Level of Knowledge, Attitude and Practice of Doping among Ethiopian Professional Middle and Long Distance Runners

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Abstract

Introduction: - *Doping, defined as use of drugs or other substances for performance enhancement, has become an important topic in virtually every sport and has been discovered in athletes of all ages and at every level of competition. The efficient strategy for prevention of doping use throughout the sport calendar requires improving the level of knowledge and hastening the development of negative attitude and practice towards doping in the athletes society.*

Objectives: *- The aim of the study was to determine the level of knowledge, attitude and practice on doping among Ethiopian professional middle and long distance runners, 2016/17, Ethiopia.*

Methods: - *A quantitative cross-sectional study design was conducted in Ethiopia from December 15, 2016 to January 14, 2017. The study included 775 Ethiopian middle and long distance running athletes. The study participants were selected by using multi stage sampling technique. Data were collected using structured and pretested questionnaires and multivariate logistic regression analyses were done to identify factors associated with knowledge and attitude towards doping. Finally, results were presented with appropriate tables and graph as well as adjusted odd ratio (AOR) and 95% confidence interval.*

Results: - *The prevalence of adequate knowledge, unfavorable attitude and self-reported practice of doping were 18.5%, 70.8% and 3.6% respectively. Educational status of college and above, married and attending of anti-doping training were found to be significantly associated with knowledge of doping. In terms of attitude age, educational status, residence, attending training on anti-doping and parental factors were showed statistically significant association.*

Conclusion: - *The prevalence of adequate knowledge of doping was quite low and unfavorable attitude towards doping was moderate. In regarding to practice of doping a significant number of athletes were reporting they were using it. Adequate knowledge of doping was higher among athletes who had higher educational status, were married, and attending training on anti-doping.*

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Introduction

Background of the study

Doping, defined as use of drugs or other substances for performance enhancement, has become an important topic in virtually every sport(Baron, Martin et al. 2007) and has been discovered in athletes of all ages and at every level of competition(Catlin and Murray 1996; Metzl, Small et al. 2001; Fernandez and Hosey 2009). In 1928 the International Amateur Athletics Federation (IAAF; now the International Association of Athletics Federations) banned the use of stimulants.

The seriousness of the problem was identified because of the amphetamine-related deaths of Danish cyclist Knud Enemark Jensen during competition at the 1960 Olympic Games and British cyclist Tommy Simpson during the 1967
Tour de France. In 1966, the cycling, soccer, and track and field international federations began testing for stimulants.

The International Olympic Committee (IOC) formed its Medical Commission, which included a Sub commission on Biochemistry and Doping in Sport, in 1967 and tested for stimulants at the 1968 Olympic Games in Mexico City (Bowers 2012).

The WADA publishes a list of prohibited substances and methods annually and tests the blood and/or urine of athletes who registered in the National Olympic Committee, randomly or systemically, for doping evidence.

Moreover, the WADA and national anti-doping agencies educate all athletes to foster abstinence from banned performance-enhancing substances (Kim and Kim 2017).

There are several reasons why doping is illegal in sports. Doping is threatening to the athlete's health and the different substances uses by athletes are not always tested for and approved in medical use, and therefore it can be very harmful and dangerous for those athletes taking illegal substances to enhance their performance .Another thing is that doping is cheating and wrong in sports and doping also threatens the integrity of sports.

Doping does not only affect the professional athletes, but young athletes as well as they are influenced by their role models(Lentillon-Kaestner, Hagger et al. 2012; McNamee 2012).

Ethiopians participate in a lot of sports, a modern sport has a history of over half a century and within this period many types of sports have been introduced, but they are most well-known by athletics around the world. Athletic sports, different from other sports, has been playing a crucial role in introducing the country to the outside world. Athletics, in particular, long distance running has not only brought joy for Ethiopians, but also inspiration and courage to overcome the challenges of poverty(Judah and Girard 2008).

But recently we are hearing and reading about some scandals that Ethiopian athletes were using or exposed to doping.

Statement of the problem

Doping in sport has become progressively viewed as a wider social problem(van de Ven and Mulrooney 2014). Indeed, due to a growing awareness of the recreational use of performance enhancing drugs (PEDs), a rise in consumption rates, and the perceived associated adverse health effects, PEDs have come to be viewed as a serious public health problem(Keane 2005; Simon, Striegel et al. 2006; Sagoe, Molde et al. 2014).

Doping has been a problem in sporting events. Reliable information on the prevalence of doping is necessary to perform policy evaluations(de Hon, Kuipers et al. 2015).

Most of the studies on drug abuse in sports had been conducted in different parts of the world like Europe, America, Asia and Africa (Kenya, Nigeria, Uganda and South Africa). But in Ethiopia in investigators' best knowledge there is no any previous study about doping in sport.

This study therefore tried to assess the level of knowledge, attitude and practice on doping among Ethiopian professional middle and long distance athletes.

OBJECTIVE OF THE STUDY

GENERAL OBJECTIVE

To assess the level of knowledge, attitude and practice on doping among Ethiopian professional middle and long distance runners, 2016/17, Ethiopia

SPECIFIC OBJECTIVES

To measure the level of doping knowledge

To examine level of attitude on doping

To identify the possible practices of doping

To identify the factors that determine practice of doping

Methods, Procedures and Materials

The Study Design and Period

A quantitative cross-sectional survey was employed from December 15, 2016to January 14, 2017. The study utilized a combination of a pre-coded questionnaire.

The Study Area

The study was conducted in Ethiopia. Ethiopia is located in the north-eastern part of Africa commonly known as the Horn of Africa and it is a mountainous country in East Africa situated between 18° and 4°N which makes the country the talent area for long distance running. Neighboring countries include Djibouti and Somalia in the east, Kenya in the south; Sudan in the west and south-west; and Eritrea in the north and north-east. Ethiopia has now 9 regions and 2 federal cities, which have different athletic clubs and youth academy, consists of both male and female athletes in different category.

Population of the study

The source of population of the study was all professional Ethiopian athletes participate in long and middle distance running, who were found in different Ethiopian athletics clubs. The study population was professional Ethiopian athletes participate in long and middle distance running, which were found in different Ethiopian athletics clubs and who were selected to be included in the study.

Inclusion and exclusion criteria

Inclusion criteria: All middle and distance running athletes aged 18 and above from Ethiopian Athletics clubs. And Exclusion criteria: Those athletes who were not found in Ethiopia during the data collection period

Sample size determination and sampling procedure

The required sample size was calculated using Epi info statistical software version 7 by assuming the following assumptions.

Population…… 4250
Proportion ……...…….50%
Margin of error…….. 5%

Finally, the minimum sample size of 352 was obtained. By adding design effect which is doubles the obtained sample size gives 704. By adding non response rate of 10% (71) the final sample size was 775. For this study Cluster sampling technique was used. The procedure on selection of athletes was as follows.

1. Each athletics clubs were taken as aseparate cluster.
2. Out of Fifty five athletics clubs 25 clubs were selected by simple random sampling and included in the study.
3. All middle and distance runners found in selected clubs were included in the study.

Variables of the study

Independent Variables

Socio demographic factors:- Age, sex, marital status, wealth index, educational status; Knowledge factor; Attitude factor and Parental factors: parental educational status, parental involvement in sport, presence of high level athlete in the family

Dependent or Outcome Variables: *Knowledge of doping, Doping attitude and Doping practice*

Operational definitions

Adequate knowledge: those who answered 60% & above of the score for knowledge questions.

Favorable attitude: those who score less than 50% of attitude question.

Inadequate knowledge: those who answered below 60% of the score for knowledge questions

Professional Athlete: - An athlete whose income comes from participating in sport**.**

Unfavorable attitude: those who score 50% and above of attitude question.

Regarding practice, having at least one reporting of history of doping was used to label them as having practice.

Tools and Collection of Data

Structured Questionnaire was used, and a pre- tested structured Amharic or Oromiffa or Tigirigna language questionnaire comprising 66 multiple choice items was developed for the study. The questionnaire was originally developed in English and then translated into local languages. The local languages versions were later translated back into English. The translations were performed by linguistic professionals. Six sport science qualified professionals, one from Clinical pharmacy department and one from Social psychology department of Gondar University, checked the questionnaire for consistency of the translation processes. The questionnaire included 6 items of socio-demographic characteristics and 20 items on each knowledge, attitude and practice towards doping. Knowledge questions included items on different ways of doping types, agents, rules and regulations. Attitude items comprised respondents' attitude towards preference of doping when they seek success(Petroczi 2006). Practice questions dealt with issue of doping practice currently or previously the respondent used.

Statistical Technique For Analysis of Data

Data analysis was carried out by using SPSS version 20 statistical software packages to determine association.

Frequency and percentage, Chi-square test to check the presence of association and odds ratios with 95% confidence interval was used to measure the significance and strength of associations between outcome variables and certain independent variables.

Logistic regression model was used to assess presence of associations as well as to identify and control the confounding variables. For this study statistical significance was defined at probability level of .05.

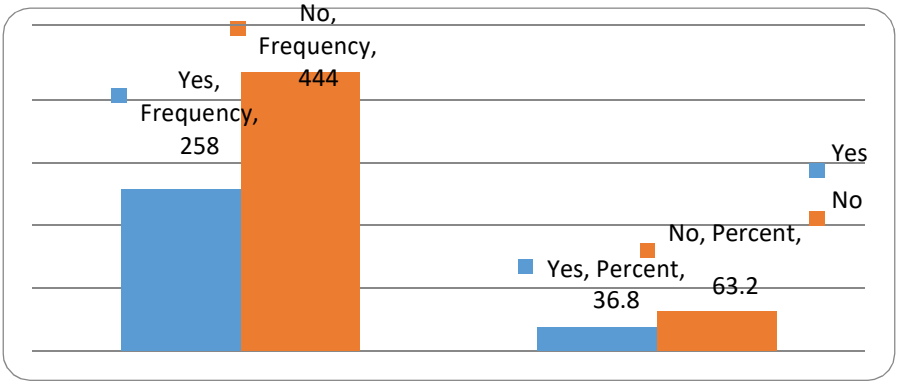
The model fitness was tested by Hosmer and lemeshow test (0.76 for knowledge, 0.87 for attitude).

RESULTS

Training on anti-doping

The study participants reported that, majority (63.2%) of them didn't take training on anti-doping drugs [Fig-1].

Figure 1*:* Prevalence of training on anti doping of Ethiopian middle and long distance running athletes (n-702), Ethiopia, 2017



Knowledge Factors

After categorization based on their score from the study participants, 81.5% of them had inadequate knowledge towards doping [Fig-2].

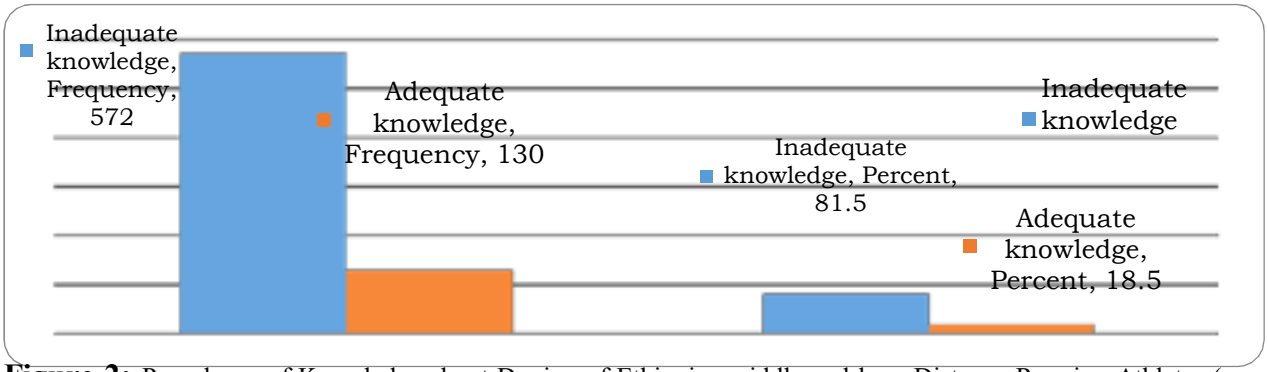


Figure 2: Prevalence of Knowledge about Doping of Ethiopian middle and long Distance Running Athletes (n-702), Ethiopia, 2017

Prevalence of Attitude

After categorization the scores of PEAS, by using 50 as a cut point, the result revealed that the prevalence of unfavorable attitude towards doping was 70.8% [Fig-3].

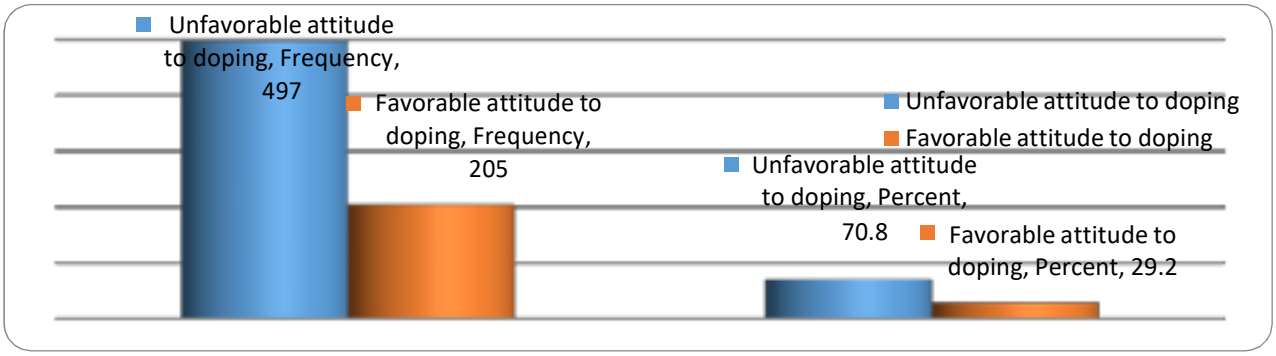


Figure 3: Prevalence of attitude about doping of Ethiopian middle and long distance running athletes (n-702), Ethiopia, 2017

Practice factor

Use of performance enhancing drugs

For the question "Have you ever taken the banned substance?" from the study participants, 25 (3.6%) of them reported they had taken the banned substances [Fig-4].

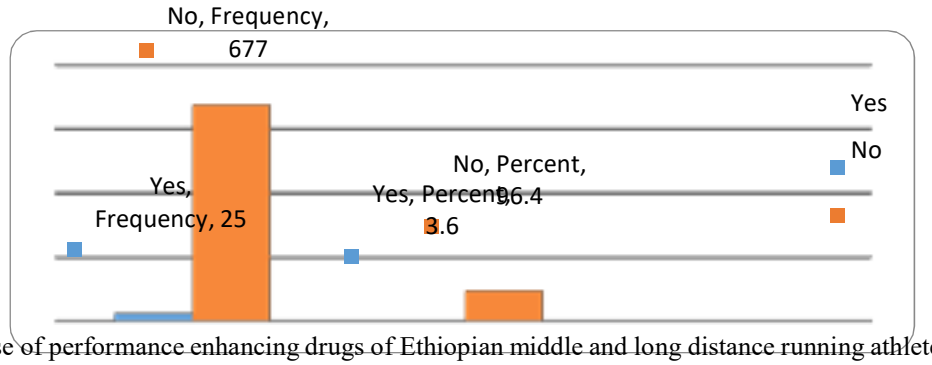


Figure 2: Use of performance enhancing drugs of Ethiopian middle and long distance running athletes (n-702), Ethiopia, 2017

Knowledge of fellow athletes using P.E.Ds of Ethiopian middle and long distance running athletes

In regarding of heard of fellow athlete using P.E.Ds from the study groups 30.5% of the study participants report they heard of colleague or fellow athletes in Ethiopia who were using performance enhancing drugs [Fig-5].

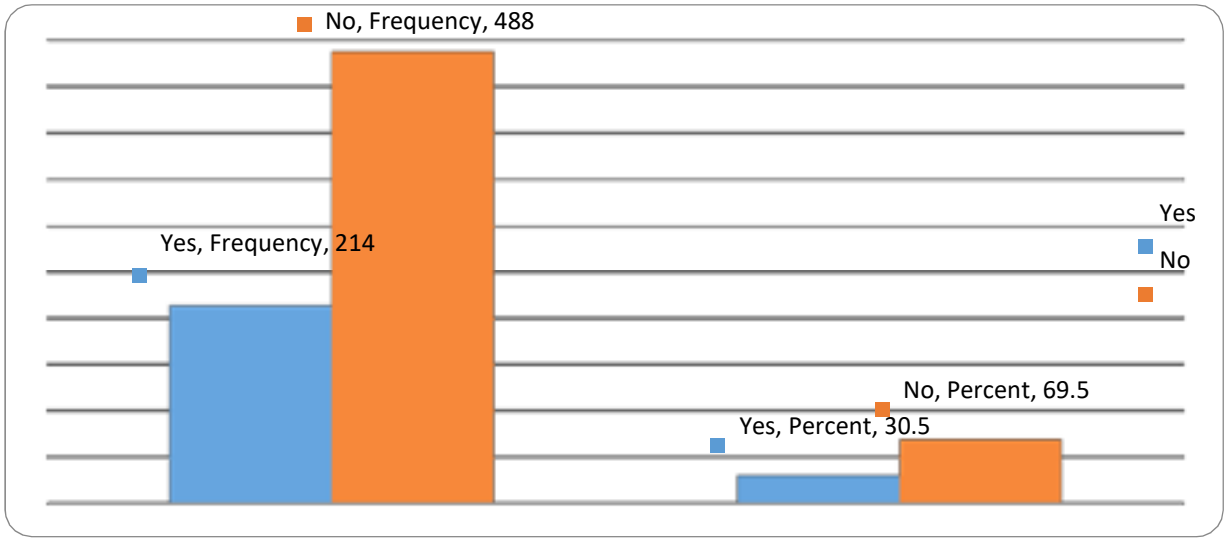


Figure 5: Knowledge of fellow athletes using P.E.Ds of Ethiopian middle and long distance running athletes (n-702), Ethiopia, 2017

Factors Associated With Adequate Doping Knowledge

The result of multivariate analysis showed that factors associated with adequate knowledge about doping were educational status, marital status of the athlete and training on anti doping. Socio demographic characteristics were among the categories of variables that showed significant statistical association with adequate knowledge about doping. Among the socio demographic characteristics athletes' educational status and marital status were the only variables which showed significant association.

Athletes who had educational status of college and above were about three times more likely to be knowledgeable than female athletes [AOR: 3.239, 95%CI: 1.55, 6.746].

In case of marital status married athletes were almost three times more likely to have adequate knowledge about doping as compared to unmarried counterparts.

Among those associated factors attending training on doping was one of them. Athletes who attend training about doping were about 70 % more likely to be knowledgeable about doping as compared to who didn't attend [Table-1].

Table 1: Multivariate logistic regression analysis for potential factors associated with adequate knowledge of Ethiopian middle and long distance running athletes (n-702), Ethiopia, 2017

Variables	Knowledge about doping		Crude OR(95%CI)	Adjusted OR(95%CI)
	Adequate	Inadequate		
Sex: **Male**	88	329	**1.548(1.034-2.316)***	1.471(0.967-2.238)
Female	42	243	1	1
Educational status				
Primary education	12	87	1	**1**
Secondary school	76	382	1.442(0.752-2.768)	1.667 (0.849-3.273)
College and above	42	103	**2.956(1.465-5.966)***	**3.239 (1.55 -6.746)***
Parental educational status				
No formal education	106	506	1	1
Formal education	24	66	**1.736(1.04-2.896)***	1.698(0.995-2.899)
Marital status				
Currently	108	536	1	**1**
Unmarried	22	36	**3.033(1.72-5.359)****	**2.861 (1.595- 5.13)***
Married				
Residence				
Urban	39	221	1	1
Rural	91	351	1.469(0.974-2.216)	1.468(0.957-2.253)
Training on anti doping				
Yes	58	200	**1.498(1.018-2.205)***	**1.675(1.117-2.51)***
No	72	372	1	1

Note: 1= Reference **, =p<0.001, * =p<0.05

Bivariate and multivariate analyses were computed to identify the confounders and to determine factors associated with level of attitude of study participants respectively. Seven variables showed significant association with attitude level of doping at a 5% level of significant.

After logistic regression has been used to assess factors associated with unfavorable attitude socio demographic characteristics, parental factors and training on doping were showed statistically significant association. An athlete who had a parent with formal education was 2.5 times more likely to have unfavorable attitude to doping as compared to athletes who had a parent with no formal education. Similar to this athletes who had a parent involving in sport were almost 60% more likely to have negative attitude to doping. In contrast to this athletes who had not high level athlete in the family were almost 2 times more likely to have unfavorable attitude towards doping. The result of the study also revealed that athletes' residence was statistically significant determinant of attitude of doping.

From the lower table it is shown that respondents who reside in urban were almost 50% more likely to had unfavorable attitude about doping [Table-2]

Table 2: Multivariate logistic regression analysis for potential factors associated with unfavorable attitude of Ethiopian middle and long distance running athletes (n-702), Ethiopia, 2017

Variables	Attitude about doping		Crude OR(95%CI)	Adjusted OR(95%CI)
	Favourable	Unfavourable		
Age				**0.927(0.871-0.986)***
Educational status				
Primary education	60	39	**2.206(1.26-3.861)***	**2.801 (1.55-5.056)***
Secondary school	325	133	1.389(0.897-2.151)	**1.67 (1.052 -2.652)***
College and above	112	33	1	**1**
Residence				
Urban	172	88	**1.421(1.019-1.982)***	**1.488(1.046-2.12)***
Rural	325	117	1	1
Parental educational status				
No formal education	446	166	1	1
Formal education	51	39	**2.055(1.306-3.233)***	**2.585(1.60-4.168)****
Parental involvement in sport				
Yes	151	72	1.24(0.879-1.751)	**1.595(1.068-2.38)***
No	346	133	1	1
High level athlete in the family				
Yes	73	21	1	1
No	424	184	1.509(0.901-2.525)	**2.08(1.146-3.778)***
Training on anti doping				
Yes	204	54	1	1
No	293	151	**1.947(1.36-2.786)****	**2.027(1.393-2.95)****

Note: 1= Reference **, =p<0.001, * =p<0.05

Discussion

Knowledge about doping

Less than one-third of the athletes were felt very well informed about the procedure that follows a positive test of doping which is significantly less than a study from Gauteng province (South Africa)(Nolte, Steyn et al. 2014), Norway (Hisdal 2014) and Austria (Fürhapter, Blank et al. 2013). The greater problem found in the study were the Ethiopian professional middle and long distance runners demonstrated very limited knowledge and understanding of doping based on the result of this study, providing only 18.5 % of them had adequate knowledge towards doping. The result of this study is too far from other studies conducted on Sub Saharan Africa (Kenya(Chebet 2014), Nigeria(Ohaeri, Ikpeme et al. 1993)).

Controlling doping only by tests is not sufficient; a profound change in the attitudes, which should be monitored repeatedly, is needed. Information about doping and prevention are necessary, and should cater to the athletes and associated stakeholders. This will allow us to establish and maintain correct attitudes towards doping(Alaranta A, Alaranta H et al. 2006).

In the present study with regarding to doping, the prevalence of unfavorable attitude towards doping was 70.8%. This result is in line with other several previous studies conducted in different countries (Britain(Mottram, Chester et al. 2008; Bloodworth and McNamee 2010; Bloodworth,

Petróczi et al. 2012), Finland(Alaranta A, Alaranta H et al. 2006), France(Peretti-Watel, Guagliardo et al. 2004), Netherlands(De Hon, Eijs et al. 2011), Australia(Dascombe, Karunaratna et al. 2010), Korea(Kim and Kim 2017), Kenya (Chebet 2014), Uganda(Muwonge, Zavuga et al. 2015)) with different methods, population and instruments. Even though the unfavorable attitude towards doping use is high (70.8%) in Ethiopian middle and long distance running athletes, there is still need to progress to its maximum level. Attitudes towards the behavior develops through learning, thus they are results of a slowly evolving process that involves prolonged engagement. Accepting this as a basic premise, one must consider the conceptual challenges around 'doping attitude'. In this study the prevalence of self reporting doping use was 5.7% but 30.5% of the study participants report they heard of colleague or fellow athletes in Ethiopia who were using performance enhancing drugs. Other studies from Kenya (4%)(Chebet 2014), Uganda (9.3%)(Muwonge, Zavuga et al. 2015), Korea (3.6%)(Kim and Kim 2017) were also showed similar results with the present study. In this study, the likelihood of adequate knowledge towards doping among the study participants having college and above educational status was higher than those respondents having primary educational status. This is due to the educational programs which increase the awareness of the athletes in bringing adequate knowledge towards doping.

The other factor that was statistically associated with adequate knowledge about doping was marital status. The odds of having adequate knowledge about doping were higher among married Ethiopian middle and long distance runners as compared to currently unmarried counterparts. This is could be explained by marriage appears to have a positive effect on a variety of health outcomes. Mental health is the most prominent; married individuals have a lower risk of depression than their unmarried peers. Being married has also been linked to better cognitive function(Kiecolt-Glaser and Newton 2001). Likewise, the likelihood of having adequate knowledge about doping was higher among those athletes who take training on anti doping.This study also tried to see the association between different factors and unfavorable attitude towards doping. With this regard, the odds of unfavorable attitude decreases by 7.3% as the age of the athlete increase by a year. The result of this study found that factor negative associated with the required unfavorable attitude was age. In the other hand educational status, residence, parental educational status, parental involvement in sport, high level athlete in the family and training on anti doping were negatively associated with unfavorable attitude. In case of educational status the result of this study revealed that the unfavorable attitude of athletes was increased as their educational status increases. This finding is supported by a study conducted in British which tried to explore how

people's attitudes to a broad range of issues vary according to their level of education. Findings indicated a clear association between education and attitudes across a range of attitudinal areas and sub-topics. The results suggest that educational level is associated with: interest and involvement in politics; political efficacy; environmental awareness and concern; perceptions of gender roles; attitudes to immigration and immigrants; perceptions of welfare benefits and benefit recipients; national identity and entrepreneurship(Brennan, Chanfreau et al. 2015). A study from Austria revealed that attitudes toward doping consistently supported refusal. Given that the attitudes of parents have been found to influence the attitudes and behavior of their children in other behavioral studies, this result is reassuring, but it is not certain that this transfer of beliefs would hold true for doping(Blank, Leichtfried et al. 2015).

Similarly in the present study parental factors such as parental educational status, parental involvement in sport and presence of high level athlete in the family were statistically associated with attitude towards doping.

Conclusion

From the present study very low prevalence of adequate knowledge of doping was observed. Whereas, significant number practice of doping was reported among athletes.

Educational status, marital status and taking of anti doping training were significantly associated with knowledge of doping. Age, educational status, residence, parental educational status, Parental involvement in sport, presence of high level athlete in the family and training on anti doping were found to be the independent predictors of attitude towards doping

Recommendations

Based on the finding of the study we recommend the following recommendations:

- It is needed to strengthening the existing doping laws and doping control interventions.
- Suitable interventions also better to be implemented with regard to changing attitudes towards doping and that a greater emphasis to be placed on educational programs and parental factors.
- Information and prevention programs better to be started with athletes at a young age, and involving other stakeholders (e.g. coaches or family), are necessary.
- Better to expand a regularly scheduled awareness creation about doping by conduction anti doping trainings or workshops.
- It is advisable to consider the educational status while providing training towards doping.

The present study is the first study to assess the knowledge, attitudes, practice about doping and its associated factors among Ethiopian middle and long distance running athletes. Further research is needed with enlarge the study, include other populations, study design and additional independent variables.

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