

WORLD ANTI-DOPING AGENCY [WADA]

Implementing Brief Motivational Interventions in Shaping Beliefs and Attitudes towards Doping for Athletes in Secondary Schools

FINAL REPORT 2019/2020

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30TH

JUNE

2020



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Acknowledgements

We acknowledge the support given by the County Directors of Education of Elgeyo Marakwet County Mr. Masibo Kituyi, and Uasin Gishu County Mr. Mbaka, and all the school principals, games coaches, research assistants and secondary school athletes who collaborated with us and made this report a reality. We also recognize the effort of Dr. Peter Muturi of Jomo Kenyatta University of Science and Technology for the data analysis and for his assistance in preparing this report.

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This report is based on a one-year Social Science Research Grant 2019/2020 funded by the World Anti-Doping Agency (WADA) to Kenyatta University.

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ABBREVIATIONS AND ACRONYMS

ADAK-Anti Doping Association of Kenya

ADOs- Anti Doping Organizations

AIU- Athletics Integrity Unit

BCCI -Behavioural Change Counseling Index

BMI- Brief Motivational Intervention

EFA - Exploratory Factor Analysis

CFA - Confirmatory Factor Analysis

IBM- International Business Machines

KU-ERC- Kenyatta University Ethical Review Committee

MI- Motivation Intervention

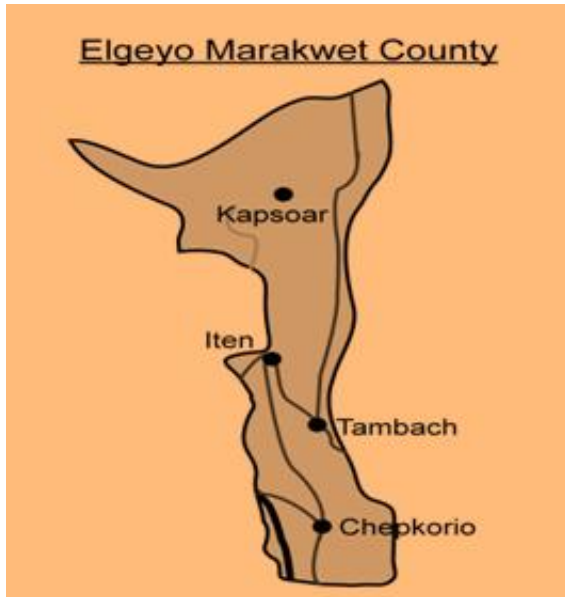
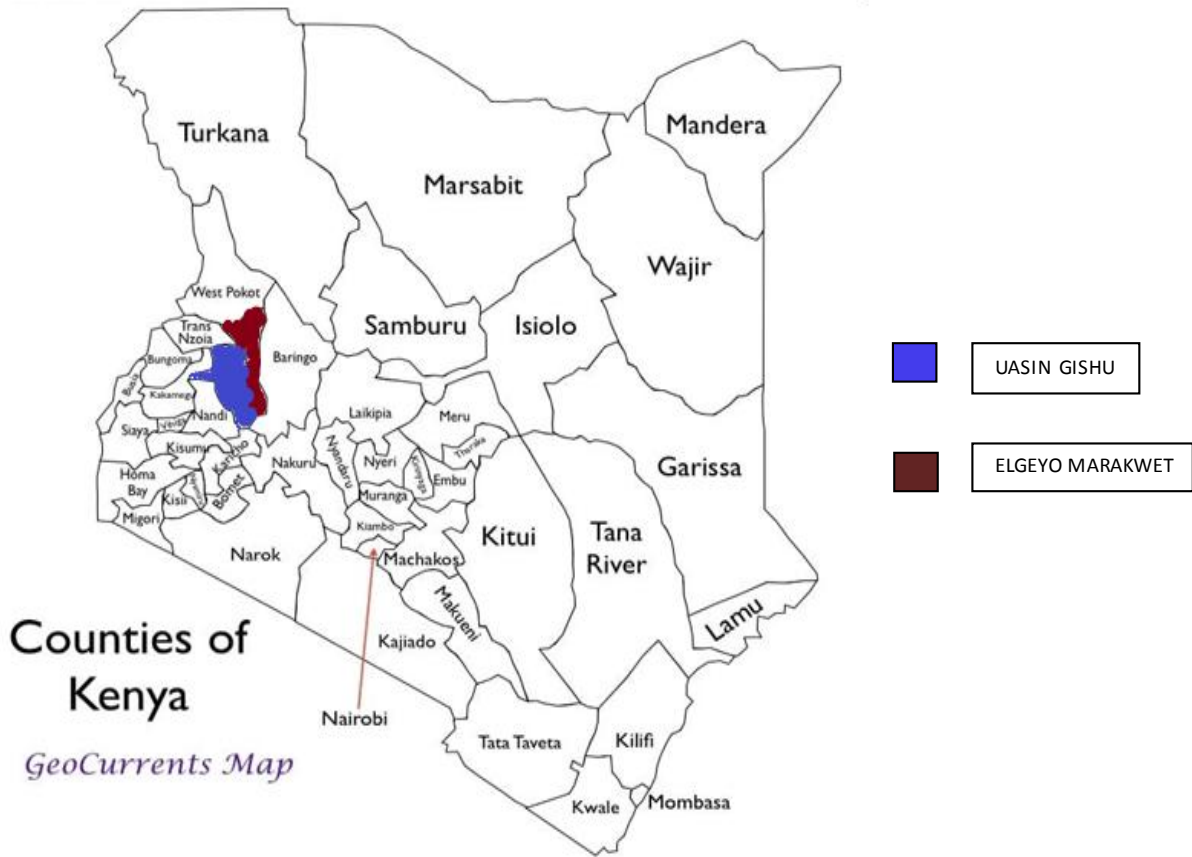
NACOSTI-National Commission for Science, Technology and Innovation

SAPs - Substances for increasing athletic performance

TUE: Therapeutic Use Exemption

WADA- World Anti Doping Agency

Maps



Executive summary

The findings of this report are based on the Social Science Research Grant by the World Anti-doping Agency between May 2019 and April 2020 to Kenyatta University. The research has contributed to the national and global picture of doping challenges among upcoming athletes, underscoring the need for broader interventions to advance balanced and integrated action against use, enhancement of educational programs, sensitization and awareness, and prevention of doping. Conversations are ongoing among local anti-doping stakeholders (such as anti-doping agency of Kenya (ADAK) on development a curriculum for secondary schools, but reports from this research indicates that this is yet to be established. A gap therefore remains on the need for secondary school athletes to acquire knowledge on anti-doping processes and hence benefit from information on reducing doping harms in Kenya, a country where the problem is escalating.

Global reports indicate that doping offences under the World Anti-Doping Code continue to be committed. According to WADA, 2016, some 229,514 samples were collected and analyzed by anti-doping organizations (ADOs) globally and 3,032 samples were reported as adverse. In Africa, use of dope remains at record levels and prohibited substances for enhancing athletic performance continue to pose a serious threat to clean sport, and the global use with its analogues expanding in Kenya and elsewhere. Negative doping reports have featured as headlines in many nations and this requires urgent attention, particularly in countries where violations of the integrity of clean sport is giving negative publicity to the national and international level athletes. As recent as July 2019, the Athletics Integrity Unit (AIU) had imposed heavy penalties on the international level athletes of Kenyan origin (AIU, 2019).

Prevention efforts continue to fall short of needs in many parts of the world. Anti-doping education and programs have not been fully rolled out in secondary schools leading to further lack of knowledge for the young and upcoming athletes. Most of the existing anti-doping interventions target out-of-school athletes, but even such efforts have not fully focused their attention on prevention through change of attitudes and behavior. Athletes in schools are especially vulnerable to use of dope and face higher risks of transferring this negative behaviour into their future careers in sports. The vice therefore should be nipped at this early stage in life when behaviour can still be modified. This gap presents a major impediment to achieving the goals of national and global anti-doping agencies in fulfilling the expected integrity to support athletes in proper decisions making.

The increased effectiveness of empirical research in shaping beliefs and attitudes play a vital role in providing evidence-based anti-doping interventions. Such research will inform policies, educational programs, curriculum frameworks and practices for intervention, while promoting guidelines and campaigns against use of substances for athletic performance. However this is not without sustained attention and integration into broader development goals through national and international cooperation. Nearly every country in the National Anti-doping Organizations (NADOs) has reaffirmed its commitment to adjudicating anti-doping rules violations and anti-doping education. The World Anti-Doping Agency (WADA) provides the expected frameworks and action based on the international control guidelines and monitors the integrity for dope-free sport worldwide. One way the agency does this is through research to provide evidence-based interventions, including identifying lessons learned and best practices that could inform further action. The challenge before us as researchers is to how to encourage clean sport amid formidable resistance in curbing the doping vice.

The overarching objective of this pilot study was to implement a behaviour change model to enable assessment of changes in psychosocial factors that influence decision making against use of dope. These factors were examined within gendered contexts, where both boys and girls in secondary schools in Kenya were examined within the school contexts to assess their knowledge, beliefs, attitudes and resilience in doping decision making. Through a quasi-experimental research design, the process yielded information that would inform future anti-doping educational programs.

The study was conducted within 16 secondary schools within Elgeyo Marakwet and Uasin Gishu Counties of Kenya, which are well known hubs for athletic training activities and also home to most local, regional and international athletes from the country. Sixteen schools were involved in the study, each assigned to a control or experiment group for the quasi-experiment. The inclusion criterion was if the school had participated in sporting activities at local, national, or regional and international levels for the past five years. Secondary school athletes were included if they participated in a particular sporting activity and represented their schools in athletic competitions for their schools. Awareness and sensitization of anti-doping was conducted among the 16 schools in collaboration with the Anti-Doping Agency of Kenya (ADAK). A total of 16 secondary school games coaches and 498 secondary school athletes aged 15–20 years participated in the baseline and endline surveys through questionnaires and interviews.

T-test scores indicated a statistically significant ($p < 0.05$) relationship between the study intervention (brief motivational intervention) and the study objectives. There were significantly larger percentages of female secondary school athletes that increased their awareness of doping at the experiment group in comparison with the control group ($p = 0.014$). However, no contextual, systemic and gender differences emerged in relation to the study intervention ($p=0.067>0.05$).

The key recommendations from this study are that brief, learner-centered, participatory, and collaborative anti-doping educational programs are required for athletes in secondary schools. Appropriate tools, specific for this age-group, are required to bolster awareness and challenge faulty thinking patterns in order to increase their resiliency against doping. A positive outcome in building awareness, skills and competent handling of anti-doping education among participating games coaches was a highlight for this study. This emphasizes the need for collaborative action for all stakeholders and a need for sustained effort in favour of positive behaviour change against doping.

1.0 Introduction

1.1 Background to the Study

Research in anti-doping prevention has attempted to shed light on the intersection between research theory and practice in prevention of anti-doping behaviour, effectiveness of intervention programs, and the role of the school community in anti-doping education (WADA, 2009). There is consensus among researchers and other stakeholders that anti-doping education is the most significant tool for sustainable behaviour change against the vice (e.g. Goldenberg & Elliot, 2005). School-based programs are recognized as the most valuable for substance use prevention, and strategies are required on how formal or non-formal programs for anti-doping education can be effectively implemented. According to WADA (2009), when education programs in schools are implemented appropriately, they provide the basis for preventing current and upcoming athletes from doping.

Most athletes will develop negative attitudes, values and beliefs towards doping during adolescence (Collins et al, 2014) which means may become more engrained patterns of behaviour that may present a challenge for anti-doping intervention programs. Reasons given for this early vulnerability are individual psychosocial factors as well as effects of contextual issues influencing doping behaviour. Individual factors that lead to decision making in doping may range from the individual athlete's personality, attitudes and beliefs, resiliency, and other environmental factors. The environment in which young people thrive is increasingly becoming tolerant to various forms of substance abuse, with the pharmaceutical industries promoting a climate of "solution by ingestion". Youth are flooded with media messages where industries promoting substance use, such as alcohol use, utilize powerful marketing strategies to influence them (Sharma, 2015). The adolescence period is therefore a critical window of opportunity in providing appropriate interventions for health promotion and prevention of developing behaviours such as substance use in enhancing athletic performance (Caltabiabo, et al. 2008).

Anti-doping programs have shown commitment in targeting biopsychosocial interventions for health promotion. Biopsychosocial is a term used to take into account the integration of biological, psychological and social factors for optimum and sustainable health promotion (Havelka, Lucanin, & Lucanin, 2009). These include aspects such as strength training and nutrition (e.g. ATHENA –Elliot et al., 2008). Social aspects have also been given attention in a number of studies such as the effects of interactions of teachers and student, and the role of the school community on doping behaviour has been emphasized (e.g. ATLAS program -Goldberg et al., 2005). However, there is dearth of literature on interventional studies focusing on the individual athlete's psychosocial aspects influencing anti-doping behaviour.

Much research has demonstrated that substance abuse is mainly initiated during adolescence hence making adolescence a period of vulnerability for developing substance related problems (Squeglia & Cservenka, 2017). Adolescents are in the early stages of change when they are considering initiating or experimenting with a new behavior. They also struggle to establish an identity independent from family, parents and other adults, yet they appreciate supportive interactions with adults who mentor them. Studies have indicated that healthy interactions with supportive adults influence beliefs and attitudes of teenagers and such relationships have buffered the effect of negative life events on adolescent substance use (Meschke & Patterson, 2003). Games coaches and physical education (PE) teachers in schools are in a unique position to

prevent substance use for enhancement of athletic performance because they spend 'teachable moments' with their trainees hence they can use these to inculcate values among learners.

Developing collaborative programs involving games coaches and their team members would probably be more effective because it would build coach-trainee relationships and perhaps enhance the success of the intervention. Collaboration with games coaches would ensure that the program is done within a context familiar to both the coach and team hence would be simple and cost effective in implementation (Vogl, Teesson, Newton, & Andrews, 2012). Furthermore, interventions targeted to change behaviour among adolescents must look into the role of peers because it is at this developmental stage that they seek approval and reinforcement from each other (Christopher *et al.*, 1993). Schools are also natural environments for student athletes and games coaches, hence could have a higher likelihood of success in promotion of anti-doping behaviour (Elliot *et al.*, 2006).

While significant achievements have been made in the school-based approaches in control and prevention of substance use, many issues and questions remain insufficiently explored such as the efficacy of such programs (SAMHSA, 2008). School-based interventions for anti-doping education must consider ways of integrating programs to complement the role of the games tutor. This should be done by utilizing resources that would enhance, rather than replace their role as teachers and/or as games coaches.

This research used motivational interventions (MI) approaches to enable games teachers work in collaboration with their athlete students within the formal school setting. The approach motivated athletes to engage in discussions promoting attitudinal and behavioural change and increase their readiness for change. Motivational interventions have been rated as most efficacious in reducing substance use among college students (Bery-smith, 1999). According to Butterworth, Linden & Mclay (2007), MI is the only technique that has reliably demonstrated reliability in its ability to causally and independently produce positive behavioural outcomes. MI has been simplified into brief motivational interventions (BMIs) to provide opportunities to increase an individual's sense of control over their lives by providing brief opportunities for maximizing growth. To date, BMIs have been adapted for a wide range of behaviour change for adolescent programs. Results of controlled trials support the efficacy of BMIs in triggering behaviour change among problem substance users (Butterworth, Linden & Mclay (2007).

Brief interventions are developmentally appropriate, and can be tailored to unique needs of individuals, while considering their context as well as their readiness to change. Effectiveness of brief intervention models have been rated as beneficial in for youth in schools particularly those with social and behavioural difficulties (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004).

Brief motivational interventions (BMI) are a skilled style of counseling that requires training of individuals by promoting healthy living within their contexts (Miller, *et al.*, 2004). They are simple to learn and interactive activities and not necessarily a set of professional specific techniques. These skills are simple, hence teachable for use in changing any target behaviour ranging from proper nutrition, strength training (biological factors), to improving peer and coach interactions (social factors), and shaping of beliefs and attitudes (psychological factors). The intervention is therefore underpinned by a biopsychosocial approach into behaviour change. Such a holistic approach when implemented within a familiar context for the population under investigation is likely to have more sustainable outcomes.

This study worked within the framework of biopsychosocial perspective which involved a triangulation of theories, methods, and strategies which were used in building more sustainable beliefs and attitudes to shape anti-doping behaviour. This is illustrated using the diagram below :

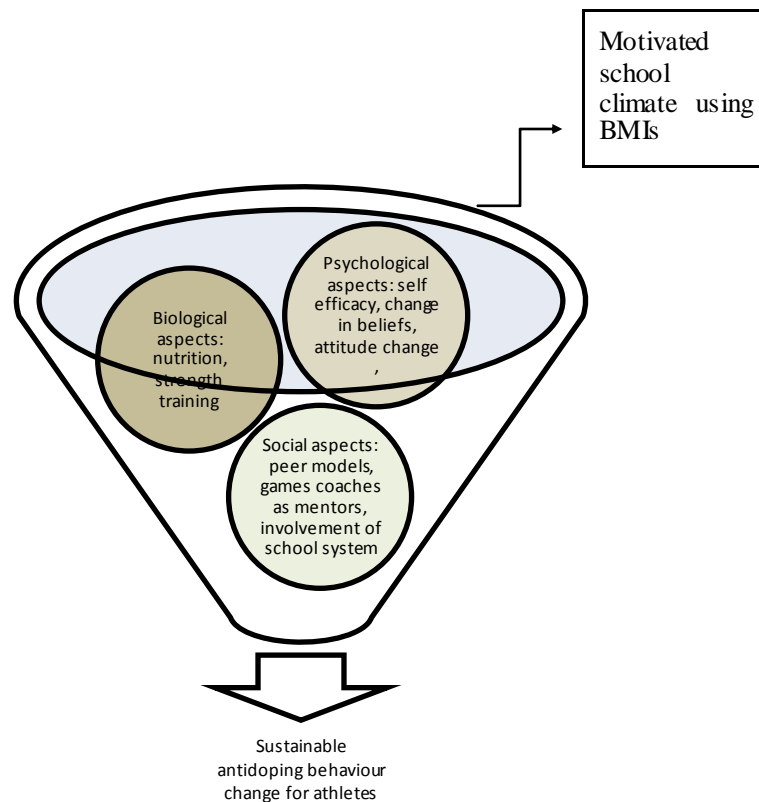


Figure 1: Conceptual Framework

In this model, a constructive school climate was associated with implementation of the positive action program (Beets, Flay, Vuchinich, Acock, Li, & Allred, 2008). Hence the school community, including collaboration of the school management, games coaches and student athletes were involved in participating in the intervention. The model used in this research took an approach towards implementation of the anti-doping behaviour strategy through engaging in activities that would increase awareness, influence beliefs and attitudes, as well as increase resilience in decision making.

2.0 Statement of Need

Kenya and indeed many countries globally, continue to experience an increased use of substances for enhancement of athletic performance despite the consequences. Though some successful anti-doping efforts have been made in various areas such as in testing and awareness campaigns, these have not been efficacious enough to stop doping. Indeed, there have been several penalties on Kenyan athletes who continue engaging in the vice. More attention needs to be focused on other neglected aspects of the individual and the environment which would contribute to increasing use of dope. There is need to give attention to psychological factors that inform human behavior, and which have been given little attention in anti-doping literature. There is consensus among experts that intrinsic psychological factors lead to long-term

behaviour change and anti-doping interventions need to put these factors into consideration when carrying out interventions to eradicate the vice.

This research project used an intervention based on Motivational Interviewing (MI) which is highly associated with positive behavioural change outcomes for substance abuse among youth. The intervention's main focus was to motivate and build self-efficacy of the secondary school athletes in Kenya in developing anti-doping decision making. Secondary school environment is a favorable for implementation of behaviour change programs. This is because such environments do not interrupt the daily functioning of schools, and also because most students in secondary school are in adolescence, an early stage when they may consider initiating or experimenting with new behaviors such as substance use for enhancement of athletic performance. The study environment is also naturalistic for participants hence would offer the right climate to motivate the desired change. Scanty literature exists on gender differences in anti-doping behaviour among athletes (e.g. Elliot et al., 2008) and hence the research project focused on elucidating the differences between male and female athletes beliefs and attitudes on anti-doping behaviour. The study focused on exploring the beliefs and attitudes of young athletes in secondary schools to build their resilience in developing anti-doping behaviour. Through use of a quasi-experiment, the study implemented the BMI intervention to a treatment group and demonstrated that the model was effective in shaping the psychosocial factors under investigation.

3.0 Study Objectives

The overarching objective of the study was to implement a behaviour change model (Brief Motivational Interventions) to enable assessment of changes in psychosocial factors that influence decision making against use of dope. These objectives were examined within boys and girls schools to assess any outcomes brought about by gender differences.

The following were the specific objectives of the study:

- (i) Assess awareness of doping practices and testing procedures among secondary school athletes in Kenya.
- (ii) Explore beliefs and attitudes that led individual athletes in making decision to use or not use substances for enhancement of athletic performance (SAPs).
- (iii) Examine the contextual and gender factors that influence choices in use, or lack of use of SAPs among secondary school athletes.
- (iv) Strengthen skills that build resilience in anti-doping decision making among male and female athletes in secondary schools in Kenya.
- (v) Build the capacity of games teachers and the school community members in the integration of anti-doping education during games training programmes.
- (vi) Develop an evidence-based and contextually sensitive model for school-based anti-doping education.

4.0 Study Hypotheses

- i. **Ho₁**: There was no statistically significant difference between the study intervention and awareness for SAPs among athletes in secondary schools.
- ii. **Ho₂**: There was no statistically significant difference between the study intervention and beliefs and attitudes in use of SAPs among athletes in secondary schools.

- iii. **H₀₃:** There was no statistically significant difference between the study intervention and contextual, systemic and gender factors in use of SAPs among athletes in secondary schools.
- iv. **H₀₄:** There was no statistically significant difference between the study intervention and resiliency in use of SAPs among athletes in secondary schools.

5.0 Key Activities for the Research Project

The research project took place within one year. The study activities were done in three phases spread out within the year of study. Phase 1 was the pretesting phase and took four months; Phase 2 was the interventional stage and took five months; and phase 3 was the post-testing stage which took three months. This is illustrated in the table below:

Table 1: Main Research Project Activities

Stage	Study Activities
Phase 1: Pre-testing	<ul style="list-style-type: none"> • Mapping and identification of schools. • Development of data collection tools on beliefs and attitudes, and contributing factors in the school context • Evaluation and coherence testing of study tools • Identification and induction of research assistants • Pre-testing survey; Analysis for pre-test; and Writing report 1
Phase 2: Interventional Stage	<ul style="list-style-type: none"> • Development of training manual for intervention • Recruitment of trainers and facilitators • School heads and community leaders' sensitization and buy-in forum • Training games coaches for intervention; Testing intervention for coherence • Intervention roll-out; Monitoring and Evaluation
Phase 3: Post-Testing	<ul style="list-style-type: none"> • Post-test assessment and analysis • Final report writing and writing of conference papers • Dissemination of study findings and lessons learnt • End of project workshop

6.0 Research Design

The quasi-experimental design preferred for the study allowed for pre-testing and post-testing of the participants to assess the effectiveness of the intervention (Brief Motivational Interventions - BMIs) in shaping beliefs and attitudes of athletes in secondary schools.

6.1 Population and Sampling

Uasin Gishu and Elgeyo Marakwet Counties of Kenya were purposively selected for the study. The areas are the main hubs of athletic training in the country and produce the highest number of elite athletes for international athletics competitions (Kemboi, 2013). The areas are within a geographical location with high altitude and a deeply ingrained athletic culture. There are also numerous athletic training grounds for the local, regional and international athletes. Most of the sports international heroes in Kenya have studied in most of the selected schools in this study. Boys and girls in these schools have been involved in international competitions hence their

involvement the project was informative. The inclusion criteria of selected schools was if they were involved in national athletics' and track school events competitions for the last 5 years (2015-2019). The County Directors of Education in Elgeyo Marakwet and Uasin Gishu Counties assisted with registers of schools for selection into the study. However, the predictable likelihood of participation for the schools was also based on observed characteristics of involvement in athletic and sports events emanating from the baseline (pre-intervention assessments) evaluation.

Boys and girls, as well as their games coaches from various school categories such as National, Extra-county and Sub-County schools, were purposively selected to participate in the study. A total of 16 schools participated, with 8 schools from each County. The games coaches randomly identified 32 athletes that were involved in the study (n=512). Dyads with similar school characteristics were matched for each school category and assigned an experiment or control group. Half of the athletes (n=256) were also placed in the control or experiment group. All the 16 schools were involved in the baseline (pre-test) and endline (post-test) surveys.

6.2 Piloting

Piloting for the coherence and reliability of the study instruments and the intervention was done in four boys and girls schools in Kiambu County, an area with similar geographical characteristics with the study sites such as high altitude and student's enthusiasm in sports. The pilot study gave us acceptable reliability and validity of the instruments of the study with average reliability levels of $r=.786$. The CD-RISC questionnaire had a reliability of $r=.792$.

6.3 Instrumentation

The instruments suggested for the study included the following:

6.3.1 Students Knowledge Questionnaire Pre/Post Test

The knowledge questionnaire was adapted from the World anti-doping agency (WADA) was used to find out level of awareness at the baseline and endline surveys by the study participants.

6.3.2 The Behavioural Change Interview (BCI)

The Behaviour Change Interview was adapted from the Behaviour Change Counseling Index (BCC) and was used to interview games coaches on the intervention. Previous studies of the BCC have shown the Cronbach's Alpha $\alpha=0.71$ on inter-scorer reliability (Petrova, 2011). For the current study, the instrument demonstrated an inter-rater reliability of $\alpha=0.67$ hence we adapted it for use in the study.

6.3.3 Secondary School Athlete Questionnaire

A self-rated questionnaire on the study objectives was developed by the researchers. Psychological understanding of the constructs informed the item contents which were sensitive to the study context of the participants. Resilience items were part of this questionnaire and were adapted from the Connor-Davidson Resilience Scale (CD-RISC; 2003). Factor analysis (EFA) and confirmatory factor analysis (CFA) of the tool at the pilot stage enabled selection of items for the final sample. The tool exhibited an inter-rater reliability of $\alpha=0.73$.

6.4 The Intervention: Brief Motivational Interviewing

The brief motivational intervention (BMI) incorporated motivational interviewing (MI) techniques to promote behavioural and attitudinal change against use of dope. MI is a technique that uses directive, client-centered counseling to elicit behavior change (Miller & Rollnick, 2002). The spirit of MI is one of collaboration between the expert and client and use of evocation. Guidance offered by the expert is viewed as a partnership to promote a conducive atmosphere for trainees to change. The guide's focus is to elicit the trainee's intrinsic motivation to change through exploring and resolving ambivalence about behavior change. The guide communicates their confidence in the trainee's ability to change, and demonstrates support throughout the change process.

The researchers in this study reported that it was feasible to introduce a 20-30 minutes BMI to enhance interactions aimed at intrinsic change from faulty attitudes towards doping. This was implemented using an 8-week BMI program to evaluate its efficacy. The BMI followed a structured approach to anti-doping guidelines (WADA, 2015) such as defining doping, identifying list of prohibited substances, risks related to doping, identifying values for true spirit of sport, and other topics. Each session of the intervention followed the principles of MI, which emphasize: 1) Express empathy; 2) Develop a discrepancy (between goals & current behavior), 3) Avoid arguments, 4) Roll with resistance; 5) Promote self- efficacy (Miller & Rollnick, 2002). Communication during sessions was based on providing feedback to the participant and encouragement to take responsibility of their own beliefs and actions.

Only participants in the experiment schools that met criteria for participating in sports and being involved in school competitions received the brief intervention as part of their participation in the study. A trained games coach delivered the BMI sessions. The coaches received a training during which they were introduced to the intervention's principles and methodology through formal presentation, discussion, and assessment through interviews. Further an intervention manual for conducting the BMI in the schools was developed whereby each interactive session discussed an aspect of anti-doping education. The sessions were implemented using Focus Group Discussions (FGDs) for the experiment group with the aim to detect a possible effect of the intervention on decision making in anti-doping beliefs and attitudes.

Games teachers in the control group were sensitized on anti-doping practices enlisted by WADA in a workshop conducted in collaboration with the Anti-doping Agency of Kenya (ADAK). They were asked to transfer the knowledge from the sensitization workshop to their teams in the schools without any further training.

6.5 Data Collection Procedures

The research project adhered to guidelines and mechanisms provided for researchers in Kenya. We sought permission from necessary authorities such as the National Commission for Science, Technology and Innovation (NACOSTI), which is the national body authorizing permission to conduct research in Kenya. We also collaborated with County Directors of Education in Uasin Gishu and Elgeyo Marakwet counties in Kenya, who allowed entry into their respective counties. Principals of the targeted schools granted us access, and games coaches conducted the focus group discussions (FGDs). Games coaches were also key informants and were interviewed at the various phases of the research project. At the pre-testing and post-testing phases, research assistants were recruited, inducted and provided with the questionnaires for data collection to the selected schools.

6.6 Ethical Considerations

The proposal was presented for ethical review to Kenyatta University Ethical Review Committee (KU-ERC). Ethics of confidentiality, anonymity and voluntary participation were enhanced through seeking written informed consent from the study participants. All the participants were approached for inclusion in the study. We used codes instead of identifiable personal information on the raw data tools and kept identifiable materials under the safety of the key investigators. Participants were informed that they could leave at any stage of the project without any negative consequences. The purpose of the study at the pre-testing and post-testing stage was clarified throughout the study period. Though the intervention had no expected psychological harm to participants, we provided debriefing at the end of the data collection for the participants to mitigate against any risk encountered during the study.

7.0 Study Findings

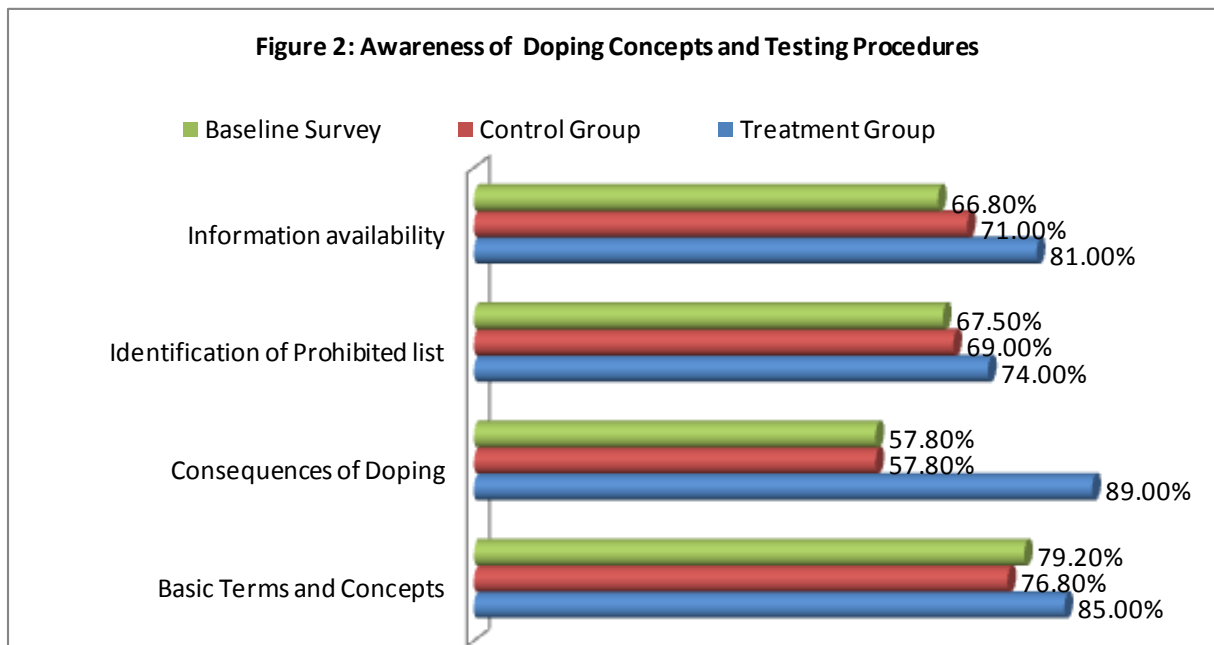
This section presents the findings of the study based on the study objectives. A total of 512 questionnaires were distributed out of which 14 got spoilt, resulting to 498 (97.2%). Of these, 56.83% were male while 43.17% were female. Participants were aged between 15-22 years and were given an equal chance to participate in the study. The distribution of demographic information of the study participants is shown in Table 2 below.

Table 2: Demographic Information

Main Factor	Factor level	Frequency	percent
Gender	Male	283	56.83
	Female	215	43.17
Age in Years	Below 15	19	3.8
	15 - 16	182	36.5
	17 - 18	223	44.8
	19 - 20	68	13.7
	Above 20	6	1.2
Type of School	Boys Only	182	36.5
	Girls Only	124	24.9
	Mixed	192	38.6
School Category	National	125	25.1
	Extra-County	128	25.7
	County	128	25.7
	Sub-County	117	23.5
County	Uasin Gishu	253	50.8
	Elgeyo Marakwet	245	49.2
Type of Sport Participated	Athletics	224	45.0
	Volleyball	47	9.3
	Football	121	24.3
	Netball	23	4.6
	Basketball	14	2.8
	Others	69	13.9

7.1 Objective 1: Awareness of Substances for Athletic Performance

We began by testing the participant's awareness and understanding of the basic concepts in anti-doping education. This information guided our enquiry on appropriateness of the subject matter and intervention for the study participants. Assessing awareness of use of substances for increasing athletic performance (SAPs) was guided by adapting the Knowledge Questionnaire (WADA 2015) at the pre-testing and post-testing stages of the study. Sample questions for this objective were categorized and summarized as: knowledge of concepts and testing procedures, consequences of doping, identification of prohibited lists, and availability of information on doping. The findings below are a representation of the study results at the baseline (pre-test) for all study participants. At the endline (post-test) the findings are presented as 'control group' and 'treatment group' depending on the assigned study category. The findings of the objective one assessed awareness of SAPs among school athletes and are summarized in Figure 2 below:



Results from the baseline survey indicated that majority (79.2%) of the respondents were familiar with the basic concepts on doping. Findings from the control group indicated that 76.8% of the participants were aware of doping concepts, while the experiment group showed increased awareness as indicated by majority (85%) of the respondents. Responses on consequences of using SAPs showed that participants at the baseline and at the endline for the control group remained consistent in their knowledge at 57.8%. The treatment group however showed that 89% of the study participants had increased their level of awareness on consequences of doping after the intervention. Identification of prohibited substances was assessed by asking participants to correctly identify the prohibited substances from a list and knowledge of therapeutic use exemption (TUE). At the baseline, 67.5% of the participants were aware of some banned substances but could not fully identify such substances. At the endline, participants increased identification of banned substances with the control group at 69% and the treatment group up to 74%. While 66.8% of the participants at the baseline could access

information on sources of anti-doping educational materials, at the endline the control group increased access to information at 71% and 81% for the treatment group. This was an indication of increased information availability after the BMI intervention was rolled out.

Hypothesis Testing for Awareness of SAPs

Paired samples tests were conducted for further statistical analysis to show differences between the baseline and treatment groups on their level of awareness on SAPs. The results are shown on Tables 3-5 below.

Table 3: Paired Samples Correlations Awareness

		N	Correlation	Sig.
Pair 1	Aw areness-baseline	256	.880	.0000
	Aw areness-treatment			

Table 4: Paired Samples Test Awareness

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Aw areness - baseline Aw areness-treatment	17.30	4.66664	.47140	16.36	18.23	8.749	255	.007

Results indicated that there were statistically significant differences of awareness on the use of SAPs between the baseline and treatment groups, ($t(255) = 8.749, p = 0.007$). On average treatment scores were 17.30 points higher than the baseline scores (95% CI [16.36, 18.23]). By virtual of this indication, our end line survey shows that by using the BMI intervention participants gained more awareness on SAPs compared to the baseline group.

Hypothesis testing:

H₀: There was no statistically significant difference between the study intervention and awareness for SAPs among athletes in secondary schools.

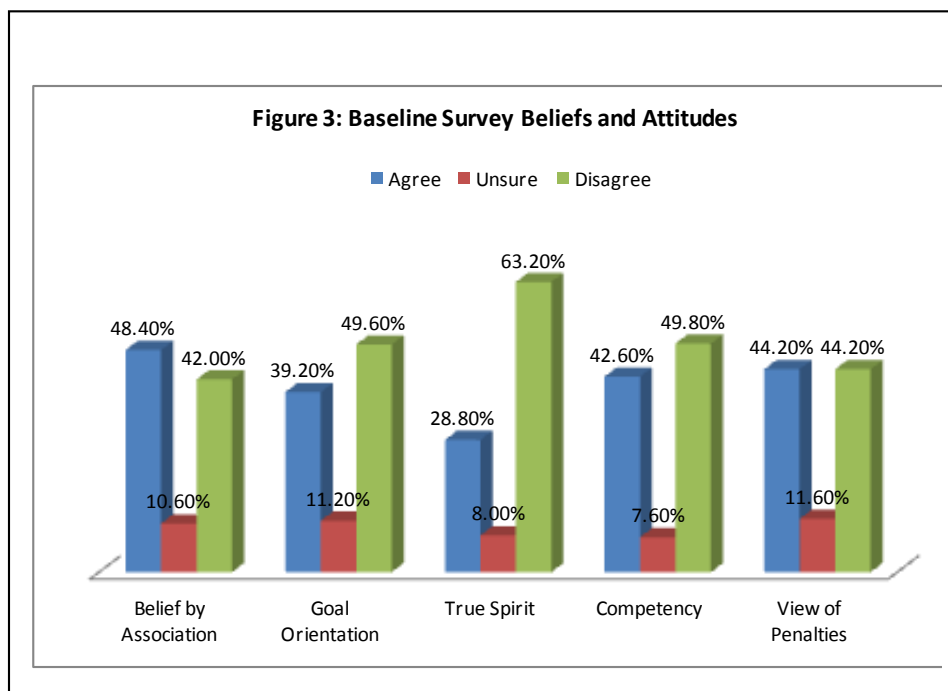
H₁: There was a statistically significant difference between the study intervention and awareness for SAPs among athletes in secondary schools.

From the results provided $p = 0.007 < 0.05$ therefore there was sufficient evidence to reject the null hypothesis and accept the alternate hypothesis. Hence the BMI intervention was significant in increasing awareness against doping for athletes in secondary schools in Kenya.

7.2 Objective 2: Beliefs and Attitudes influencing use of Substances for Athletic Performance

The second objective of the study sought to explore beliefs and attitudes that led individual athletes in secondary schools into making decision to use or not use substances for enhancement of sporting performance. This was important in elucidating the underlying thoughts and mental states of the participants that required to be addressed in order to achieve better decision making against the vice. Using a self-rated questionnaire developed by the researchers, beliefs were tested on a 5-point scale and grouped into five categories of: (i) beliefs by association; (ii) goal orientation beliefs; (iii) value beliefs (true spirit of sport); (iv) competency beliefs; and (v) view of penalties. Findings from the responses are summarized on Figure 3 below.

At the baseline, 48.4% participants opined that beliefs based on association with others influenced decision making to dope or not to dope. A small percentage (10.6%) was unsure of



the relationship, while 42% disagreed that beliefs based on association with others had any relationship with the decision to use dope. For responses on goal orientation and motivation for a sports career, 49.6% participants indicated that it was the extrinsic factors that seemed to motivate the athlete to take up sporting as a career, hence this was likely to

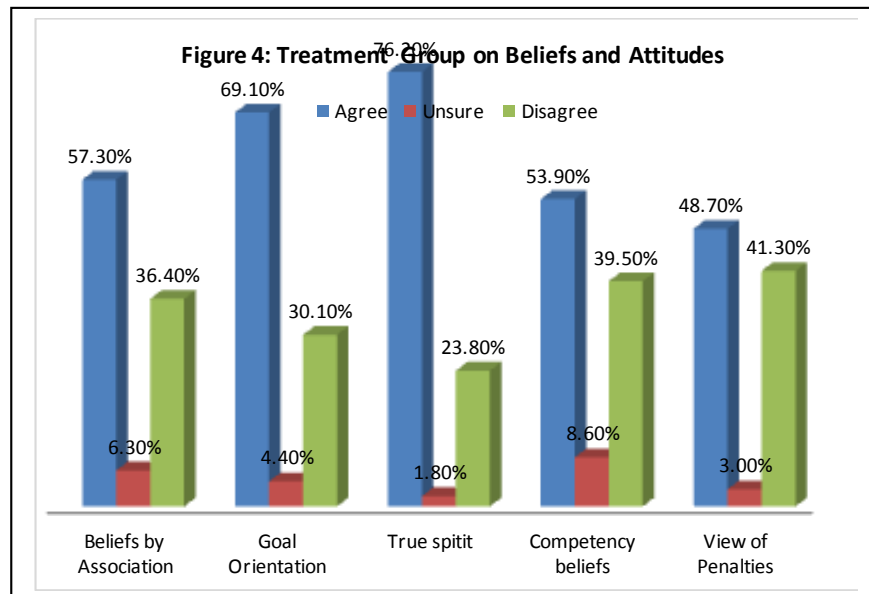
push them into using whatever means to win a competition. Of the respondents, 39.2% saw intrinsic motivation as more important while 11.2% were unsure about these statements.

Findings on the true spirit of sport indicated that 28.8% of the participants would be tempted to use alternatives such as nutritional supplements to enhance athletic performance, 8% were unsure, while 63.2% disagreed with the statements. While testing the sense of competency of the participants, 42.6% felt competent to win during sport competitions, 7.6% were unsure, while 49.8% indicated a reduced sense of competency in winning a competition for the sport they played. Further findings in the beliefs and attitudes were based on whether use of controls and penalties for athletes in secondary schools were likely to reduce use of SAPs or not. Findings indicated that there was an equal number of the participants who agreed and those who disagreed (44.2%) to the statements, and only 11.6% were uncertain.

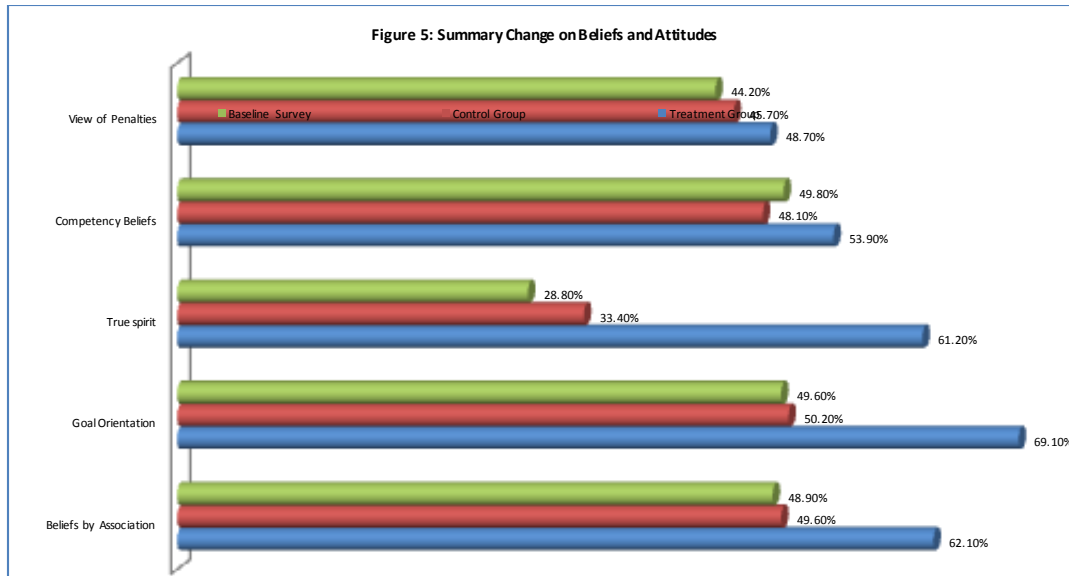
The post-test applied the same questions in the category of beliefs and attitudes towards use of SAPs. The control group indicated no significant changes from the baseline survey. However, the treatment group had significant changes in their attitudes and beliefs about use of SAPs after the intervention as illustrated in Figure 4.

The majority (57.3%) of the participants in the treatment group opined that one's beliefs based on association with others influenced decision making to dope or not to dope, 6.3% , were unsure, while 36.4% disagreed with statements indicating that association with others having any relationship with their decision to use dope.

For the question relating to use of doping on goal orientation, 69.1% indicated intrinsic motivation was the most important driving force to the sports career, 4.4% were unsure, while 30.1% of the participants showed that extrinsic motivation as most important. There was a significant positive change from the baseline findings on this category.



Questions regarding the true spirit of sports indicated a very positive change indicating that 76.2% considered clean sporting as most important, while only 23.8% felt that an athlete had to win no matter the means used. Majority (53.9%) felt a higher sense of competency, 8.6% were unsure, while 39.5% indicated a lower sense of competency. Questions on whether penalties would change doping behaviour had a very small variance as indicated by the majority (48.7%) of the participants who felt that athletes would still continue to dope despite the penalties, 3% were unsure, while 41.3% thought penalties would manage to change the vice. Figure 5 is a graphic representation summarizing the changes that occurred between the baseline to the endline survey for the baseline, control and treatment groups. The positive variance is an indication that the BMI intervention was efficacious in changing beliefs and attitudes of athletes against use of SAPs.



Hypothesis Testing on Relationship of Intervention on Beliefs and Attitudes

Paired sample t-test was also computed to establish whether there was any significant statistical difference between findings of the baseline study and the outcome of the treatment group regarding the beliefs and attitudes of upcoming athletes in Kenya.

Table 5: Paired Samples Statistics Beliefs and Attitudes

	Mean	N	Std. Deviation	Std. Error Mean	
Pair 1	Beliefs-Baseline	42.6429	256	7.18568	.72586
	Beliefs-Treatment	52.6224	256	5.98713	.60479

Table 6: Paired Samples Correlations Beliefs & Attitudes

	N	Correlation	Sig.
Pair 1 Beliefs-Baseline & Beliefs-Treatment	256	.157	.003

Table 7: Paired Samples Test Beliefs & Attitudes

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Beliefs – Baseline Beliefs-Treatment	-9.97959	8.60230	.86896	-11.70424	-8.25494	-11.484	255	.000

Hypothesis testing:

H₀: There was no statistically significant difference between the study intervention and beliefs and attitudes in use of SAPs among athletes in secondary schools.

H₁: There was a statistically significant difference between the study intervention and beliefs and attitudes in use of SAPs among athletes in secondary schools.

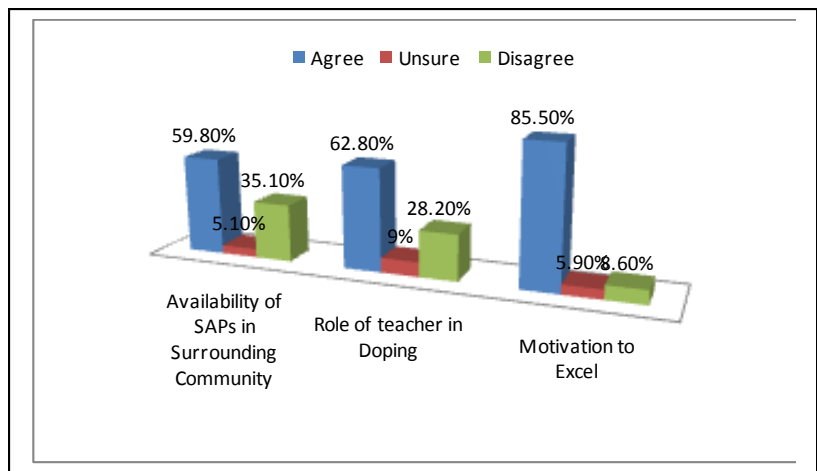
From the results provided $p=0.000 < 0.05$ therefore there was sufficient evidence to reject the null hypothesis and accept the alternate hypothesis. Hence the BMI intervention was significant in shaping beliefs and attitudes against doping for athletes in secondary schools in Kenya.

7.3 Objective 3: Contextual, Systemic and Gender Factors Influencing Doping

The term contextual and systemic in this study were used to refer to (i) community factors such as school surroundings; (ii) role of the teacher; (iii) peer pressure and gender influence; and (iv) availability of anti-doping resources. Results for these categories are discussed below.

7.3.1 Community Factors and Influence in use of SAPs

The questions in this category assessed availability of dope in the school surroundings in form of food supplements and other substances. The results are illustrated in Figure 6. Findings showed that 59.8% of the participants indicated that SAPs were available in the school environment, 5.1% were uncertain, while 35.1% refuted the claim. Results of this study supported the view that high pressure from the community would likely push athletes to do anything to win a sports competition.



Anecdotal evidence from interviews indicated that community pressure was a major contributing factor to athletic performance. For example during the course of this study we witnessed the masses of residents in the study area Eldoret town the capital of Uasin Gishu County, assembled around a giant screen to cheer Kipchoge the marathon champion during the 1.59.59 INEOS Vienna Austria marathon event in October 2019 (see figure 7). When asked which of the stakeholders

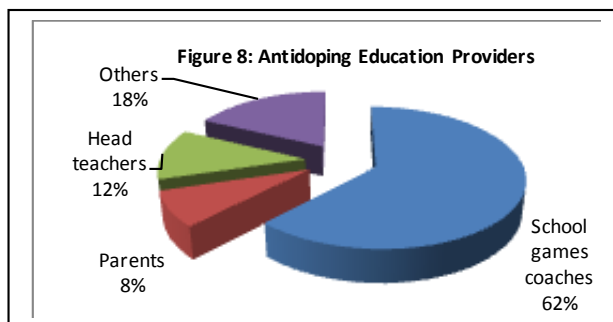


Figure 7: Eldoret residents cheering Kipchoge during INEOS

provided the highest motivation to excel, majority (85.5%), reported that extrinsic factors were more important, 5.9% of the participants were unsure, and 8.6% viewed the intrinsic motivation as more important. No variance was noted between the baseline and endline surveys in the participant’s view of the community being a major source of pride for excelling in sports.

7.3.2 Role of Teachers in Anti-doping programs

The role of the games coaches in providing information about doping was assessed as a contextual factor. As shown on Figure 8, majority (62%) of the participants reported that games coaches were would best guide in the provision of anti-doping education compared to parents (8%), head teachers (12%), and others such as peers (18%).



However, focused group discussions (FDGs) demonstrated that teachers lacked resources to educate on practices in schools. FDGs also showed that dope penetrated schools during sports competitions hence teachers would not control SAPs entering the school during such events. Participants reported that their games coaches were unlikely to be involved in availability of dope within their schools. Interviews with games coaches involved in the intervention indicated that they had gained valuable information and would become active participants in anti-doping education. The coaches reported that the program was appropriate in reaching out to school athletes on anti-doping education. They agreed that the intervention was friendly and easily implementable and that the success of the intervention in changing attitudes was based on the enhancing interactions with their trainees in a natural environment.

7.3.3 Gender Influences in Use of Substances for Athletic Performance

Another important contextual factor in this study was the aspect of gender influences on decision making to use or not use SAPs. There were differences in responses on how the two genders in different school categories were responded to influences in decision making to use or not use SAPs. Findings in Table 8 show that majority of respondents in different school categories (mixed, boys’ only and girls’ only schools) agreed that different

			SCHOOL GENDER			Total	%
			Mixed	Girls	Boys		
SD	Gender	M	19	0	22	41	8.23
		F	13	18	0	31	6.23
	Total		32	18	22	72	14.46
D	GENDER	M	18	0	26	44	8.84
		F	17	14	0	31	6.22
	Total		35	14	26	75	15.06
U	Gender	M	12	0	13	25	5.02
		F	13	17	0	30	6.02
	Total		25	17	13	55	11.04
A	Gender	M	24	0	57	81	16.27
		F	28	37	0	65	13.05
	Total		52	37	57	146	29.32
SA	Gender	M	28	0	64	92	18.47
		F	20	38	0	58	11.65
	Total		48	38	64	150	30.12
Total	Gender	M	101	0	182	283	56.83
		F	91	124	0	215	43.17

influences to take SAPs was real in their school systems. Responses on agreeing (A) and strongly agreeing (SA) to the statements on influence of decision making for different genders indicated that girls from girls' only schools (n=75) indicated there was more influence in taking SAPs compared to girls in mixed schools (n=48) (see Table 8). Boys in boys' only schools (n=121) indicated there was more influence in taking SAPs compared to boys (n=52) in mixed schools. The findings are depicted graphically in Figure 9 which summarizes the likelihood of influence in using SAPs as higher in single gender schools compared to mixed gender schools. The findings are a clear representation that pure gender schools seemed to be influenced more by use of SAPS compared to mixed gender schools. Moreover, this was supported by interviews

conducted with the study participants which reported that girls and boys in single gender schools were more competitiveness than in mixed gender schools.

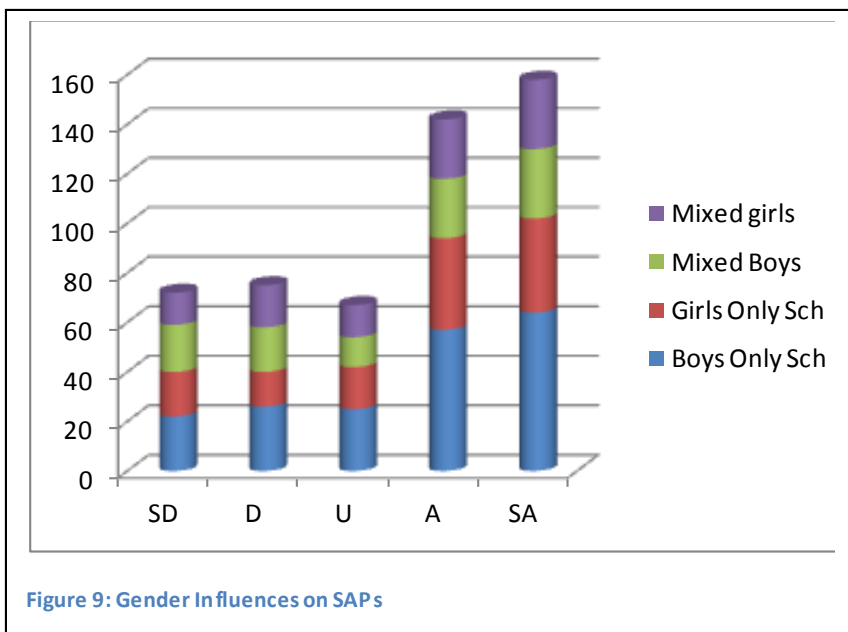


Figure 9: Gender Influences on SAPs

Interviews also showed that fans in favour of a team would enhance better relationships among athletes while jeers during sports competitions made the athletes go to any length to win. The jeers in form of songs and dances from opposing teams greatly discouraged the players because they were taunting and would sometimes result

into fights. Such jeers made athletes to feel pushed to perceive the competition as a “make or break” event. Hence, we can conclude that influences emanating from peers were likely to modify the perception and attitudes of the individual athletes and may present a higher vulnerability to use of dope.

7.3.4 Anti-doping Educational Materials and Policies

Findings on programs, policies, and curriculums and any other materials found in the schools on anti-doping education showed that among the 16 schools involved in this study, 3 had booklets that provided anti-doping education. While 13 (81.75%) had no available resources on anti-doping education. Though the result may not be generalized to all schools in the whole country, it may indicate a need to investigate further on availability of anti-doping materials and policies guiding practices and procedures in schools. It was notable that the anti-doping booklets found in the secondary schools, were developed for value-based education for ages 8-14. Secondary schools students in Kenya have a population that ranges between 15-22 years of age and much of the information found in these booklets was not age appropriate for this population. Further exploration with games teachers revealed that there was lack of anti-doping policies for athletes in secondary schools.

Hypothesis Testing for Contextual, systemic and Gender Factors in SAPs

The paired sample t-test was conducted to establish whether there was a significant statistical variation on contextual, systemic and gender factors between the baseline and treatment group.

Table 9: Paired Samples Statistics Contextual & Gender

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Contextual-baseline	26.9286	256	4.28676	.43303
Contextual-treatment	27.6327	256	2.21703	.22395

Table 10: Paired Samples Correlations Contextual & Gender

	N	Correlation	Sig.
Pair 1 Contextual-baseline & Contextual-treatment	256	.080	.436

Table 11: Paired Samples Test Contextual & Gender

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Contextual-baseline & Contextual-treatment	-.70400	4.66664	.47140	.96032	1.23100	1.749	255	.067

The output of the paired samples correlations showed that baseline and treatment scores are weakly and positively correlated ($r=.080$, $p=.436$). However, this relationship was not statistically significant ($t(255) = 1.749$, $p= 0.067$). Results of this test indicated that there was no difference on contextual, systemic and gender factors on both baseline and treatment groups. This implied that the treatment had no effect on the contextual, systemic and gender factors relating to use of dope on the athletes in secondary schools sampled. This is a likely indication that these aspects could not be controlled yet they have an effect on the youth mindset.

Hypothesis testing:

H₀: There was no statistically significant difference between the study intervention and contextual, systemic and gender factors in use of SAPs among athletes in secondary schools.

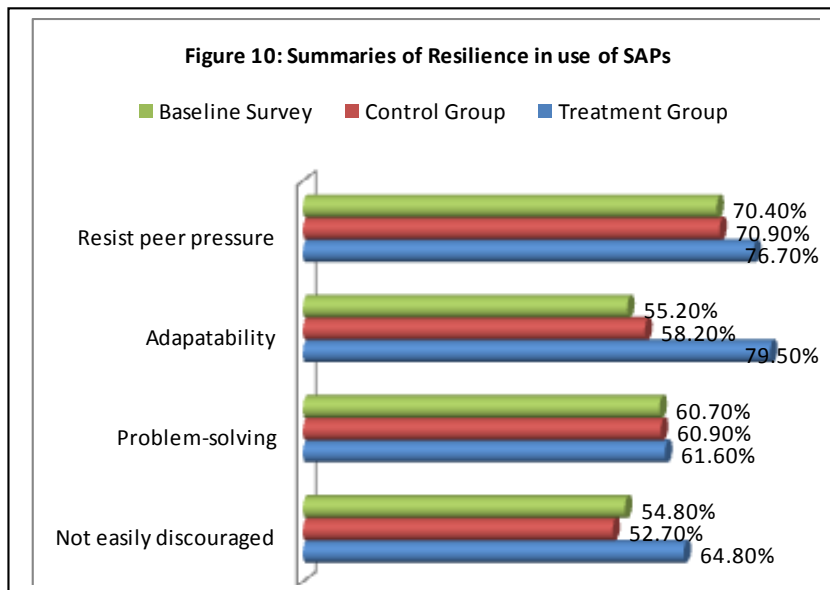
H₁: There was a statistically significant difference between the study intervention and contextual, systemic and gender factors in use of SAPs among athletes in secondary schools.

From the results provided $p=0.067 > 0.005$ therefore there was sufficient evidence to fail to reject the null hypothesis and reject the alternate hypothesis. Hence the BMI intervention was not

significant in changing contextual, systemic and gender factors in use of SAPs among athletes in secondary schools.

7.4 Resilience and use of Substances for Athletic Performance (SAPs)

Using a self-report scale reflecting on resilience adapted from the Connor-Davidson Resilience Scale (CD-RISC; 2003), the study assessed levels of resilience in decision making against doping among the study participants. The measure required participants to reveal their ability to resist substance use amidst pressure from fans, adaptability, problem solving skills and the ability to be resolute or not get easily discouraged by failure to win during competitions. Figure 10 presents the findings from the participants. At the baseline, 70.4% of participants showed resiliency to resist peer pressure on the use of SAPs. In comparison to findings in the endline survey after intervention, the majority (70.9%) of respondents in the control group did not evidence any significant differences in capability to resist peer pressure in using dope, while 76.7% of the participants in the treatment group indicated increased levels of resilience. This showed a positive change in their levels of resilience.



This showed a positive change in their levels of resilience.

The study also sought to find out the effectiveness of the BMI on adaptability to rigorous training. As summarized on Figure 10, the baseline study showed that 55.2% of the participants were more adaptable to rigorous training, while 58.2% of the respondents in the control group and 79.5% of participants in the treatment group demonstrated increased adaptability. To further evaluate the level of resilience, we assessed the problem solving and goal setting abilities among the participants. The study found that 60.70% of the respondents at the baseline could make plans and adhere to the training programs by their coaches, while 60.9% of participants at the control group and 61.6% in the treatment groups demonstrated a slight increase in problem solving skills. Findings on handling discouragement and unpleasant feelings resulting from poor performance during competitions indicated that at the baseline had 54.80% of the respondents were better able to cope with discouragement, while the endline indicated that 52.7% of participants in the control group and 64.8% in the treatment group had increased their levels of coping with discouragement and handling unpleasant feelings after the intervention.

Hypothesis Testing on Resilience against use of SAPs

A paired sample t-test was conducted to compare use of BMI intervention and the resilience in using SAPs of athletes in secondary school. The results are summarized in Tables 11 and 12.

Table 12: Paired Samples Statistics Resilience

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Resilience-baseline	26.9286	256	4.28676	.43303
	Resilience-treatment	42.6429	256	7.18568	.72586

Table 13: Paired Samples Test Resilience

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Resilience-baseline & Resilience-treatment	-15.71429	9.07472	.91668	-13.89492	-17.53365	-17.143	255	.000

The output of the paired sample t-test indicated that there was a statistically significant difference on resilience of secondary school athletes between the baseline and treatment group, ($t(255) = 17.143$, $p = 0.000 < 0.05$). On average treatment scores were 15.71 points higher than the baseline scores (95% CI [-13.894, -17.533]). This demonstrated that resilience of athletes in schools increased after implementation of the BMI intervention.

Hypothesis testing:

H₀: There was no statistically significant difference between the study intervention and resiliency in use of SAPs among athletes in secondary schools.

H₁: There was a statistically significant difference between the study intervention and resiliency in use of SAPs among athletes in secondary schools.

From the results provided $p = 0.000 < 0.05$ therefore there was sufficient evidence to reject the null hypothesis and accept the alternate hypothesis. Hence the BMI intervention was significant in increasing resiliency against doping for athletes in secondary schools in Kenya.

8.0 Conclusions and Recommendations

This study explored psychosocial factors that influence decision making against use of substances for increasing athletic performance (SAPs) as well as implement a behaviour change model to shape beliefs and attitudes against doping. Awareness and knowledge of doping, contextual, systemic and gender factors, and resiliency in use of dope were examined among athletes in secondary schools in Kenya. Existing literature supports the importance of school-level interventions in shaping beliefs and attitudes and in development of better coping skills and behavior change for anti-doping tendencies. This study examined athlete adolescents in secondary schools, who are at a stage of life when they would likely attempt use of SAPs but also a developmental phase when behaviour can be modeled using appropriate tools.

The pre-test phase of the study demonstrated that youth in schools lacked knowledge on use of SAPs such as awareness of testing procedures, knowledge of the prohibited list, and consequences of doping to the individual athlete. It is little wonder that they evidenced faulty beliefs and attitudes about use of SAPs and had lower resiliency when faced by adversity during training and athletic competitions. This study addressed these gaps using an experimental research by examining use of (Brief Motivational Interventions –BMI) in changing the beliefs and attitudes that exist among youth in relation to use of SAPs. There was statistically significant evidence to support the model ($p=0.000<0.05$). This means that applying the study intervention (Brief Motivational Interventions -BMI) in creating awareness of SAPs, shaping beliefs and attitudes, as well as increasing the resiliency of athletes was effective in reducing decision making in the use of dope. However, there was no statistically significant difference ($p=0.067>0.05$) between use of the BMI intervention and changing the contextual, systemic and gender factors influencing use of SAPs.

The following key recommendations emanated from the findings of the study:

- There is need for appropriate programs for youth in secondary schools for sensitization and creation of awareness on the understanding of doping, testing procedures and harms.
- The study elucidated the need for teachers to be provided with the appropriate resources to educate students on doping prevention.
- The study showed lack of awareness and knowledge of doping testing procedures by games teachers themselves. We recommend appropriate anti-doping educational materials and resources to be designed and provided to school games coaches in secondary schools to increase knowledge of anti-doping procedures.
- Sustained attention and integration of anti-doping educational programs within athletic training sessions is crucial if the war against doping is to be won.
- Interventions should focus on intrinsic motivation and value acquisition in order to sustain change in anti-doping behaviour.
- Emphasis in anti-doping education should go beyond sensitization and creation of awareness to more participation from the surrounding community. The local community is a major driving force and push factor for athletes to excel due to the recognition and status acquired by the heroes and champions after winning a competition.

Future studies should be scaled up for more sustainable anti-doping behaviour change. One major strength of the proposed intervention is prevention of doping behaviour through changing the mindset of the youth, which is sustainable in the long-term. Comparison between the baseline and endline surveys provided evidence that using the appropriate educational training programs and involving youth accordingly motivates them better in enhancing the targeted behaviour change. The intervention should be expanded for larger groups in order to provide the much needed anti-doping education for the young and up-coming athletes in schools.

9.0 References

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APPENDICES:

APPENDIX A: INFORMED CONSENT FORM

Dear Respondent

You are invited to participate in the following questionnaire which aims at gathering information on secondary school athletes' knowledge, attitudes, perceptions and beliefs on use of substances to enhance performance in sports. You were selected as a possible participant in this study because you are a student athlete keen on sports and competitions in your school and County. Participation in this study is voluntary and has no negative impact on you. You will be asked to fill a self-report questionnaire which will take approximately 10 minutes to complete. We request you not to put your name or that of your colleague on the questionnaire. This will help us assure you of confidentiality. Information gathered will be used for research purposes only. You are free to quit filling up the questionnaire at any point. Feel free to contact me at the following address.

Dr Eunice Githae
Kenyatta University
Psychology Department
Tel: 0722 895 270
E-main Address: githae.eunice@ku.ac.ke

Kindly sign below to indicate that you have read the information provided above and have decided to participate in this study. However you may withdraw from the study at any time if you feel uncomfortable.

Signature of the investigator _____ Date _____

Signature of Participant _____ Date _____

ATHLETE STUDENT'S QUESTIONNAIRE

This questionnaire aims at gathering information on secondary school athletes' attitudes, perceptions and beliefs on use of substances to enhance performance in sports. You are requested to respond to the question by marking [**V**] the answer that best fits your thoughts. *Please do not put your name or any information on your school on the paper, and do not put any other person's name on the paper.*

SECTION A: DEMOGRAPHIC INFORMATION

For this section, please tick (V) the section that describes you and your school

1. Gender. Male [] Female []
2. Age in years: Below 15[] 16-17 [] 18-19 [] 20-21[] Above 22 []
3. What Class are you in: Form 1 [] Form 2 [] Form 3 [] Form 4 []
4. Type of school: Boys only [] Girls only [] Mixed boys and girls []
5. Indicate your school category:
National School [] Extra county School [] County School [] Sub County School []
6. Name the type of sport or sports that you play when at school:_____
7. Have you participated in a school sport competition? Yes [] No []
8. If your answer in question 7 above is yes, name the sport have you competed in?_____

SECTION B: KNOWLEDGE /AWARENESS QUESTIONNAIRE

The following statements show what understanding you have in the area of use of substances for athletic performance (doping). Please respond by marking [**V**] the most appropriate answer that suits you best.

1. I am familiar with anti-doping regulations Yes [] No []
2. I am familiar with the world anti-doping code Yes [] No []
3. Who is responsible for the substances found in an athlete's body?
 - a) The athlete []
 - b) The doctor []
 - c) The coach []
 - d) The person who provided the substance []
4. What is the real idea behind anti-doping?
 - a) To promote discipline among athletes []
 - b) To protect the spirit of sport []
 - c) To restrict the pharmaceutical industry's access to athletes []
 - d) To hold athletes to a higher standard than non-athletes []
5. Which of the following is included in the definition of doping?
 - a) Using any prescription medication []
 - b) Refusing to be tested []
 - c) Using any over-the-counter medication []
 - d) Not following your sport's rules []
6. What is not a purpose of the World Anti-Doping education?
 - a) To protect athletes' fundamental right to participate in doping-free sports
 - b) To promote health and fairness and equality for athletes
 - c) To ensure harmonized and effective anti-doping programs at the international level
 - d) To allow each country to develop a different set of anti-doping rules
7. Athletes can be tested for use of substances to increase performance for unlimited number of times each year? True [] False []
8. An athlete can be chosen for testing for dope at a competition at any time? True [] False []
9. How can an athlete with a medical condition decide whether to take a prescription medication?
 - a) Athletes can take any medication for medicinal purposes
 - b) By discussing with a doctor whether if to use or not
 - c) If it is prescribed by a doctor
 - d) The medication is permitted for the athletes
10. What is the Prohibited List?
 - a) The list of athletes that have been banned from competition

- b) The list of prohibited substances in-competition and out-of-competition
 c) The list of staff who are not allowed to work with athletes because of doping
 d) The list of doctors not allowed to work with athletes because of doping
11. I am aware of the side effects of using substances for increasing athletic performance?
 Yes [] No []
12. An athlete can take food supplements
 Yes [] No []
13. How can you tell if nutritional supplements are always safe to use?
 a) All nutritional supplements are safe to use
 b) You cannot tell if nutritional supplements are safe to use
 c) If they are sold in a sealed container
 d) If they meet the same safety standards of over-the-counter medications
14. When should an athlete report their whereabouts?
 Always [] Sometimes [] Never []
15. Who is responsible for ensuring that Whereabouts information is up-to-date?
 a) The doctor [] b) The athlete []
 c) The coach [] d) The agent []
16. Indicate the source of information/knowledge where you have learnt about doping and performance-enhancing substances _____

SECTION C

The following statements show what many people think and feel about sports and performance enhancing substances/drugs. The boxes are abbreviated as: **SD** (Strongly Disagree), **D** (Disagree), **U** (Undecided), **A** (Agree), and **SA** (Strongly Agree). Please tick [V] the most appropriate box indicating your thoughts.

PART 1: BELIEFS AND ATTITUDES TOWARD DOPING		SD	D	U	A	SA
1	Athletes in school use substances to increase athletic performance					
2	Use of substances to improve performance in sports is increased by group influence					
3	When one uses a substance they do not feel any pain after a sporting activity					
4	When one uses a substance they have a high chance of winning a sporting activity					
5	Athletes in schools casually joke about doping					
6	Those who do not use a substance to increase athletic activity are just jealous of those who use					
7	Substances for increasing athletic performance are not necessarily harmful					
8	True spirit of athletes is to win even if it means using a substance					
9	Use of penalties for using substances for athletic performance is often unfair to players					
10	Athletes use of words that are likely to support use of substances for athletic performance					
11	Use of substances to enhance performance will always exist in sports					
12	Penalties for using substances are unlikely to stop one from taking to improve their sporting abilities					
13	One's personality is responsible in decision making to use substances to enhance sports performance					
14	Use of substances to increase performance is a taboo topic in schools					

PART 2: ATTITUDES AND PERCEPTIONS		SD	D	U	A	SA
1	Use of performance-enhancing substances is necessary to be competitive					
2	Use of doping in sports is not cheating since everybody is doing it					

3	Athletes often lose time due to injuries and drugs can help make up for lost time					
4	Only the quality of performance should matter during sports					
5	Athletes in my sport are pressured to take performance enhancing drugs					
6	Athletes who take recreational substances are better in sports situations					
7	Athletes who take substances should not feel guilty about breaking the rules					
8	The risks related to effect of doping in sports are exaggerated					
9	Athletes have no alternative career choices except sport					
10	Recreational substances boost and athlete's morale to train and win competition					
11	Doping in sport is an unavoidable part of the competitive sport					
12	Recreational substances help to overcome boredom during training					
14	Media should talk less about performance enhancing substances					

	PART 3: GENDER FACTORS	SD	D	U	A	SA
1	Our school encourages gender equality for both boys and girls during sports					
2	It is normal for boys and girls to try out use of substances while in school					
3	Mixed schools are more likely to have more girls involved in substance use for sports than in girls' only schools					
4	Peers play a critical role in influencing boys and girls in secondary schools to engage in substance use					
5	Boys and girls are treated equally during sports					
6	Girls are taking use of substances to improve sporting less seriously compared to boys					
7	There are no tools to monitor use of substances among boys and girls in schools during sports					
8	Boys and girls are affected differently by the use of substances to enhance athletic performance					

	PART 4: SCHOOL ENVIRONMENT	SD	D	U	A	SA
1	It is normal for boys and girls to try out use of substances while in school					
2	Anti-doping education should target new and up-coming athletes					
3	I feel like a hero when people recognize my efforts in sports					
4	Most of the athletes are using substances since they are readily available in their sporting environment					
6	As athletes we often discuss about penalties for using substances to increase athletic performance					
6	The community is very proud of athletic performance because it elevates the image of the area					
7	A healthy diet and serious training are the true and proven keys to athletic performance					
8	Teens in sporting should seek counseling if they feel tempted to use substances for sport improvement					
9	It is not easy for school teachers to identify who uses substances for increased athletic performance					
10	Games teachers have provided us with information to help us understand anti-doping rules					

	PART 5: PEER PRESSURE AND RESILLIENCE	SD	D	U	A	SA
1	I am able to resist the pressure to use of substances during sporting activities					
2	If only athletes had alternative nutrition to improve their athletic performance sporting would become easier					
3	I can bounce back after a tough sport training just as well as those who use substances to improve their performance					
4	I have increased my practice time to give myself a good win in sport					
5	There are other means to success in sports for instead of using substance to improve athletic performance					
6	It's funny that most athletes only win because they use substances to improve athletic performance					
7	I can do anything possible to avoid discouragement during challenging sporting activities					
8	When I work very hard I can win just as well as those who use substances for athletic performance					
9	I can't win a game as easily as those using athletic performance substances					
10	I think of myself as strong person who is not easily influenced by others' decisions					
11	Peers easily influence one to use substances for athletic performance					
12	I can handle unpleasant feelings caused by poor performance in sports					

Thank you for your participation

Table 13: Schedule of Activities for the Pilot Study May 2019-April 2020

	Activity	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Initial meeting of researchers for planning and visits to study location	■											
2	Develop data collection tools, testing for tools coherence with few random participants, recruitment and induction of research assistants		■										
3	Pre-testing survey and data analysis			■	■								
4	Write report based on pre-test and disseminate (e.g. in a conference)				■								
5	Development of training materials for intervention and manuals				■	■							
6	Recruitment of trainers and facilitators					■							
7	School heads and community leaders sensitization and buy-in forum					■							
8	Training games coaches for intervention and testing intervention for coherence with two random schools						■	■					
9	Intervention implementation Monitoring and Evaluation of intervention							■	■	■			
10	Post-test assessment and analysis										■	■	
11	Report writing based on post-test and writing of conference papers											■	
12	Dissemination, lessons learnt and End of project workshop												■

RESEARCH ACTIVITY PHOTOS



Some participants filling in questionnaires.



A research assistant, coach and award-winning student



Mixed school students filling in a questionnaire



Co-1 presenting during a workshop



Project PI in discussion with few school principals



More participants in a group discussion



Sensitization Workshop for School Principals



Awareness Workshop for Games Coaches



PI chatting with coach with trainees in Doha



Games coaches in experiment group training



Games coach explaining some concepts in BMI activities



Students having a discussion on BMI lesson



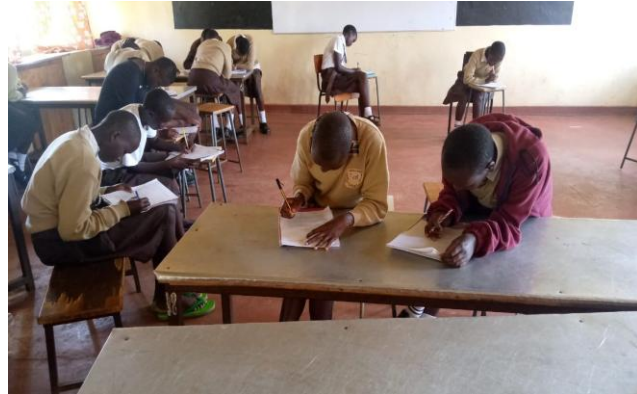
Study participants carrying out a drill



Participants in a BMI intervention lesson



Participants undertaking post-test



Team members discussing BMI activity



Experiment group participants in a drill



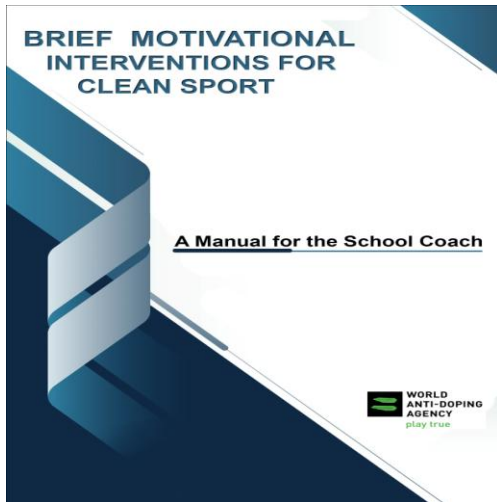
Post test data collection in a participating mixed school



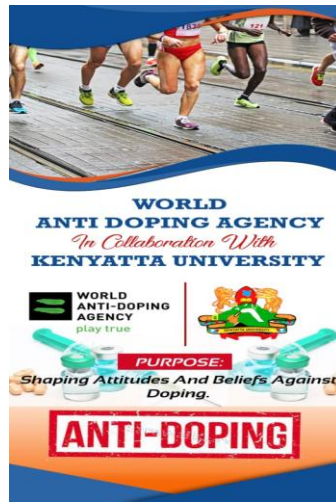
Participants in experiment group having a discussion



More participants in a discussion group



BMI Manual



Workshop Flyer



ADAK staff during the training workshop