climate is defined as the situational goal structure through which success and failure is judged in an achievement context like sports (Ames, 1992) and has been categorized into mastery (or task) and performance (or ego) climate. Studies have shown that motivational climate created mainly by the coaches affects athletes' attitudes towards doping and achievement strategies in sports (Huybers & Mazanov, 2012; Sage & Kavussanu, 2008). For instance, studies have linked coach-created mastery climate to desirable negative attitudes towards doping in sports, whereas coach-created performance climate has been associated with undesirable positive attitudes towards doping and dishonesty in sports (Allen et al., 2015; Bae,Yoon ,Kang & Kim , 2017; Hodge,Hangreaves ,Gerrard & Lonsdale , 2013; Kavussanu, 2017). In Kenya, Kipchumba et al. (2022) found that motivational climate was associated with attitudes towards anti-

doping while performance climate was associated with attitudes towards pro-doping among Kenyan endurance runners.

Studies have indicated that coaches are not involved in anti-doping and supporting clean sport environment due to their focus on maximizing athlete performance (Gatterer,Gumpenberger ,Overbye ,Streicher ,Schobersberger & Blank et al., 2019; Patterson & Backhouse, 2018). They mostly do not take anti-doping education as component of their mandate (Engelberg & Moston, 2015; Morgan & Smith, 2018), and lack knowledge and awareness on their responsibilities under the WADC context (Patterson,Backhouse & Lara-Bercial , 2019). They also lack confidence in dealing with doping related matters (Boardley et al., 2019; Patterson & Backhouse, 2018; Patterson et al., 2019) or in confronting athletes who they suspect to be doping (Boardley et al., 2019). Coaches need to heighten and support clean sport competition by enforcing values that athletes can embrace to compete in a clean sport environment. However, no studies have been carried out on the role of coaches in anti-doping and clean sport in Kenya, warranting the current study.

Doping confrontation efficacy which is defined as the confidence that coaches have in their ability to effectively confront athletes that they suspect of doping (Sullivan,Feltz ,Laforge-Mackenzie & Huang , 2015) has been linked to athlete's propensity to engage in doping (Boardley et al., 2019; Chan,Ntoumanis ,Gucciardi ,Donovan ,Dimmock ,Hardcastle et al., 2016). Coaches with strong doping confrontation efficacy beliefs may be more likely to advice athletes on how to avoid and resist pressures to dope and athletes who observe such coach behaviours should be more likely to perceive their coach as high in doping confrontation efficacy (Boardley, 2018). Athletes perceptions of coach doping confrontation efficacy is negatively linked with doping attitudes (Sullivian & Razavi, 2017). Indeed, Ntoumanis,Brooke ,Barkoukis and Gucciardi ,(2015) found that Australian and Greek coaches had an inspiration to influence athletes doping related decisions but they lacked the efficacy or were unable to articulate the specific means by which they can facilitate the fight against doping. With the several cases of Kenyan athletes failing anti-doping controls suggests that Kenyan coaches may be deficient in doping confrontation efficacy prompting the current study.

Coaches have a role to play in preventing doping and championing clean sport (Fjeldheim, 1992; Laure et al., 2001) by providing information on anti-doping to athletes (Dodge & Jaccard, 2006) but how they unpack the information to the athletes is dependent on their attitudes towards doping and their perceptions of clean sport. Psouni et al. (2015) found that coaches' intention to encourage doping use amongst their athletes were strongly predicted by coaches pro-doping attitudes. However, some coaches lack knowledge on banned substances and the side effects of doping in addition to some coaches possessing favourable attitudes towards doping (Ntoumanis et al., 2017). The few studies on attitudes towards doping among Kenyan athletes have shown that a large percentage have negative attitudes towards doping (Chebet, 2014; Kipchumba et al., 2022; Mwangi,Rintaugu & Toriola, 2019). Could these negative attitudes towards doping among Kenyan athletes been fostered by their coaches? At the same time, why do Kenyan athletes continue to fail anti-doping rules violations, yet they have negative attitudes towards doping?

1.2. Research Problem

Kenya has been placed in category 'A' by world athletics through the Athletics integrity unit (AIU). This means that Kenya has been deemed by the AIU to present highest doping risk to the sport of athletics. Under the rule 15, of the AIU, the placement of the country under category A has implications on athletes testing, whereabouts, anti-doping education, anti-doping monitoring committee and other specific obligations. Therefore, this situation puts Kenyan athletes and athlete support personnel under close watch from AIU and WADA. Anecdotal evidence suggests that some coaches and athlete support personnel (ASP) are abetting doping in Kenya. According to WADA (2021), coaches should play a big role in the prevention of doping among athletes and champion the cause for clean sport. Coaches can only prevent doping if they know their roles and responsibilities as prescribed in the WADA code. As much as the coaches know their anti- doping roles and responsibilities, they may be hampered to prevent doping among athletes based on their motivational climate, doping confrontation efficacy and attitudes towards doping and clean sport. A number of studies have been conducted on anti-doping among athletes in Kenya and found that athletes have negative attitudes towards doping (Chebet, 2014; Juma et al., 2022; Kamenju, et al., 2016; Kipchumba et al., 2022; Mwangi et al., 2019).Despite these

negative attitudes and bearing in mind that attitudes are strong predictors for doping intention(Ajzen & Madden ,1986) ,Kenyan athletes and ASP continue to face sanctions from regulatory bodies .However, most of these studies have mainly focused on athlete's attitudes towards doping and other psychological constructs, and none have focused on coaches. Could the athletes' negative attitudes towards doping been formed due to coaches' influence? Despite these negative attitudes towards doping, Kenyan athletes are sanctioned for anti-doping rule violations (ADRV's). In order to curtail doping, the coaches need to play their roles effectively and ensure that athletes at their disposal are engaged in clean sport. This can only be done if the coaches have the right motivational climate, negative attitudes towards doping and have high doping confrontation efficacy so that they can confront athletes who are susceptible to doping. However little is known about coaches' perceived motivational climate, doping confrontation efficacy and attitudes towards doping in Kenya. Therefore, the purpose of this study was to evaluate the coaches' doping knowledge, perception of their roles and responsibilities in anti-doping and clean sport, motivational climate, doping confrontation efficacy and attitudes towards anti-doping and clean sport in Kenya.

1.3. Research questions

1. What are the Kenyan coaches' knowledge on clean sport gained from anti-doping organizations?
2. What are the Kenyan coaches' perceptions of their anti-doping roles and actions?
3. What is the coach (es) motivational climate and doping confrontation efficacy in Kenya?
4. What are the Kenyan coaches' attitudes towards clean sport and anti- doping?
5. Is there a relationship between coaches' motivational climate, doping confrontation efficacy and attitudes towards doping in Kenya?
6. Are there differences in coaches' motivational climate, doping confrontation efficacy and attitudes towards doping between athletes in individual, combat and team sport?

1.4. Hypotheses of the Study

The following hypothesis were formulated for testing

1. Kenyan coaches' perceptions of their anti-doping roles and actions will differ significantly based on their selected demographic factors.
2. There is a positive and significant relationship between coaches' motivational climate and doping confrontation efficacy.
3. There is a positive and significant association between coaches' motivational climate, doping confrontation efficacy and attitudes towards doping.
4. There are significant differences in the coaches' motivational climate, doping confrontation efficacy and attitudes towards doping between coaches in individual, combat and team sport.

1.5. Significance of the study

The findings of the study have revealed the Kenyan coaches' utilization of anti-doping education to enhance their knowledge and skills in clean sport and anti-doping. This finding has implications of the efficacy of education programmes in the fight against doping and makes WADA, ADAK and other NADO's to come up with strategies to ensure that coaches are exposed to Anti-Doping information. The findings of the study have unearthed the coaches' execution of their roles and responsibilities in the prevention of doping among athletes. This is important to national and International sport Federations, National Olympic Committee of Kenya (NOCK), ADAK and WADA to appreciate the extent to which Kenyan coaches are implementing their expected roles in the prevention of doping. This can be used to review anti-doping education and prevention programmes offered to coaches in Kenya.

The findings on the motivational climate encouraged by the coaches have implications for the training sessions of athletes and the reward structure to be emphasized; both by the coaches and other stakeholders such as national sports federations and NOCK. Secondly, it is now possible to discover coaches who are likely to abet doping in a Kenyan context based on their motivational climate. The results of the study bring to the fore the possible challenges faced by coaches in their efforts in the prevention of doping among athletes under their mentorship. Therefore, national sport federations and ADOs will need to train coaches on effective doping confrontation techniques. This should enhance the levels of coach doping confrontation efficacy and maximize the likelihood of coaches addressing

doping with athletes to achieve positive outcomes. Findings of the study have brought out the possible evidence-based intervention programs for coaches to heighten their motivational climate, doping confrontation efficacy and attitudes towards doping in Kenya. Findings from the study should encourage WADA and ADOs to review the WADA code with a focus o the specific roles and responsibilities of coaches in anti-doping from an African perspective. Theoretically, the study findings have highlighted the nexus between motivational climate, doping confrontation efficacy and attitudes towards doping among coaches in Kenya. This spurs a more robust debate and research on whether the various theories which have been used in the West to underpin motivational climate and doping confrontation efficacy are applicable in Africa generally, and Kenya in particular. The findings have ultimately demonstrated the relationship between the coaches' motivational climate, doping confrontation efficacy and attitudes towards doping which will be used to influence the coaching environment, and (de)/refine the roles and responsibilities of coaches in anti-doping in Kenya. The findings of the study have provided baseline information for future anti-doping researchers in Kenya.

1.6. Theoretical framework

Both Self-Determination Theory (SDT) (Ryan & Deci, 2000) and Achievement Goal Theory (AGT) (Ames, 1992) were used to assess motivational climate and doping behaviour in sport. The SDT focuses on the factors that influence the development of motivation through both inner and extrinsic processes of meeting three basic psychological needs (i.e., the need for autonomy, the need for competence, and the need for relatedness).

The AGT provides explanations of how social settings are created (motivational climates), and how coaches define competence and success (goal orientation). This identifies coaches who emphasize task-orientation, and those who focus on their athletes' ego orientations.

Social Cognitive Theory (SCT) (Bandura, 1991) of thought and moral action was used to dissect coaches doping confrontation efficacy. Social cognitive theory posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment and behaviour. Therefore, the coaches are in a position to describe reasons for behavioural changes (doping), expression of concern by the confronter (coach),

promotion of solutions (avoiding doping) by the confronter and the target (athletes) and the support for the target while avoiding personal attacks or criticisms (Newell & Stutman, 1988;1991)

Theory of reflection (Schon, 1983) was used to examine coaches' perception of their roles and actions in anti-doping as used in Gilbert and Trudel (2001). The way practitioners frame their role determines the matters that are recognised as problematic and the strategies established to address them. Thus, coaches who do not take anti-doping as part of their mandate would be less likely to recognise pertinent issues surrounding athlete doping. Consequently, they may unintentionally buttress doping behaviour through their inaction. On the other hand, coaches who view anti-doping as important part of their role may recognise issues and situations that are likely to predispose athletes to doping behaviour. Accordingly -and in line with Schon's model of reflective practice, these coaches are likely to act to intervene and reduce the probability of athletes doping behaviour.

The Theory of Planned Behavior (TPB) contends that behavioral intention, which frequently reflects a person's motivation and commitment to carry out the target action, is the most important predictor of actual behavior. Therefore, behaviors are indirectly predicted by attitudes and subjective standards through behavioral intents, while behaviors are directly influenced by perceived behavioral control, especially when it is real control as opposed to illusory control (Ajzen, 1991; Armitage & Conner, 2001). In this regard doping attitudes are significant in predicting doping intentions (Goulet et al., 2010; Lazuras,Barkoukis & Tsorbatzoudis , 2010).

CHAPTER TWO: LITERATURE REVIEW

The literature review presented in this section was guided by the objectives of the study.

2.1. Roles and Responsibilities of Coaches in Anti-Doping

The WADA Code has outlined the roles and responsibilities of Athlete Support Personnel (ASP) in the prevention of doping among athletes. Coaches being one of the most important ASP should be knowledgeable of anti-doping rules; comply with testing; use their influence to encourage anti-doping attitudes in their sport people; co-operate with doping-related investigations and decline any prior involvement in doping to relevant authorities and refrain from personal use of substances or methods that are prohibited in sport" (WADA, 2021). To find out the roles and responsibilities of coaches in anti-doping, a number of studies have been conducted but most of them have combined coaches and other ASP with mixed results (Allen,Morris ,Dimeo & Robinson , 2017; Laure et al., 2001). Coaches have indicated having infrequent informal dialogues about doping-related matters, monitoring their athletes and aiding their athletes' anti-doping education (Allen et al., 2017; Patterson & Backhouse, 2018). Their justifications for reluctance include lack of adequate anti-doping knowledge (Allen et al., 2017; Patterson et al., 2019), concerns of giving incorrect information or stimulating doping curiosity, and a view that anti-doping efforts are not appropriate for their environment due to age and/or level of athletes' development, country or sport (Allen 2017; Patterson et al., 2019). Coaches have also reported getting limited guidance on what they could do to thwart doping and a perception that anti-doping responsibility lies with other ASP in their environment (Patterson & Backhouse, 2018).

Laure et al. (2001) found that 98.1 % (in a sample of 260) of the professional coaches considered that they had a role to play in anti-doping but 80.3% consider themselves ill trained in doping prevention. Only 10.4% had organised a doping prevention activity within the last 12 months. Therefore, it appears that coaches do not seem to be proficient in doping prevention and needed training in this regard. This could be more appropriate in developing countries such as Kenya where coaching in most of the sport codes is not a full-time vocation. Mazanov ,Backhouse ,Connor ,Hemphill and Quirk , (2013) found that anti-doping knowledge in Australian coaches was similar to that of other ASP. Coaches were

also providing untrained dietary advice far more than other ASP. In a related study, Blank, Leichfried ,Furhapter ,Mulle and Schobersberger, (2014) found that 69.4% of the sample of coaches in Austria indicated that doping was not a topic of discussion during routine training, despite 48.4% reporting high interest in the topic of Performance Enhancing Substances (PES).

Engelberg and Moston (2015) found that coaches (*n*=14) disapproved doping in sport and conveyed strong opposing attitudes towards other coaches who might be supplying doping substances to their athletes in Australia. Coaches indicated that they had a role to play in the prevention of doping, but stated that they did not see anti-doping education as part of their role. Indeed, 50% of the coaches indicated that if their athletes asked whether a drug or substance is permitted or not, they would refer them to the team doctor or pharmacist. Two years later, Engelberg ,et al.(2017) study of Australian coaches (*n*=19) reported that all coaches correctly described the random testing process, but were far less knowledgeable on the whereabouts system and the biological passport. They discussed doping matters with athletes 2-3 times a year, but discussions were reactional and did not follow an organised schedule. Coaches were more likely to discuss doping matters with other coaches than with their athletes.

Allen et al. (2017) found that coaches (*n*=23) in Scotland (UK) held clean sport beliefs. They recognised their influence over athletes in regard to advice given and modelling of values, which emphasised a focus on process over outcome. However, the responsibility of anti-doping actions was left to other staff (such as anti-doping officers and doctors).

In a related study, Patterson and Backhouse (2018) explored the coaches' (*n*=12) roles in anti-doping and found that majority of the coaches expressed anti-doping views describing doping as bad, unfair and/or wrong. Coaches' anti-doping behaviours were indirect and passive, as they would seek support from other individuals (such as doctors or superior colleagues) if they ever faced a doping dilemma. Coaches' self-efficacy to partake in anti-doping conversations was low. Most coaches believed that they have a role to play in anti-doping efforts, but some stated that working purposefully on anti-doping was not an essential part of the remit and that maximizing performance was the priority.

Patterson et al. (2018) conducted semi-structured interviews with thirteen individuals responsible for managing anti-doping education with national sport federations (NSFs), international federations (IFs) and/or anti-doping organizations (ADOS). It was reported that most stakeholders acknowledged the importance of providing anti-doping education for coaches and programmes are hindered by lack of resources, limited coordination and challenges related to negative perceptions of anti-doping efforts. This resonates with the Patterson, et al. (2019) findings that a quarter of the coaches had never learnt about anti-doping, and only a third had engaged with formal anti-doping education programs in the UK. Thus many coaches perceived themselves as having little knowledge about anti-doping and declared themselves ill-equipped to work with their athletes on doping-related matters. Barnes, Patterson and Backhouse, (2020) reviewed coach anti-doping empirical literature over a 20-year period and identified self-reported and hypothetical behaviour, beliefs, knowledge and psychosocial components of coaches as the main factors which have been explored. To test the efficacy of anti-doping intervention programmes among coaches, Nicholls,Fairs ,Plata-Andres ,Bailey ,Cope ,Madigan, et al. (2020) found that anti-doping interventions increase coaches' knowledge about doping and also reduced favourable doping attitudes.

The above studies mainly conducted from the West, indicate that many coaches have inadequate knowledge on anti-doping, rarely visit the WADA website, have poor knowledge on anti-doping control systems, and have negative attitudes towards doping. Coaches have influence over their athletes anti-doping, had a role to play in anti-doping but rarely discuss anti-doping with their athletes. Even when coaches provide anti-doping advice they do so without reading the WADC, or undergoing formal anti-doping education, and rely on self-education.

2.2. Coaches Motivational Climate and Anti-Doping

Motivational climate refers to the goals and behaviours emphasised and the prominent values in the social environment cultivated by significant others such as coaches, parents and peers (Ntoumanis,Gucciardi ,Backhouse ,Barkoukis ,Quested ,Patterson et al., 2018). Studies on motivational climate have linked motivational climate with sportpersonship (i.e. athletes understanding of and their respect for the rules ,officials and opponents ;capacity

to distinguish good and bad practices in sport and the relative absence of a negative approach to sport participation (Lee ,Whitehead ,Ntoumanis & Hatzigeordias ,2008) behaviours in sports while performance climate has been linked to unsportmanship behaviours (Kavussanu, 2007; Stanger,Backhouse ,Jennings & McKenna, 2018). Therefore, it was apt to contend that motivational climate espoused by coaches can influence athlete's attitudes towards doping and clean sport. For example, studies have shown that athlete's perceptions of a coach-created mastery motivational climate were associated with attitudes more conducive to anti-doping and thus low-risk of doping (Allen et al., 2015; Cleret, 2011). Similarly, Bae et al. (2017) found that coaches' criticism of perfectionism in sports had weak relationship with the concern over mistakes of perfectionism in sport and ego-involving climate among coaches in South Korea. They concluded that effective anti-doping policy meet athletes' perfectionism and more studies that identify other factors that influence athletes doping attitudes were needed.

Sas-Nowosielski and Swiatkowska (2008) reported close association between ego goal orientation and doping attitudes. They found that athletes who were higher in ego goal orientation more likely to endorse doping than those with task orientation. Similarly, Barkoukis et al. (2011) reported that athletes with a stronger mastery achievement goal reported lower past doping use and lower intention for future use.

Two studies have been conducted on achievement orientation and motivational climate and attitudes towards doping among Kenyan athletes (Kipchumba, et al., 2022; Mwangi et al., 2019). Mwangi et al. (2019) examined the relationship among East African (Kenya, Uganda and Tanzania) university athletes' achievement goal orientation, perceived coach created motivational climate and attitudes towards doping in sport (n=327). It was found that 71% of the respondents were least likely to dope while 29% had high likelihood of engaging in future doping behaviours. Performance motivational climate had the most significant unique contribution to attitudes towards doping and therefore should be discouraged during training. Kipchumba et al. (2022) found a significant inverse relationship between motivational climate and doping attitudes and significant positive correlation between performance climate and doping attitudes among long distance runners (n=323) in Elgeyo-Marakwet County in Kenya. The study showed that majority (65.6%)

of the athletes were least likely to dope whereas 34.4% were highly likely to dope. Performance climate and ego-orientation made significant influence to attitudes towards doping. It was concluded that task orientation and motivational climate were associated with anti-doping attitudes, while ego orientation and performance climate were associated with pro-doping attitudes. Therefore, the above three studies indicate that there is a nexus between motivational climate and attitudes towards doping among athletes. Thus it is apt to investigate the relationship between motivational climate and attitudes towards doping among coaches in selected sports in Kenya.

2.3. Coaches Doping Confrontation Efficacy and Attitudes towards Doping

Doping Confrontation Efficacy (DCE) reflects the extent to which coaches believe in their ability to confront athletes regarding doping and offer appropriate solutions (Sullivan et al., 2015). The five dimensions of doping confrontation efficacy are initiation, legitimacy, personal resources, intimacy and expected outcomes (Sullivan et al., 2015). Studies have shown that coaches with strong DCE beliefs might be more likely to guide athletes on how to evade and resist pressure to dope. Where levels of perceived coach DCE are high, athletes show less undesirable positive attitudes towards doping (Sullivan & Razavi, 2017).

Sullivan et al. (2015) found that coaches' confrontation efficacy is significantly predicted by coaches (*n*=560 high school coaches) perception of motivational climate in the USA and Canada. Specifically, that confrontation efficacy is positively related to task-involving climate and inversely related to ego-involving climate. Thus, coaches who are inclined towards task-oriented climates tend to have higher confrontation efficacy, thus more confidence in confronting athletes about use of illicit substances. Similarly, Sullivan and Razavi (2017) reported that perceived confrontation efficacy significantly predicted athletes' anti-doping attitudes, where the intimacy factor of efficacy was the sole significant predictor. The authors concluded that an athlete's interpretation of coach's values is related to their own attitudes much like cheating and sportsmanship. Boardley et al., (2019) investigated the nature of DCE beliefs and examined their possible antecedents and outcomes from the perspectives of coaches (*n*=11) in the UK. Their findings supported the relevance of all five DCE dimensions. However, the authors identified deficits in

coaches' anti-doping knowledge, supporting the need for enhanced anti-doping education for coaches.

In a recent study, Harris, Crownley and Heller, (2023) explored whether DCE could predict the likelihood of an athlete (*n*=155) confront a suspected doping teammate or opponent. They determined that perceived DCE is positively associated with a greater likelihood of an athlete to confront a suspected doping athlete, regardless of whether they are teammate or an opponent. It is apparent that the above studies have been conducted from the West, and it will be important to conduct a study in Kenya, characterized by cross-cultural differences, geo-political differences and a different sporting environment to see if the results are replicated.

2.4. Coaches Attitudes towards Anti-Doping.

Attitudes are defined as the dispositions and assessment that people hold concerning specific objects of their thought (Banaji & Heiphetz, 2015). Athletes' attitudes towards PES use have been used widely to determine the prevalence of doping in various sport (Boit et al., 2012; Madigan,Stoeber & Passfield , 2016; Ntoumanis ,Quested ,Patterson ,Kaffee ,Backhouse ,Pavlidis et al., 2019) and coaches are instrumental in attitude formation. Fung and Yuan (2006) submit that for coaches to function as role models they must prove their knowledge and ethically correct attitudes towards doping. Their study found that a notable percentage of coaches recorded unfavourable attitudes and behaviours. Madigan et al. (2016) reported that coach pressure on athletes was associated with attitudes favourable to doping, and attitudes towards doping are related to doping behaviour among young athletes (Lucidi,Zelli & Mallia, 2013). Aldhous (2008) showed that coaches can influence attitudes towards doping and in this regard, Hoffman,Faigenbaum ,Ratamess ,Ross ,Kang & Tenenbaum , (2008) found that 17 to 18-year-old athletes are particularly influenced by strength and conditioning coaches.

Research supports the potential role of coaches in regulating doping in sport (Engelberg et al., 2017**;** Patterson & Backhouse, 2018) as athletes at times justify doping based upon coaching behaviours (Dodge & Robertson,2004). Chen,Wang ,Wang and Huang, (2017) investigated the association between coaching style and attitudes towards doping among

Chinese athletes (n=203). They found that a controlling coaching style positively predicted attitudes towards doping and the relationship was fully mediated by moral disengagement. Second, the findings provided evidence that coaching style and moral disengagement have important influences on attitudes towards doping. Third, findings indicated that avoiding emphasizing on coaching controlling climate and reducing moral disengagement in sport may be relevant for reducing athletes pro-doping attitudes. This resonates with previous assertions which have alluded to the fact that a controlled coach motivational climate is attributed to an increase in athletes negative emotions, fear of failure (Moreno-Murchia ,Huescar-Harnandez ,Conte Maria & Nunez ,2019) and curtails the athletes growth and potential as well as their physical and emotional wellbeing (Balaguer ,2007).These are possible reasons which may induce athletes to engage in doping to improve performance.

Previous studies in Kenya on athletes' attitudes towards doping have shown that Kenyan elite athletes and college athletes have strong negative attitudes towards doping (Boit et al., 2012; Kamenju et al., 2016). The majority of athletes are significantly knowledgeable on doping issues and are aware of doping and PES consequences. For example, Kamenju et al. (2016) found that 69.3% of Kenyan college-level athletes who took part in the study had negative attitudes towards doping; 49.7% of athletes knew of the WADA code; and athletes indicated that they learnt about PES from tutors (74.0%). Boit et al. (2014) evaluated the level of knowledge, attitudes towards, possible existence and use of PES drugs, the reasons for their use, as well as the most common sources of doping information among Kenyan runners (*n*=327) (elite athletes in middle distances, long distance, cross-county and marathon). They found that athletes had poor knowledge of doping and doping test procedures, 22% cited lack of awareness of banned substance and the athletes had negative attitudes towards doping. This study examined whether these negative attitudes towards doping are associated with the coaches' motivational climate and DCE in Kenya where anti-doping rule violations have reached a level warranting concern. It is notable that the country has the fourth highest level for ADRV's after Russia, India and Italy (WADA,2025)

2.5. Summary of literature review

Most of the studies have been carried out in the West, had small sample sizes, and the different instruments used for data collection do not allow for generalization of results. There are very few studies which have been conducted in the African setting. The majority of the studies were conducted among coaches who were only involved in one sport. The current study will involve coaches across diverse sports. The few studies carried out on doping in Kenya were conducted in the last decade before Kenya was placed in category 'A'[high risk of doping] by the athletics integrity unit (AIU). Secondly, ADAK was established in 2016 and has already provided more anti-doping education among athletes and ASP. However a recent study by Yauma ,Rintaugu ,& Mundia,(2024) revealed that athletes from dominant Olympic sport in Kenya demonstrated limited knowledge on a wide range of substances in relation to the list of prohibited substances. The authors recommended that ADAK needed to re-evaluate the ADE program and analyse the delivery of AD information and appraisal of knowledge retention to make the education programs more beneficial to the athletes and ASP. The ADE offered by ADAK are complimented with the WADA –Adel, ADAK e-learning and other similar electronic platforms. Therefore it was useful to find out whether there are changes in anti-doping and clean sport behaviours among the coaches in different sport codes in Kenya.

CHAPTER THREE: METHODOLOGY

3.1. Research Design

A cross-sectional analytical survey design was used in the study. The cross-sectional analytical survey design allowed gathering information about coaches' roles and responsibilities, motivational climate, doping confrontation efficacy and attitudes towards doping at one specific point in time. According to Kamlesh (2006) and Best and Kahn (2016), cross-sectional analytical survey design allows specific traits of a population such as demographic data, opinions, perceptions, and attitudes to be evaluated spatially at one specific point in time involving a cross-section of the population.

3.2. Location of the Study

The study was conducted in the major sporting towns in Kenya depending on the dominance of different sport codes. Data was collected from coaches in the counties of Eldoret, Embu ,Kakamega ,Kisumu ,Nairobi, Nakuru ,Narok ,Nyeri ,Makueni and Mombasa.

3.3. Target Population

The study targeted coaches in individual sport of athletics, swimming and combat (boxing, judo and wrestling), and team sports of rugby, soccer and volleyball. It is notable that these team sports have functional leagues and sporadically some of these teams such as volleyball, and rugby have represented Kenya in the Olympic Games.

3.3.1. Inclusion Criteria

Active coaches attached to the national team or elite premier clubs for the last 12 months.

3.3.2. Exclusion Criteria

Coaches who have not been actively involved in coaching for the last 12 months

3.4. Sample size and sampling procedures

Stratified and proportionate sampling was utilized to ensure good representation of coaches at the club and national level. As the number of active coaches and their certification in

different sport codes are different then proportionate sampling was used as recommended by Bartlett,Kotrlik and Higgins ,(2001) and DeYoreo (2018). This is supported in the WADA package for social sciences and cross-sectional studies (Gall,Gall & Borg, 2003). These coaches were actively engaged in coaching a club participating in leagues at the national level or coaches who are engaged to coach the national team. Priority was given to coaches who possessed the highest qualifications from the international sport federations/associations.

The sample size was 457 (required minimum return sample size) participants as determined using the Cochran Formula (Bartlett et al., 2001) with number adjusted to cater for cases of unforeseen attrition. The formula made it possible to calculate the ideal sample size owing to its relative precision especially where the study population is large (higher than one thousand) (Bartlett et al., 2001).

The formula is as follows:

$n_0 = \frac{Z^2 pq}{e^2}$ Equation 1 [Bartlett et al., (2001)]

Where: n_0 is the minimum sample size needed. e is the desired level of precision (i.e. the margin of error), p is the (estimated) proportion of the population which has the attribute in question, q is $1 - p$. The z-value is found in a Z table for different confidence levels. For the proposed study, e -the desired level of precision for 95% confidence is 5% (the margin of error is 0.05). The estimated proportion (p) of the population with attribute of interest to the study (doping attitude) is 0.3, estimated from Kipchumba et al. (2022), Mwangi et al. (2019), Rintaugu and Mwangi (2021), and Yauma (2023) who reported between 20% to 30% of Kenyan athletes having pro-doping attitude. A 95 % confidence level gives us Z values of 1.96, per the normal curve tables. Therefore, substituting the figures in the formula revealed: $(\{1.96)^2\ (0.3)\ (0.7\})\ /\ (0.05)^2 = 322.69$, i.e. 323 participants. Adjusting for sample > 5% of population as per Bartlett et al. (2001) recommendations, the required minimum sample size is 297 participants. With about 65% expected return rates of questionnaires reported for most studies of this nature, further adjustment results to a total of 457 participants to cater for the unforeseen circumstances of participants' dropouts or

failed return cases. Thus a total of 457 participants, spread across all the strata proportionately was used in the study.

Table 3.1: Sampling Frame

Type of sport	Sport	Elite Coaches Population	Sample proportion calculation	Sample proportion
Individual	Athletics	180	(457/3630)*180	23
	Swimming	200	(457/3630)*200	25
	Combat	114	(457/3630)*114	14
Team	Rugby	1005	(457/3630)*1005	127
	Soccer	2060	(457/3630)*2060	259
	Volleyball	71	(457/3630)*71	9
Total		3630		457

3.5. Research Instruments

The study data was collected through a self-administered questionnaire which was administered face to face. The instrument had four sections. Section A gathered coaches' demographic information such as age, gender, coaching experience, and certification in coaching. Section B of the questionnaire had items to evaluate the coaches' perception of their roles and actions in anti-doping. This was derived from the WADA code and themes generated from the studies of Allen et al. (2017). This section also evaluates coaches' knowledge and interactions with the WADA –Adel and ADAK e-learning plat form. Section C consisted of items which elicited the perceived motivational climate of coaches. Therefore, the perceived motivational climate in sport questionnaire -2 (PMCSQ-2) (Newton, Duda and Yin, 2000) was used to measure coaches' perceptions of the motivational climate that they instil to their athletes. The 33-item PMCSQ-2 questionnaire contains 6 subscales that identify the dimensions of a mastery climate and performance climate (Newton et al., 2000; Reinboth & Duda, 2006; Walling, Duda & Chi, 1993). The mastery climate dimension contains 3 subscales that measures 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). On the other hand, the performance climate dimension contains 3 subscales that assesses 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 responses were weighted on a 5-point Likert type scale ranging from (1) strongly disagree to (5) strongly agree. It has been supported with respect to factor structure, internal consistency and construct validity (Newton et al., 2000; Reinboth & Duda, 2006; Walling et al., 1993).

Section D of the questionnaire contained items to measure the coaches perceived doping confrontation efficacy. The items were derived from the Doping Confrontation Efficacy Scale (DCES) (Sullivan et al., 2015). All the five sub-dimensions (i.e. legitimacy (5 items), intimacy (3 items), resources (4 items), initiation (4 items) and outcomes (4 items) were examined. The 20 items were preceded by the stem 'How confident is your coaches' ability to…' Items will be rated using a 7-point scale ranging from 1 (no confidence) to 7 (complete confidence). The doping confrontation efficacy internal consistency reliability coefficients for initiation =.86, intimacy =.89, legitimacy=.88, outcomes=.83 and resources=.81 has been reported (Sullivan et al., 2015). Higher scores indicate enhanced levels of perceived coach DCE (Sullivan et al., 2015).

Section E of the questionnaire was out to measure the coaches' attitudes towards doping and performance enhancement attitude Scale (PEAS) was used. The version comprises of eight items and has demonstrated validity and reliability in previous studies (Nicholls, et al., 2017; Vargo , et al., 2014). Each item was preceded by the phrase 'my opinion regarding sport in general is that…' and participants responded on a scale from 1 (Strongly disagree) to 6 (Strongly Agree).

3.5.1. Validity and reliability of instruments

The principal investigator and co-investigator requested other experts in sport psychology, exercise and sports science to validate the different sections of the questionnaire. The overarching observations from the team of experts were included in the questionnaire before pre-testing.

3.5.2. Reliability of the Instruments

The questionnaire which was used in this study was reliable as the scales have been used in diverse cultures and studies at different levels. The PMCSQ-2 has reported reliability index of α = .87 mastery climate and .89 performance climate (Newton et al., 2000). The doping confrontation efficacy internal consistency reliability coefficients for initiation =.86, intimacy =.89, legitimacy=.88, outcomes=.83 and resources=.81 (Sullivan et al., 2015). These were further verified during the pre-test. The modified version of PEAS has reported reliability index of between .71 and .91 across various samples (Moran, Guerin, Kirby & MacIntyre, 2008; Petroczi & Aidman, 2009). The researcher further scrutinized the instruments' reliability during the pre-testing of the study instruments by using the internal consistency technique. Suter (2011) opines that the internal consistency technique gives a unique and quantitative estimate in determining the internal consistency of the instrument.

3.5.3. Pre-testing of the Study Instrument

The researcher pre-tested the questionnaire prior to its use in the main study. The questionnaire pre-testing was conducted among coaches (n=30) in selected disciplines while considering their gender and coaching experience. After the pre-testing of the questionnaire, the researcher held a debriefing session with the coaches. The respondents gave their views about each item in the questionnaire, the instructions given in the instrument, and procedures to be applied in data collection. Pre-testing of the questionnaire helped the researcher and research assistants to gain valuable information in understanding the approximate time the coaches will take in filling the questionnaire. Secondly, it provided experiences and opportunities to research team to test their skills in administering the questionnaire that was useful during data collection.

3.6. Recruitment of Participants

Coaches were recruited through their email contacts extracted from the federation's secretariat.

3.7. Data Collection Procedures

After receiving university ethical board approval from Kenyatta University and research permit from National Commission for Science, Technology and Innovation (NACOSTI), the researcher sought contacts of coaches from the federations. After this the coaches were contacted through emails asking for their participation in the study. The email explained the main objectives of the study and informed them that the responses would remain confidential and anonymous and then invited the coaches to participate in the study. Coaches who consented to take part in the study were requested to schedule a date when the questionnaire were delivered to them by the research assistants who also collected it immediately after completion.

3.8. Data Analysis

All data obtained were coded and entered into IBM SPSS Version 23.0 Software for data analysis. Likert scale data was converted to linear percentage of maximum possible score as recommended by Cohen,Cohen ,Aiken and West, (1999). Shapiro-Wilk tests were computed to determine if the sample distribution of the data was normally distributed, thus inform choice of statistical tools for analyses. Descriptive summary scores of frequencies, percentages mean, standard deviations and median were calculated. Correlation analyses were done using Spearman's rho correlation coefficient to determine the relationship between motivational climates and doping confronting efficacy on attitudes towards doping. Independent sample Mann-Whitney U test and Independent Kruskall-Wallis test together with pairwise comparisons were made to determine if there were significant differences in dependent variables across independent variables. All hypotheses were tested at $p < .05$ significance level.

3.8.1. Ethical Considerations

Before commencing the study, the researcher applied for ethical approval of the study protocol from Kenyatta University Ethical Review Board (KUERB)(PKU/2763/11888) (Appendix III) after which a research permit was sought from National Commission for Science, Technology, and Innovation (NACOSTI)(NACOSTI/P/23/29639) (Appendix IV). The researcher sought permission for participation in the study from the respective

federations and coaches' commissions. In addition, the researcher sought for informed consent from the coaches (Appendix I). Participants were informed that their participation in the study was voluntary and coaches were free to seek for clarifications at any time, and that information obtained in the study was to be used purely for academic purposes. Further, participants were informed not to write their actual names in the questionnaire to protect the confidentiality of their information, and that they were free to pull out of the study if they felt uncomfortable or leave out some items that caused discomfort. The potential risks associated with privacy and confidentiality, the nature of survey questions could cause discomfort. However, the respondents were assured that anonymity will be maintained. Research assistants were trained on human subject's research, consent process and data security. Any emails and other correspondence in which coaches could be identified were deleted following participation and kept on password protected computers. The questionnaire and consent forms were translated into Kiswahili for coaches who may have challenges with English.

CHAPTER 4: RESULTS

The demographic characteristics of the respondents in terms of gender, age, type of sport, highest academic qualification, coaching certification and experience. These details are presented in Table 4.1.

Table 4. 1: Demographic details of the respondents

Gender	f	%
Male	310	74.3
Female	107	25.7
Age (Years)		
25-30	124	29.7
31-35	96	23
36-40	80	19.2
41-45	45	10.8
46-50	30	7.2
>50	42	10.1
Mean age standard deviation and Median	Mean=35.99 sd=8.14 Median =32.5	
Sport Discipline		
Athletics	34	8.2
Swimming	24	5.8
Combat	17	4.1
Rugby	182	43.64
Soccer	141	33.81
Volleyball	19	4.55
Highest academic Qualification		
Primary	2	0.5
Secondary	85	20.4
College	156	37.4
University	174	41.7

Highest coaching qualification		
None	95	22.5
Level 1	205	49.2
Level 2	90	21.6
Level 3	17	4.1
Level 4	10	2.4
Coaching experience (Years)		
1-5	218	52.3
6-10	98	23.5
11-15	48	11.5
16-20	25	6.0
21-25	13	3.1
>25	15	3.6
Mean, standard deviation and Median	Mean=7.25, SD=6.58 Years, Median =2.5 years	

Results in Table 4.1 show that 74.3% of the coaches were males while 25.7% were females with a mean age of (41.15±8.14). Eighty percent of the coaches had college and university education and close to 50% of the coaches had level 1 certificate in coaching. However, the 22.5% of the coaches did not have no certification in coaching. Results indicate that over 75% of the coaches had 1-10 years of coaching with a mean and standard deviation of 7.25± 6.58 years of coaching experience. The coaches' attendance to anti-doping workshops, awareness of anti-doping bodies, and discussions is presented in Table 4.2

Table 4. 2: Coaches attendance to anti-doping workshops/seminars and discussions on anti-doping

Item	Response	f	%
Have you ever attended any anti-doping workshops/Seminars	Yes	236	56.6%
	No	181	43.4
Have you ever witnessed information discussions on Anti-Doping before	Yes	336	80.6
	No	81	19.4
Have you ever heard of WADA	Yes	372	89.2
	No	45	10.8
Have you ever heard of ADAK	Yes	376	90.2
	No	41	9.8

Table 4.2 show that 56.6% of the coaches had attended anti-doping workshops in the last 12 months, 43.4% had not attended and 80.6% had witnessed information/discussions on anti-doping while 19.4% had not. The results show that 372(89.2%) had heard about WADA while 45(10.8%) had not heard about WADA. Similarly, 376(90.2%) had heard about ADAK while 41(9.8%) had not heard about ADAK. The coaches were asked to rate on how they felt about their information in relation to doping in sports and their responses are presented in Table 4.3.

Table 4.3: How informed do you feel you are in relation to doping in sports?

How informed	f	%
Poor	35	8.4
Below average	36	8.6
Average	150	36
Good	136	32.6
Excellent	60	14.4

Results in Table 4.3 reveal that 47% (good and excellent) of the coaches feel that they are well informed about doping in sports followed by average (36%) while 17% (poor and below average) are not well informed. The coaches were requested to indicate the extent to which they were familiar with selected doping matters and their responses are presented in Table 4.4

Table 4. 4: Coaches familiarity with some selected doping matters

Familiarity with…..	Not at all familiar		Slightly familiar		Somewhat familiar		Moderately familiar		Extremely familiar	
	F	%	f	%	f	%	F	%	F	%
World anti-doping code	90	21.6	99	23.7	65	15.6	101	24.2	62	14.9
PES and Methods	47	11.3	79	18.9	101	24.2	110	26.4	80	19.2
Anti-doping rule violations	48	11.5	60	14.4	88	21.1	116	27.8	105	25.2
Side effects of PES	28	6.7	64	15.3	77	18.5	129	30.9	119	28.5
Effects of Doping methods on n the health of athletes	32	7.7	45	10.8	67	16.1	135	32.4	138	33.1
Consumptions of dietary supplements may restrict in a positive doping test	43	10.3	59	14.1	93	22.3	102	24.5	120	28.8
Marijuana is not permitted	57	13.7	35	8.4	64	15.3	82	19.7	179	42.9
Average score	3.49±0.98									
POMP score	62.49±24.74									

Results in Table 4.4 reveal that in terms of familiarity (moderately and extremely familiar), the coaches are familiar with doping methods (65.5%), followed by use of marijuana (62.6%) and the side health effects of PES (59. 4%). Regrettably, the coaches are not very familiar with the world anti-doping code (WADC) (39%), performance enhancing substances (PES), anti-doping rule violations (ADRVs) and consumption of dietary supplements (DS.) In terms of the overall familiarity with doping matters, the coaches had an average percentage of maximum possible (POMP) score of 62.49±24.74 and this appears to be above average level of familiarity with doping matters. The sources of doping information of the coaches are presented in Table 4.5.

Table 4. 5: Sources of doping information of the coaches.

Source of information	Yes	%	No	%
World Anti-doping Agent (WADA)	163	39.1	254	60.9
Anti-doping agent of Kenya (ADAK)	268	64.3	149	35.7
Television/radio	227	54.4	190	45.6
Internet	257	61.6	160	38.4
Newspaper/magazines	167	40	250	60
In your coaching studies	198	47.5	219	52.5
Seminars	187	44.8	230	55.2
Friends	182	43.6	235	56.4

Results in Table 4.5 show that the sources of doping information among the coaches were ADAK (64.3%) followed by internet (61.6%) and TV (54. 4%).The least sources of doping information are WADA (60.9%), newspapers /magazines (60%) and friends (56.4%).

4.1 Coaches Roles and Responsibilities

The coaches' anti-doping roles and responsibilities are presented in Table 4.6.

Table 4. 6: Means, Standard deviations, and median in the coaches' roles and responsibilities (N= 417)

The coach is expected to……..	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	SD	Median
	f	%	F	%	F	%	f	%	f	%			
To cooperate with an athlete testing program	26	6.2	11	2.6	27	6.5	104	24.9	248	59.5	4.28	1.1	5
Not to use this influence on athlete values & behaviour to foster anti-doping	52	12.5	26	6.2	49	11.8	89	21.3	201	48.2	3.87	1.3	4
To disclose to the ADO's if any decision by a non-signatory in ADRV's	32	7.7	32	7.7	60	14.4	125	30	168	40.3	3.88	1.23	4

To cooperate with ADO's investigating ADRV's	22	5.3	13	3.1	26	6.2	100	23.98	256	61.4	4.33	1.08	5
Shall not use or possess any prohibited substance or method without valid justification	21	5.0	17	4.1	26	6.2	78	18.7	275	4.36	4.36	1.09	5

The results in Table 4.6 show that the item on *To cooperate with anti-doping organizations investigating anti-doping rule violations* had the highest (4.33 ±1.08) followed by *Shall not use or possess any prohibited substance or method without valid justification* (4.36 ±1.09) and *To co-operate with the athlete testing program* (4.28±1.13).The items with lower means were *To disclose to the national anti-doping organization and International federation any decision by a non-signatory finding that they have committed an anti-doping rule violation within the previous ten(10) years*(3.88 ± 1.23) and *Not to use their influence on athletes values and behaviours to foster anti-doping attitudes*(3.87 ± 1.39).The coaches had a mean POMP of (78.58 ±23.28) on their knowledge of their roles and responsibilities which implies that coaches are aware of their anti-doping roles and responsibilities.

4.2 Perceived Motivational Climate of the Coaches

The coaches mean, standard deviations and median on the perceived motivational climate are presented in Table 4.7.

Table 4. 7: Means, standard deviations and median on the perceived motivational climate of the coaches (n=417).

Item	Mean	SD	Median
Pomp on Mastery perceived motivational climate	84.69	13.13	86.76
Pomp on Performance PMC	45.77	21.75	42.19

The results in Table 4.7 show that the coaches had higher POMP scores on mastery perceived motivational climate (Mean =84.69±13.13, mdn= 86.76) than performance perceived motivational climate (Mean=45.77±21.75, mdn= 42.19). The composite POMP scores for the perceived motivational climate subscales are presented in Table 4.8.

Table 4. 8: Composite Scores for Task Mastery and Ego Sub-Scales (n=417)

Subscale	Mean	Sd	Median
Task Mastery			
Effort/Improvement	83.56	14.12	87.5
Important role	86.01	15.52	90
Co-operative learning	85.29	14.74	87.5
Ego			
Punishment for Mistakes	46.58	23.67	41.66
Unequal Distribution	41.28	25.19	35.71
Intra-team member Rivalry	54.63	24.16	50

Results in Table 4.8 indicate that the coaches had higher scores on the task mastery subscales of important role (M=86.01±15.52, mdn=90) followed by co-operative learning (M=85.29 ± 14.74, mdn=87.5) and effort/improvement (M=83.56 ± 14.12, mdn=87.5). On the ego subscale, the coaches had higher scores on intra-team member rivalry (M=54.63± 24.16, mdn=50), followed by punishment for mistakes (M=46.58 ± 23.67, mdn=41.66) and unequal distribution (M=41.28 ±25.19, mdn=35.71).

4.3 Coaches doping confrontation efficacy

The coaches doping confrontation efficacy based on the five subscales is presented in Table 4.9.

Table 4. 9: The means, standard deviations and median on the doping confrontation efficacy subscales (n=417).

Subscale	Mean	SD	Median
Initiation	77.27	27.03	83.33
Intimacy	78.17	24.71	88.88
Legitimacy	81.15	20.98	86.66
Outcome	78.13	21.98	83.33
Resources	75.62	23.56	83.33
Overall	78.24	19.46	83.33

Results in Table 4.9 show that in terms of the subscales of doping confrontation efficacy, the coaches had the highest scores on the DCE subscales on legitimacy (mean=81.15±20.98, mdn=86.66), intimacy (mean=78.17± 24.71), outcomes (mean=78.13±21.98, mdn=83.33) initiation (mean=77.27 ± 27.03, mdn=83.33 and resources (mean±SD) 75.62± 23.56, mdn=83.33). However, the coaches POMP scores on the total doping confrontation efficacy (78.24±19.46, mdn=83.33,) indicating that coaches have high perceived enhanced levels of doping confrontation efficacy.

4.4 Attitudes towards doping

The coaches POMP scores on their attitudes towards doping (28.38 ±26.77, mdn=22.50) which indicates that the coaches have low/negative attitudes towards doping.

4.5 Comparisons

Hypothesis 1: Kenyan coaches' perceptions of their anti-doping roles and actions differ significantly based on their selected demographic factors.

The coaches selected demographic variables included age, gender and sport category. The independent Mann-Whitney U-test and Kruskall-Wallis were used to test for differences on gender and type of sport, and age category respectively. The results revealed that there were no significant differences on coaches' perceptions of their anti-doping roles and responsibilities based on the coaches' gender and age ($p>.05$) but significant differences were realized on type of sport ($p=.030$). Coaches of combat sports had significantly higher (Adj. Sig = 0.04) mean rank scores (276.65) than those of team sports (203.32). There were significant differences ($p<.001$) in familiarity/knowledge on anti-doping with coaches in ball games registering lower mean rank scores (198.70) than those in athletics (middle and long distance running) (240.54) (Adj. Sig = .041) and those in martial arts and combat sport (307.56) (Adj. Sig =.001).

Therefore, the hypothesis that Kenyan coaches' perceptions of their anti-doping roles and actions will differ significantly based on their selected demographic factors could not be accepted.

Hypothesis 2: There is a positive and significant relationship between coaches' motivational climate and doping confrontation efficacy

This hypothesis was tested through spearman's rho correlation coefficient and the results are presented in Table 4.10.

Table 4. 10: Correlations between coaches' motivational climate and doping confrontation efficacy(n=417)

Compared variables	Spearman's rho Correlation Coefficient	Sig. (2-tailed)
POMP score on mastery perceived motivation climate vs POMP score on doping confrontational efficacy (CE)	.447**	.000
POMP score on performance perceived motivation climate vs POMP score on doping confrontational efficacy (CE)	-.001	.977

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

The results in Table 4.10 indicate that there is a significant positive relationship (correlation) between mastery perceived motivational climate and doping confrontation efficacy (rho=0.447, p<.001) which means that mastery perceived motivational climate contributes to 20% of the doping confrontation efficacy. There is no significant relationship between CPMC and doping confrontation efficacy (rho=-.001, p=0.977) which means that coaches who champion CPMC are not likely to confront athletes who are and/or are suspected of doping.

Hypothesis 3: There is a positive and significant relationship between coaches' motivational climate, doping confrontation efficacy and attitudes towards doping.

This hypothesis was tested through the Spearman's rho correlation and the results are presented in Table 4.11.

Table 4. 11: Correlations between coaches motivational climate, doping confrontation efficacy and attitudes towards doping (n=417)

			Mastery PMC	Performance PMC	Doping confrontational efficacy	Attitude towards doping
Spearman's rho	POMP score on mastery perceived motivation climate	Correlation Coefficient	1.000	-.098*	.447**	-.307**
		Sig. (2-tailed)	.	.045	.000	.000
		N	417	417	417	417
	POMP score on performance perceived motivation climate	Correlation Coefficient	-.098*	1.000	-.001	.300**
		Sig. (2-tailed)	.045	.	.977	.000
		N	417	417	417	417
	POMP score on doping confrontational efficacy	Correlation Coefficient	.447**	-.001	1.000	-.217**
		Sig. (2-tailed)	.000	.977	.	.000
		N	417	417	417	417
	POMP score on attitude towards doping	Correlation Coefficient	-.307**	.300**	-.217**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	417	417	417	417

*. Correlation is significant at the 0.05 level (2-tailed), **. Correlation is significant at the 0.01 level (2-tailed).

The results in Table 4.11 show that mastery perceived motivation climate (MPMC) has a significant positive relationship (correlation) with DCE (rho=0.447, p<0.001) but has a significant inverse relationship (negative correlation) with performance perceived motivational climate (PPMC) (rho=-0.98, p=.45) and attitudes towards doping (rho=-0.307, p<0.001). Secondly, performance perceived motivation climate (PPMC) has a significant correlation to attitudes towards doping (rho=0.300, p<0.001). Therefore, PPMC accounts for 9% of the attitudes towards doping. Thirdly, there is a significant inverse relationship (negative correlation) between DCE and attitudes towards doping (rho=-.217, p<0.001) which means that coaches with high DCE have negative attitudes towards doping (anti-doping). It is important to note that there is a significant inverse correlation between POMP

score on mastery perceived motivation climate and POMP score on performance perceived motivation climate (rho=-.098, p=.045).

Hypothesis 4: There are significant differences in the coaches' motivational climate, doping confrontation efficacy and attitudes towards doping between coaches in individual, combat and team sport**.**

The hypothesis was tested through independent Kruskal-Wallis test and significant correlations were subjected to pairwise comparisons. The comparisons of POMP score on key dependent variables across sport category using Independent-Samples Kruskal-Wallis Test showed significant differences in familiarity/knowledge on performance enhancing substances ($p < .001$), coaches roles and responsibilities in anti-doping ($p = .030$), and on attitude towards doping ($p < .001$).Pairwise comparisons revealed that, regarding familiarity/knowledge on PES, coaches in team sports (mean ranks = 198.70) differed significantly from those in individual sports (mean ranks = 240.01, $p = .041$) and those in combat sport (mean ranks = 307.56, $p = .001$). In this case, coaches in team sports had the lowest mean ranks. On roles and responsibilities, coaches in team sports (mean ranks = 203.32) differed from those in combat sport (mean ranks = 276.65, $p = .040$). In this case, coaches in team sports had the lowest mean ranks. In regard to attitudes towards doping coaches in team sport (mean ranks = 221.81) differed from those in combat (mean ranks = 117.18, $p = .001$) and individual sports (mean ranks = 160.35, $p = .001$). Here coaches in team sport had higher mean ranks than those other categories. On the other hand, there were no significant differences on the coaches' perceived motivational climate and doping confrontation efficacy across type of sport ($p>.05$).

CHAPTER 5: DISCUSSION

The purpose of this study was to examine the coaches' knowledge on their anti-doping roles and actions, motivational climate, doping confrontation efficacy and attitudes towards doping and clean sport. The findings of the study have valuable implications to the coaches and other athlete support personnel (ASP), sport federations, anti-doping agency of Kenya (ADAK) and other ADOs operating in Kenya, national Olympic committee of Kenya (NOCK) and the ministry of sport in their effort to curtail doping and champion the cause of clean sport. Hopefully these findings will assist the country and Athletics Kenya (AK) in moving out of the category A as placed by the athletics integrity unit (AIU). The findings have lots of relevance to the ADE and prevention programmes offered to coaches by ADAK and other sport federations.

The study's findings reveal that 57% of coaches had attended anti-doping workshops or seminars within the past 12 months, while 43% had not participated in such training. The significant proportion of coaches who have not received anti-doping education is concerning, as it may limit their ability to guide athletes on doping-related issues. This aligns with previous research indicating that the majority of coaches have not engaged in formal anti-doping education (Patterson et al., 2019; Sajber ,Rodek ,Escalante ,Olujic & Sekulic , 2013). For instance, Patterson et al. (2019) found that 25% of coaches had never received any anti-doping education, and only a third had participated in formal training programs in the UK. Additionally, Lim, Nair ,Chua ,Mahmood ,Imran ,Shamsuddin, et al. (2024) reported that in 11 countries across South Asia, only a small number of athlete support personnel including coaches, had attended doping-related courses. Further studies suggest that in the absence of formal training, coaches often resort to self-education, primarily relying on internet resources to acquire anti-doping knowledge (Blank et al., 2014; Engelberg & Moston, 2015; Mandic ,Peric ,Kuzalj ,Stankovic & Zenic, 2013; Patterson et al., 2019; Sajber et al., 2013).

Eighty-one percent (81%) of the coaches had witnessed discussions on anti-doping in the last 12 months. This contrasts with findings from other studies indicating that coaches generally have low self-efficacy in engaging in anti-doping conversations (Patterson & Backhouse, 2018). While this level of engagement is encouraging, the fact that 19% of

coaches have not participated in such discussions is a significant concern for sports stakeholders in Kenya. Additionally, previous research from other regions has shown that many coaches provide anti-doping advice without reviewing the World Anti-Doping Code (WADC) or receiving formal anti-doping education (Mandic et al., 2013; Mazanov et al., 2013). Barnes et al. (2022) further observed that most coaches have never undergone formal anti-doping training, instead relying on self-education through internet resources or personal experience. This raises the possibility that some coaches either do not attend or are not invited to anti-doping workshops organized by ADAK.

5.1. Knowledge and awareness of global and national anti-doping frameworks

The study was out to establish the coaches global and national anti-doping frameworks which incorporated awareness of WADA, ADAK activities, familiarity with doping matters such as WADC, performance enhancing substances and methods. The other doping issues investigated were the coaches' knowledge on anti-doping rule violations (ADRVs), side effects of performance enhancing substances, consumption of dietary supplements, testing procedures and their sources of anti-doping education.

Findings of the study indicate that 90% of the coaches had heard about WADA and ADAK. This is welcome scenario but the 10% of the coaches who have not heard about WADA and ADAK is alarming as they may not assist athletes at their disposal on anti-doping matters. Forty-seven percent of the coaches felt that they are well-informed about doping in sport and they had a slightly above average level (62%) of familiarity with doping matters. These matters include the world anti-doping code (WADC), performance enhancing substances and methods, anti-doping rule violations (ADRV), side effects of performance enhancing substances and methods, consumption of dietary supplements, marijuana and testing procedures. These findings resonate with previous studies which have shown that coaches were knowledgeable about general doping regulations and control procedures such as testing but less knowledgeable about specific aspects of these control procedures such as biological passport and the whereabouts system (Engelberg et al., 2017). Therefore, there is need for coaches in Kenya to increases their anti-doping knowledge. Other studies have indicated that coaches had low knowledge of specific banned substances and their associated side effects (Sajber et al., 2013; Seif-Barghi,Halabchi ,Dvorak &

Hossennejad, 2015). This calls upon sport federations and ADAK to heighten their anti-doping education for coaches. However, this has to be done bearing in mind that some past studies have reported that some coaches often lack confidence and knowledge to engage in anti-doping discussions with their athletes and are often reluctant to participate in anti-doping education (Barkoukis, Brooke, Ntoumanis, Smith & Gucciardi , 2019; Patterson & Backhouse, 2018; Patterson et al., 2014). Previous studies suggest that coaches often see little need to familiarize themselves with the World Anti-Doping Code (WADC). Even those who are aware of it frequently feel that its policies have little influence on their actual coaching practices (Barnes et al., 2020). Additionally, research indicates that many coaches show little interest in expanding their knowledge on doping-related issues and are unlikely to pursue further learning, as doping is not widely recognized as a concern within their coaching context whether in terms of sport, country, competition level, or athlete development stage (Engelberg & Moston et al., 2015; Fung & Yuan, 2006; Mandic et al., 2013). Peters,Schultz ,Oberhoffer and Michna, (2009) found that 34% of coaches (n=620) felt inadequately informed about doping, particularly at lower competitive levels, and more than two-thirds expressed a desire for additional information on the subject.

Blank et al. (2014) highlighted that coaches with greater knowledge of doping can foster positive anti-doping attitudes and prevent the development of pro-doping perspectives. Conversely, some coaches lack sufficient understanding of doping and hold favorable views toward it (Morente-Sanchez & Zabala, 2015). While coaches generally recognize the significance of anti-doping measures, their knowledge of prohibited substances and the repercussions of non-compliance remains limited (Barnes et al., 2022). Despite these gaps, many continue to offer anti-doping advice without consulting appropriate references or undergoing formal anti-doping education (Barnes et al., 2022).

The primary sources of doping-related information for coaches were ADAK, the internet, and television. While the study did not examine the specific internet sources utilized, their credibility may be questionable. Additional reported sources included coaching studies, seminars, friends, and WADA. These findings contrast with research indicating that sports science students at Kenyan universities primarily relied on lecturers for doping information (Rintaugu & Mwangi , 2021), while elite athletes identified Athletics Kenya (AK) as their

main source (Chebet, 2014). Notably, only 39% of coaches reported consulting WADA. Previous studies have shown that many coaches have limited awareness of internet-based WADA resources, such as Coach True, which could help improve their understanding of anti-doping regulations and their broader responsibilities under the WADC (Allen et al., 2017; Patterson & Backhouse, 2018; Patterson et al., 2019). In contrast, Blank et al. (2014) found that Austrian coaches had doping-related knowledge, with their information sources including secondary school curricula and seminars.

5.2 Roles and Responsibilities

Coaches have designated roles and responsibilities under the World Anti-Doping Code (WADC) (WADA, 2015) and are required to comply with anti-doping regulations. Research indicates that coaches generally perceive themselves as having an influence over their athletes' doping decisions (Allen et al., 2017; Barkoukis et al., 2019) and recognize their role in anti-doping efforts (Barkoukis et al., 2019; MacNamara & Collins, 2014; Morgan & Smith, 2018; Patterson & Backhouse, 2018). Their coaching philosophy and overall perception of their role guide their behaviors, shaping the issues they address and the actions they take (Bennie & O'Connor, 2010; Gilbert & Trudel, 2004; Nash,Sproule & Horton, 2008).

Some studies suggest that coaches generally support anti-doping initiatives (Blank et al., 2014; Poppel & Bush, 2019; Rodek,Sekulic & Kondric , 2012), with many embracing clean sport as a fundamental part of their broader coaching philosophy (Allen et al., 2015). However, some coaches argue that anti-doping responsibilities are not central to their role, as their priority is optimizing athletic performance (Patterson & Backhouse, 2018). Other studies highlight that some coaches do not view anti-doping education as part of their responsibilities (Engelberg & Moston, 2015; Morgan & Smith, 2018), despite acknowledging its potential positive impact on athletes (Thomas,Dunn ,Swift & Burna, 2011) and expressing interest in further anti-doping education themselves (Patterson et al., 2019).

When coaches fail to actively engage in their anti-doping responsibilities, these duties often default to authority figures or medical staff (Allen et al., 2017; Barkoukis et al., 2019;

Engelberg & Moston, 2018; Patterson & Backhouse, 2018). Laure et al. (2001) found that although most coaches lacked in-depth knowledge about doping in sports, they still demonstrated anti-doping attitudes and acknowledged their role in promoting clean sport (Fung & Yuan, 2006). Similarly, Blank et al. (2014) reported that the majority of Austrian coaches in a study of 62 participants neither prepared their athletes for doping controls nor integrated doping prevention into their training routines.

Findings from this study indicate that coaches are aware of their anti-doping responsibilities, with a POMP score of 78%. Specifically, they recognize the need to cooperate with anti-doping organizations (ADOs) in investigating anti-doping rule violations (ADRVs) (85%), refrain from using or possessing prohibited substances or methods without valid justification (84%), and comply with the athlete testing program (84%). Studies suggest that coaches generally support anti-doping efforts (Blank et al., 2014; Poppel & Busch, 2019; Rodek et al., 2012), with many considering the use of banned substances to be unethical and morally wrong (MacNamara & Collins, 2014; Nicholls et al., 2015). Laure et al. (2001) similarly found that 98.1% of professional coaches believed they had a role to play in anti-doping.

However, Backhouse and McKenna (2012) reported that some coaches find their anti-doping responsibilities unclear and problematic. Other studies show that while coaches acknowledge their role in doping prevention (Engelberg & Moston, 2015), many lack sufficient anti-doping knowledge (Lim et al., 2024). Additionally, while some research suggests that most coaches discuss doping-including its negative health effects (Vankhaldo & Planida, 2013) with their athletes (Engelberg et al., 2017), other studies indicate that doping-related discussions remain infrequent (Laure et al., 2001; Mazanov et al., 2014). Many coaches also lack awareness of their own responsibilities in fostering anti-doping attitudes among athletes (Lim et al., 2024).

5.3 Perceived Motivation Climate

Coaches shape a performance-oriented motivational climate when they define success through winning, reward only top performers, and prioritize surpassing competitors. Conversely, a mastery-oriented motivational climate fosters effort, cooperation, learning,

and personal growth (Ames, 1992). Research has indicated that a mastery-driven coaching approach is linked to attitudes that support anti-doping, leading to a lower risk of doping (Allen et al., 2015; Cleret, 2011). In contrast, a performance-driven climate has been associated with positive attitudes toward doping and unethical behavior (Allen et al., 2015; Kipchumba et al., 2022).

Athletes who perceive their team environment as predominantly performance-focused may feel greater pressure to use banned substances to gain an advantage over their peers. Conversely, a mastery-oriented climate encourages athletes to view success as an individual developmental journey, reducing external pressure from competitive comparisons. This perspective helps alleviate the temptation to engage in doping (Kristensen, Kavussanu ,& Ommundsen, 2023).

Studies on motivational climate has established a strong link between a mastery-oriented climate and sportsmanship behaviors, such as respect for team officials, adherence to game rules, and positive interactions with teammates and opponents (Stanger et al., 2018). In contrast, a performance-oriented climate has been associated with unsportsmanlike behaviors, including taking shortcuts, cheating, and intentionally disadvantaging competitors (Stanger et al., 2018). Previous studies on motivational climate and doping among athletes in Kenya have yielded mixed results (Kipchumba et al., 2022; Ngetich,Rintaugu & Gitau , 2024; Mwangi et al., 2019). For instance, Mwangi et al. (2019) found that a performance-oriented climate had the most significant influence on attitudes toward doping among sport science students in Kenya. Similarly, Kipchumba et al. (2022) observed an inverse relationship between mastery climate and doping attitudes, as well as a significant positive correlation between performance climate and doping attitudes among elite long-distance runners in Kenya. Additionally, Ngetich et al. (2024) discovered that coach-initiated motivational climate contributed to 18.6% of the variance in doping attitudes among Kenyan secondary school athletes.

Consistent with findings from previous studies (Kipchumba et al., 2022; Mwangi et al., 2019), coaches in this study predominantly emphasized a mastery motivational climate (85.21 ± 13.3) over a performance motivational climate. This emphasis is highly commendable, as athletes who train in a mastery-focused environment are less likely to

engage in doping. Hardwood,Keegan ,Smith and Raine, (2015) asserts that a coach-initiated mastery climate; one that promotes effort, improvement, cooperative learning, and role assignments positively linked to task-oriented goals, prosocial behavior, confidence, self-esteem, competence (both self-referenced and overall), intrinsic motivation, positive affect, and overall athletic engagement.

These findings align with previous studies showing that coaches who foster a mastery motivational climate tend to promote stronger anti-doping attitudes (Allen et al., 2015; Dimeo et al., 2012). Research involving Scottish elite athletes (Allen et al., 2015; Dimeo et al., 2012) revealed that athletes' perceptions of a mastery-oriented coaching environment -where effort, learning, and personal development are prioritized, were associated with attitudes more conducive to anti-doping and a lower risk of doping (Allen et al., 2015; Backhouse & McKenna, 2012). Similarly, among elite Kenyan long-distance runners, Kipchumba et al. (2022) found a positive association between mastery climate and anti-doping attitudes, whereas a performance climate was linked to pro-doping attitudes.

On the other hand, performance-oriented coaching climates have been associated with various maladaptive outcomes, including ego-driven goals, negative emotions, antisocial behavior, norm-referenced competence, and reduced athletic engagement (Curran,Hill ,Hall & Jowett, 2015; Eys ,Jewitt ,Evans ,Wolf ,Bruner & Longhead, 2013). Given the emphasis on mastery climate by coaches in this study, athletes under their guidance are expected to be less permissive toward doping.

5.4: Doping confrontation efficacy

Sullivan et al. (2015) suggest that the more confidence a person has in their ability to confront wrongdoing, the more likely they are to address the issue directly. Previous research indicates that coaches often lack both the confidence and knowledge needed to engage in anti-doping discussions with their athletes, making them hesitant to participate in anti-doping education programs (Barkoukis et al., 2019; Patterson & Backhouse, 2018; Patterson et al., 2014). Additionally, some studies reveal that certain coaches feel uneasy confronting athletes they suspect of doping (Boardley et al., 2019; Sullivan et al., 2015), with some lacking the confidence necessary to initiate such discussions (Boardley et al.,

2019). Research also highlights that athletes' perception of their coaches' valuesespecially regarding issues such as cheating and rule violation plays a significant role in shaping doping confrontation efficacy (Shields, Lavoi ,Bredemeir & Power , 2007).

Findings from this study indicate that coaches demonstrated a doping confrontation efficacy (DCE) score of 78%, suggesting a relatively high level of confidence in addressing doping-related concerns. These results contradict previous studies that have found coaches reluctant or unable to confront athletes suspected of doping (Backhouse & Patterson, 2018; Boardley et al., 2019; Patterson et al., 2019). For example, some coaches reportedly lack the confidence to provide advice or initiate conversations about doping with their athletes (Engelberg & Moston, 2015; Judge,Bellar ,Petersen ,Gilreath & Wanless , 2010; Patterson & Backhouse, 2018; Patterson et al., 2019), while others feel uncomfortable confronting suspected doping athletes directly (Boardley et al., 2019; Sullivan et al., 2015).

Among athletes, higher perceived DCE has been linked to a greater likelihood of addressing suspected doping, regardless of whether the individual involved is a teammate or an opponent (Harris et al., 2023). Coaches with strong DCE beliefs are more likely to help athletes navigate and resist doping pressures (Sullivan & Razavi, 2017), whereas those with weaker beliefs are less inclined to confront doping-related issues. Elevated levels of perceived DCE correlate with reduced positive attitudes toward doping among athletes. Conversely, low self-efficacy in coaches is often characterized by a lack of doping knowledge compared to other athlete support personnel, such as team doctors (Patterson & Backhouse, 2018). Similarly, some coaches struggle to provide accurate information due to insufficient knowledge and a perception that anti-doping initiatives are not relevant to their role (Patterson & Backhouse, 2018). Boardley et al. (2019) found that individuals with lower confidence in their ability to confront doping are less likely to engage in such confrontations. Furthermore, Boardley et al. (2019) identified five key dimensions of DCE that influence confrontation behaviors.

5.5 Attitudes towards Doping

Coaches' attitudes play a crucial role in shaping athletes' intentions regarding doping. Kaiser (2006) asserted that attitudes reflect an individual's moral perspective, with

morality serving as a foundation for attitude development. Research by Aldhous (2008) suggests that coaches influence doping-related attitudes, particularly among athletes who experience frequent communication with their coaches, receive punishment for mistakes, face encouraged rivalries, or witness unequal recognition among teammates -factors that contribute to more favorable doping attitudes. Malete,Chow and Feltz, (2013) found that coaches who endorse doping facilitate the use of performance-enhancing drugs (PEDs) and illegal methods to boost athletic performance, while Matosic,Ntoumanis ,Boardley ,Stenling and Sedikides, (2016) observed that athletes often reflect their coaches' attitudes toward doping.

The findings of this study indicate that coaches generally hold negative attitudes toward doping, signalling progress in the right direction. This aligns with prior research, which has shown that coaches uphold anti-doping attitudes (Allen et al., 2017; Sajber et al., 2013) and recognize their role in doping prevention (Laure et al., 2001; Judge et al., 2010; Nicholls et al., 2015). However, these findings contradict studies reporting that some coaches possess favorable views toward doping (Fung & Yuan, 2006; Ntoumanis et al., 2017). Additionally, Tahiraj,Zenic ,Musa ,Zeljko and Rodek, (2024) identified a higher likelihood of positive attitudes toward doping among male coaches compared to female coaches, as well as among those who perceive doping as prevalent in their sport. The authors suggest that men may generally be more inclined toward risk-taking behavior than women (Byrnes,Miller & Schater , 1999).It is notable that fewer women than men are involved in coaching individual and team in Kenya (Kariuki ,Okemwa & Rintaugu ,2023) despite the numerous government policies which have stipulated the importance of gender equity and gender mainstreaming in all the sectors of development. The few women involved in coaching could be attributed to gender-based ideologies such as traditional beliefs about women's roles in society, credibility of women as sport coaches, sexual harassment and stereotyping women as less capable (Kariuki et al.,2023).

Kirby et al. (2011) found that coaches play a relatively limited role in shaping doping attitudes and behaviors, despite athletes often justifying their doping choices based on their coaches' actions (Dodge & Robertson, 2004). Beyond coaching influence, negative

attitudes toward doping have also been documented among Kenyan college athletes (Kamenju et al., 2016) and elite athletes (Boit et al., 2014).

5.6 Demographic factors and doping issues of the coaches

The study hypothesized that coaches' roles, actions, motivational climate, doping confrontation efficacy, and attitudes toward doping would vary significantly based on demographic factors such as gender, age, and type of sport. Previous research, including Boardley et al. (2019), has suggested that female coaches demonstrate greater empathy during doping confrontations compared to their male counterparts. Additionally, coaches with higher coaching qualifications have been linked to stronger self-reported discouragement of athletes' use of performance-enhancing drugs (PEDs) (Judge et al., 2010).

It was anticipated that demographic factors would influence coaches' roles and responsibilities, motivational climate, doping confrontation efficacy, and attitudes toward doping, as indicated by previous studies. However, the study's findings revealed no significant variations in coaching-related doping factors based on age and gender. These results align with earlier studies, such as Psouni,Zourbanos and Theodorakis , (2015), which also found no gender-based differences in coaches' attitudes toward doping. This is despite the fact that many studies have indicated that males engage in doping behaviours more than females (Collomp ,Erickson ,Bernier & Buisson ,2022 ;Sekulic,Tahiraj ,Zvan ,Uljenic & Lesnik 2016 ;Tavares ,Serpa ,Horta & Rosado et al.,2020 ;Weaving & Teezel ,2008).This gender difference in doping tendencies is attributed to the self-perception of the presence of doping and hesitation against doping .Similarly ,males are more likely to take risks than females even when it is clear that it is a bad idea to take a risk (Byrnes et al.,1999) which has been referred as an attribute of masculine psychology(Byrnes et al.,1999).

Although it was expected that coaches' attitudes toward doping would differ based on age, the study found no significant differences. This contrasts with previous assertions that younger coaches tend to hold more pro-doping views compared to older coaches (Psouni et al., 2015). Psouni et al. (2015) observed that younger coaches appeared more open to

encouraging athletes to consider doping. It is possible that younger coaches may prioritize achieving major athletic goals more than their older counterparts, regardless of the methods used.

However, doping-related variables did show significant differences based on the type of sport, particularly in terms of familiarity with anti-doping knowledge, performance motivational climate, and attitudes toward doping. These findings contradict studies that reported no significant differences in coaches' attitudes toward doping based on the sport type (Psouni et al., 2015). Similarly, Hovhannisyan (2022) found no notable differences in anti-doping knowledge between team and individual sport disciplines among both coaches and athletes.

Regarding familiarity with anti-doping knowledge, coaches in ball games differed from those in individual and combat sports. Coaches in combat sports had the highest mean ranks, followed by those in individual sports. This discrepancy could be attributed to combat sport coaches attending more anti-doping workshops and seminars both locally and internationally. Additionally, given the relatively small number of combat sport coaches in the country, they may have more opportunities to share anti-doping knowledge among themselves.

In terms of coaches' roles and responsibilities, those in combat sports exhibited higher mean ranks compared to those in team sports. Previous studies suggest that doping is less prevalent in team sports, leading coaches to focus more on improving athletic performance rather than addressing doping concerns. It is plausible that federations and associations governing team sports in Kenya should emphasize anti-doping education and frequently organize seminars and workshops for their coaches, to reinforce their awareness of anti-doping roles and responsibilities.

Regarding attitudes toward doping, coaches in team sports displayed higher mean ranks, indicating more pro-doping attitudes compared to those in combat and individual sports. This result is surprising as team sports generally have a lower prevalence of doping, thus need for more studies to shed light into the matter.

5.7: Relationship between coaches' motivational climate and doping confrontation efficacy

The study hypothesized a positive and significant relationship between coaches' motivational climate and their doping confrontation efficacy. The findings revealed a significant correlation between mastery-perceived motivational climate and doping confrontation efficacy (rho=0.447, $p<0.001$), indicating that mastery-perceived motivational climate accounts for 20% of doping confrontation efficacy. Conversely, no significant relationship was observed between perceived performance motivational climate (PPMC) and doping confrontation efficacy (rho=-0.001, p=0.977), suggesting that coaches who advocate for PPMC are less likely to confront athletes engaged in or suspected of doping.

These findings align with previous studies, which have demonstrated that confrontation efficacy is negatively associated with an ego-involving climate and positively linked to a task-involving climate. Ego-involving climates are characterized by coaching behaviors that include punishing athletes for mistakes, fostering intra-team rivalry, and providing uneven recognition based on ability. This coaching style is consistent with a "win at all costs" mentality, where coaches may feel less inclined or invested in addressing doping among athletes (Sullivan, 2013).

Our findings further support prior research indicating that coaches' confrontation efficacy is significantly influenced by their goal orientations (Sullivan et al., 2015). Specifically, confrontation efficacy was positively correlated with coaches' task-involving orientation and negatively associated with an ego-involving approach.

5.8: Relationship between coaches' motivational climate, doping confrontation efficacy and attitudes towards doping.

Previous studies have demonstrated that athletes' perceptions of their coaches' doping confrontation efficacy influence various doping-related outcomes, including attitudes (Sullivan & Razavi, 2017) and susceptibility to both intentional and unintentional doping (Boardley et al., 2019). In fact, athletes who perceive their coaches as highly effective in

confronting doping tend to exhibit more negative attitudes toward doping (Sullivan & Razavi, 2017).

This study hypothesized a significant and positive association between coaches' motivational climate, doping confrontation efficacy, and attitudes toward doping. Findings revealed that a mastery-oriented motivational climate was positively correlated with doping confrontation efficacy (rho=0.447, $p<0.001$) but had a significant inverse relationship with both performance-oriented motivational climate (rho=-0.98, p=0.45) and attitudes toward doping (rho=-0.307, $p<0.001$). This suggests that athletes operating within a high-performance-oriented motivational climate tend to exhibit stronger attitudes toward doping and are more likely to engage in such behaviors. These results align with Patterson and Backhouse's (2018) findings, which indicated that athletes' perceptions of their coaches' doping confrontation efficacy played a mediating role in shaping their own anti-doping attitudes, although this accounted for only about 8% of the variations in these attitudes.

Motivational climate has been linked to attitudes toward doping, with coach-created mastery climates associated with stronger anti-doping perspectives (Allen et al., 2015; Bae et al., 2017; Hodge et al., 2013; Kavussanu, 2016; Stanger et al., 2018). Conversely, performance-oriented climates have been found to predict higher doping intentions among athletes, whereas mastery climates discourage doping tendencies (Allen et al., 2015; Bae et al., 2017; Mwangi et al., 2019). In this study, perceived performance-oriented motivational climate showed a significant correlation with attitudes toward doping (rho=0.300, $p<0.001$), suggesting that it contributes approximately 9% to athletes' doping attitudes.

These findings support Kipchumba et al. (2022), who observed that athletes in mastery-oriented climates tended to exhibit anti-doping attitudes, while those in performance-oriented climates showed pro-doping inclinations. Furthermore, Kipchumba et al. (2022) identified a significant inverse relationship between motivational climate and doping attitudes, as well as a significant positive correlation between performance climate and doping attitudes.

Encouraging coaches to foster a mastery-oriented motivational climate, rather than a performance-driven one, could significantly bolster anti-doping efforts, as mastery climates have been found to discourage doping in sports (Allen et al., 2015). Allen et al. (2015) also noted that a coach's motivational climate shapes athletes' task or ego orientations, which, in turn, strongly influence their pro-doping or anti-doping attitudes.

5.9: Differences in coaches' motivational climate, doping confrontation efficacy and attitudes towards doping based on the type of sport.

The study findings indicate that there were no significant differences in coaches' perceived motivational climate and doping confrontation efficacy across different sports. However, variations were observed in coaches' familiarity and knowledge of performance-enhancing substances (PES) across sports. Coaches in team sports exhibited the lowest mean ranks compared to those in individual sports (such as athletics and swimming) and combat sports (including boxing, judo, and wrestling). This disparity is unsurprising, as previous research suggests that doping in combat sports is often associated with efforts to enhance individual performance and manipulate or lower their weight categories (Danjanovic,Rossi ,Manobopoulos ,Matijevic ,Korpak & Kurtanovic , 2025). Furthermore, these findings align with research by Morente-Sanchez and Zabala (2015), which reported that coaches and physical trainers tend to have limited knowledge of PES.

Regarding coaches' familiarity with and understanding of performance-enhancing substances and methods, earlier studies suggest that interactions between coaches and athletes on doping-related issues are infrequent (Laure et al., 2001; Mazanov et al., 2014). In terms of coaches' roles and responsibilities, team sport coaches had the lowest mean ranks compared to those in individual and combat sports. This is consistent with previous findings indicating that doping is not typically viewed as a significant issue within team sports coaching contexts (Mandic et al., 2013), and many team sport coaches perceive doping as irrelevant to their discipline.

Concerning attitudes toward doping, team sport coaches displayed higher mean ranks than those in individual and combat sports. This raises speculation that team sport coaches may hold more permissive attitudes toward doping and could inadvertently contribute to its

prevalence within their sport. These results contradict prior studies that have reported largely negative attitudes toward doping among coaches (Backhouse & McKenna, 2012; Lim et al., 2024).

6: CONCLUSIONS AND RECOMMENDATIONS

6.1: Conclusions

1. Most (74%) of the coaches were males while 26% were females and slightly over 50% of the coaches were relatively young (within the age category of 25 -35 years). Most (80%) of the coaches had college and university education. A significant minority (22.5%) of the coaches did not have any coaching certification and slightly over half (50%) of the coaches had 1-5 years of coaching experience which resonates with their relatively youthful age.
2. Fifty-six (56%) of the coaches had attended anti-doping workshops/seminars and eighty percent (80%) of the coaches had witnessed information/discussions on anti-doping in last 12 months.
3. Ninety percent of the coaches had heard of WADA and ADAK and forty-seven percent of the coaches felt that they were well informed about anti-doping with a POMP score of 62%.
4. Coaches' main sources of anti-doping information comes from ADAK, internet and TV and over 70% of the coaches are aware of their anti-doping roles and responsibilities.
5. Coaches emphasize on mastery motivational climate more than performance motivational climate and they have highly perceived doping confrontation efficacy and negative attitudes towards doping.
6. Coaches perception of their anti-doping roles and actions does not differ based on their age and gender but differs based on the type of sport (familiarity/knowledge, performance perceived motivational climate and attitudes towards doping).
7. There is a significant positive relationship between motivational climate and doping confrontation efficacy. Coaches who emphasize mastery motivational climate are likely to confront athletes who are suspected of doping.

8. There is a positive association between coaches' motivational climate doping confrontation efficacy and attitudes towards doping.

6.2: Recommendations

1. There is need for sport federations to ensure that coaches who are training athletes are certified either by the local or international sport federations. At the same time, the local and international sports federations need to incorporate anti-doping education (ADE) in their coaches' certification courses at all levels.

2.Sport federations and ADAK need to ensure that anti-doping workshops/seminars are organized and attended by coaches. Indeed, this should be on annual basis to ensure that coaches are kept abreast with new developments on anti-doping and clean sport. The content of these workshops should include themes on how coaches can champion the course for mastery motivational climate which is associated with anti-doping tendencies.

3.To ensure that coaches actively contribute to promoting clean sport, sport federations should mandate regular anti-doping engagement as part of coaches' responsibilities. This can be done through the following actions:

a. Incorporating anti-doping responsibilities into coaches' performance contracts. Sport federations should revise coach's contracts to include a clause that requires them to engage in quarterly anti-doping discussions with athletes and other athlete support personnel.

b. Coaches need to establish structured clean sport sessions. In this regard, coaches must organize or participate in at least four structured sessions per year (e.g. workshops, seminars or team meetings) focused on clean sport education involving both athletes and athlete support personnel.

c. National sport federations and ADAK should provide support resources to such as ready to use materials (e.g. slides, decks, videos or WADA tools like Coach true) to facilitate their anti-doping discussions with athletes and athlete support personnel confidently and effectively.

4.The fact that 10% of coaches are unaware of ADAK/WADA highlights a significant gap in the ADAKs outreach and visibility. Therefore, ADAK should intensify its direct outreach to coaches, creating mobile-friendly content and social media campaigns targeting coaches. ADAK should collaborate with coaching associations to integrate ADE into certification and refresher programs. Coaches need to be encouraged to regularly visit the WADA and ADAK websites for updates.

5.Coaches are aware of their roles and responsibilities but there are variations based on the type of sport. In this regard, there is need for sport federations and ADAK to continuously remind the coaches of their responsibilities especially those that are specific to anti-doping.

6.Coaches have highly perceived DCE and therefore sport federations in collaboration with ADAK need to develop coach education programs on anti-doping that incorporates elements specifically focused on developing coaches' abilities to effectively confront athletes on doping issues.

7.Coaches have negative attitudes towards doping and therefore there is need to translate these attitudes into informed practice active behaviours such as confidently educating athletes on doping risks, identifying potential doping behaviour, referring athletes to credible information and staying updated on evolving anti-doping rules.

6.3: Recommendations for future research

1. There is need to conduct qualitative studies that can consider the influence of coaches doping confrontation efficacy on actual doping behaviors of athletes.
2. It would be apt to conduct a study on how coaches doping confrontation efficacy could predict actual confrontational behavior and the coach characteristics which could significantly predict the success factors of confrontation efficacy.
3. It would be plausible to investigate on why coaches with high doping confrontation efficacy are not able to confront athletes who are doping or suspected to dope.

4. Future studies can investigate the content and uptake of coaches' anti-doping education offered by WADA and ADAK.
5. Further studies can evaluate coaches' DCE from the perspective of the athletes they train.
6. There need to investigate the recorded high attitude towards doping mean ranks of team coaches compared to individual and combat sports to establish if there is changing trends and the possible implications.

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APPENDICES

APPENDIX I: PARTCIPANTS' INFORMED CONSENT FORM

CONSENT TO PARTICIPATE IN THE RESEARCH STUDY

Title of Study: Examination of coaches doping knowledge, motivational climate, confrontation efficacy and attitudes towards doping of coaches in selected sport in Kenya.

What you should know about the research study

We give you this consent form so that you may read about the purpose, risks and benefits of this research study. The main purpose of this study is to gain doping knowledge, motivational climate, confrontation efficacy and attitudes towards doping of coaches in selected sport in Kenya. This knowledge is apt in curtailing both advert and inadvertent doping in Kenya.You have the right to refuse to participate in this study, or if you agree, you still have the right to change your mind later. Please review this consent form carefully and ask any questions before you decide.

Who is doing the study?

Investigator's Information:

Investigators: Prof**.** Elijah Gitonga, Ph.D.

Primary contact: Dr. Francis Mundia, Ph.D.

Secondary Contact: Dr. Martin Yauma,Ph.D.

International team: World Anti-doping Agency (WADA

Procedures to be followed

Participation in this study will require that you respond to the questionnaire attached, in your capacity as a coach in one of the sports in Kenya. You have the right to refuse participate in this study. Please remember the participation in this study is voluntarily. You may ask questions related to the study at any time. You may refuse to respond to any questions, and you may withdraw from the study at any time with no consequences. This withdraw will have no implications on your coaching career.

Discomforts and Risks

If you feel uncomfortable or under any form of risk to respond to any part of this questionnaire, you may refuse to answer the questions if you so choose. Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these questions if you so choose. The questionnaire may take you approximately half an hour of your time to fill**.**

Benefits

If you participate in this study, you will help us to learn the role and actions of coaches in the fight against doping in Kenya with a view of ensuring that the clean sport is safe for both current and future generations. There are no direct cash benefits for participating in the study.

Volunteerism

Participation in the study is on voluntary basis. You have the right to refuse participation in this study. You will get the same services and care whether you agree to join the study or not and your decision will not change the care you will receive. Please remember the participation in this study is voluntarily. You may ask questions related to the study at any time.

Reward

There are no rewards or any payment to you if you participate.

Confidentiality

The questionnaire filling will be treated with confidence. Your name will not be recorded anywhere in the questionnaire. The questionnaires will be kept in a locked cabinet for safe keeping. Everything will be kept private and only shared with the study team.

Contact Information

Principal Investigator: Prof**.** Elijah Gitonga, Ph.D. Tel: 0727649790

Primary contact: Dr Francis Mundia-0722761379

Secondary Contact: Dr Martin Yauma-0723942101

International team: World anti-doping agency (WADA)

Kenyatta University Ethical Review Committee Secretariat chairman.kuerc@ku.ac.ke, secretary.kuerc@ku.ac.ke, secretariat.kuerc@ku.ac.ke

Participant's statement:

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time

Name of Participant …….…….

_____ _____

Signature or Thumbprint Date

Investigators statement:

I, the undersigned, have explained to the volunteer in a language s/he understands, the procedures to be followed in the study and the risks and benefits involved

Name of Interviewer ……

_____ _____

Signature or Thumbprint Date

APPENDIX II: QUESTIONNAIRE FOR COACHES

The purpose of this questionnaire is to understand your knowledge on the roles and actions of coaches in anti-doping, coaches' motivational climate, doping confrontation efficacy and attitudes towards doping as you continue coaching in your sport. Findings of this study will be useful in coming up with policies and practices which can be used to reduce the anti-doping rule violations (ADRV's) among Kenyan athletes. Please respond to all items in the questionnaire with due honesty and objectivity.

SECTION A: Demographic Information

Please tick or fill in where applicable.

01. Gender Male ☐ Female ☐

02. Age category (yrs)

25-30; ☐ 31-35; ☐ 36-40; ☐ 41-45; ☐ 46-50; ☐ Over 50; ☐

03. Sport discipline……

04. Highest academic qualification……

05. Highest certification in coaching……..

06.Number of years of coaching; 1-5; 6-10; 11-15; ☐ 16-20; ☐
21-25; ☐ Over 25 ☐ ☐ ☐

07. Have you ever attended any anti-doping session or workshop? Yes ☐ No ☐

08. Have you ever witnessed information discussions on Anti-Doping? Yes ☐ No ☐

SECTION B: Knowledge on Performance Enhancing Substances and Methods in Sport

This section intends to assess your knowledge on performance enhancing substances and methods that can be used by athletes to enhance their sport performance. Please answer to the best of your knowledge by filing in or ticking the options of your choice.

1. Have you ever heard of World Anti-Doping Agency? (WADA) YES/NO]

Yes ☐ No ☐

2. Have you ever heard of Anti-doping Agency of Kenya? (ADAK) YES/NO]

Yes ☐ No ☐

3. How informed do you feel you are in relation to doping in sports? YES/NO]

Poor ☐
Below average ☐
Average ☐
Good ☐
Excellent ☐

4. Please respond on your level of familiarity in relation to the following statements:

1. Not at all Familiar, 2. Slightly Familiar, 3. Somewhat Familiar, 4. Moderately Familiar, 5. Extremely Familiar. (Tick/circle the number based on your familiarity)

Item	1	2	3	4	5
The world anti-doping code	1	2	3	4	5
Performance Enhancing substances and methods	1	2	3	4	5
Anti-doping rule violations	1	2	3	4	5
The side effects of performance enhancing substances	1	2	3	4	5
The effects of doping methods on the health of athlete.	1	2	3	4	5
The consumption of dietary supplements may result in a positive doping test	1	2	3	4	5
Marijuana is not permitted in competitions only	1	2	3	4	5
An athlete can be tested any anytime without advance notice	1	2	3	4	5

5. From which of the following sources did you learn about doping and performance enhancing drug or drug free sport?

World Anti-doping Agent (WADA)	
Anti-doping agent of Kenya (ADAK)	
Television/radio	
Internet	
Newspaper/magazines	
In your coaching studies	
Seminars	
Friends	

SECTION C: Coaches Roles and Responsibilities in Anti-Doping.

Items in this section seek to know your perceptions about your anti-doping roles and actions. Kindly respond to each item by ticking the box of your choice. The options are 1.Strongly Disagree, 2.Disagree, 3.Neutral, 4.Agree and 5.Strongly agree.

The coach is expected……	1	2	3	4	5
To co-operate with the athlete testing program					
Not to use their influence on athletes values and behaviour to foster anti-doping attitudes					
To disclose to the national anti-doping organization and International federation any decision by a non-signatory finding that they have committed an anti-doping rule violation within the previous ten(10) years					
To cooperate with anti-doping organizations investigating anti-doping rule violations					
Shall not use or possess any prohibited substance or method without valid justification					

SECTION D: Perceived Motivational Climate in Sport Questionnaire

Please think about how it has felt to coach your team throughout this season. What is it usually like on your team? Read the following statements carefully and respond to each in terms of how you view the typical atmosphere on your team. Perceptions naturally vary

from person to person, so be certain to take your time and answer as honestly as possible. Circle the number that best represents how you feel.
1=Strongly Disagree, 2=Disagree, 3=Neutral/Not Sure, 4=Agree, 5=Strongly Agree

1	As a coach I want my players to try new skills	1	2	3	4	5
2	As a coach I get mad when my player makes a mistake	1	2	3	4	5
3	As a coach I gives most of my attention to the stars	1	2	3	4	5
4	As a coach I feel that every athlete contributes in some important way	1	2	3	4	5
5	As a coach I believe that all my players are crucial to the success of the team	1	2	3	4	5
6	As a coach I praise athletes only when they outplay their team-mates	1	2	3	4	5
7	As a coach I think only the starters contribute to the success of the team	1	2	3	4	5
8	As a coach I feel good when athletes try their best	1	2	3	4	5
9	As a coach I take out athletes for a game for making mistakes	1	2	3	4	5
10	As a coach athletes at all skills levels have an important role on in the team	1	2	3	4	5
11	As a coach I encourage Athletes help each other learn	1	2	3	4	5
12	As a coach I encourage athletes to out play others	1	2	3	4	5
13	As a coach I have my own favourites in the team/squad	1	2	3	4	5
14	As coach I makes sure athletes improve on skills they are not good at	1	2	3	4	5
15	As a coach I yell at athletes for messing up	1	2	3	4	5
16	As a coach I feel successful when athletes improve	1	2	3	4	5
17	Only the athletes with the best “stats” get praise from me	1	2	3	4	5
18	As a coach I punish athletes when they make a mistake	1	2	3	4	5
19	As a coach each athlete as an important role	1	2	3	4	5
20	As a coach athletes trying hard gets rewarded	1	2	3	4	5
21	As a coach I encourage athletes to help each other	1	2	3	4	5
22	As a coach I make it clear who I think are the best athletes	1	2	3	4	5
23	Athletes are” psyched” when they do better than their team-mates/squad members in a competition	1	2	3	4	5

24	As a coach, I emphasize that if you want to play in a game you must be one of the best athletes	1	2	3	4	5
25	As a coach I emphasize that athletes always trying your best	1	2	3	4	5
26	As a coach, only the "top athletes" get noticed	1	2	3	4	5
27	Athletes are afraid to make mistakes	1	2	3	4	5
28	As a coach I encourage athletes to work on their weaknesses	1	2	3	4	5
29	As a coach I favour some athletes more than others	1	2	3	4	5
30	As a coach the focus is to improve each game/practice	1	2	3	4	5
31	The squad really "works together" as a team under me	1	2	3	4	5
32	I ensure that each athlete feels as if they are an important team/squad members	1	2	3	4	5
33	I expect that the athletes help each other to set better goals and excel	1	2	3	4	5

SECTION E: Doping Confrontation Efficacy Scale.

This section is out to determine your ability to confront athletes who are or have used/using performance enhancing substances in the sport you coach. As a coach, please rate your confidence in your ability to do the following: ***Please tick the relevant box to rate on a scale of 1 to 7 where 1 = 'No confidence' and 7 = 'Complete confidence'*** [The source is Boardley et al.,(2018):Items 1-4 (initiation);5-7 (Intimacy);8-12 (legitimacy) ;13-16(outcomes);17-20 (Resources)

I as the coach…….	1	2	3	4	5	6	7
Approach `an athlete if he/she break a performance enhancing substances use rule.							
Seek confirmation from an athlete that they violated your performance enhancing substance expectations							
Ask an athlete if they used performance enhancing substances							
Confront an athlete of using performance enhancing substances							
Confront `an athlete about performance enhancing substances without threatening his/her independence.							
Confront an athlete about performance enhancing substances without expressing dislike or rejection.							
Confront athletes about performance enhancing substances while avoiding personal criticism.							

Explain the reasons that athletes should change their performance enhancing substances use behaviours.							
Communicate performance enhancing substances rule violations with my athletes.							
Provide reasons for confronting an athlete with performance enhancing substances use.							
Approach athletes regarding performance enhancing substances use and health-related issues.							
Discuss performance enhancing substance use ethical issues with your athletes.							
Offer solutions for performance enhancing substances use behaviours							
Confront about performance enhancing substance use an athlete regardless of his/her personality.							
Confront athletes about performance enhancing substances use regardless of whether it will affect the coach-athlete relationship.							
Approach an athlete about performance enhancing substance use regardless of their future in the sport.							
Deal with the stress of a performance enhancing substances use confrontation with an athlete.							
Handle my potential guilt following a performance enhancing substance use confrontation.							
Maintain my temper during a performance enhancing substance use confrontation							
Impart the time needed to conduct a performance enhancing substance use confrontation.							

SECTION F: Attitudes towards Doping

Below are statements showing what many people think and feel about sport and performance enhancing drugs. Please read each item below carefully and circle the appropriate number after each statement, indicating the level of your agreement using the scale below:
1. Strongly Disagree, 2.Slightly Disagree 3.Disagree, 4.Agree 5.Slightly Agree, 6.Strongly Agree

1	There is no difference between drugs, fibre grass poles and speedy swim suits that are all used to enhance performance	1	2	3	4	5	6
2	The risks related to doping are exaggerated						

3	Legalizing performance enhancement would be beneficial for sports						
4	Doping is not cheating since everyone does it						
5	Athletes should not feel guilty about breaking the rules and taking performance-enhancing drugs						
6	Only the quality of performance should matter not the way						
7	Doping is necessary to be competitive						
8	Doping is unavoidable part of the competitive sport						