Stakeholders' Perspectives on the Effectiveness of the Chinese Anti-Doping Education Policy

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The significance of anti-doping education in competitive sports is paramount, necessitating athletes and coaches to possess an in-depth understanding of doping prevention strategies. However, information on the Chinese context is limited, prompting a comprehensive examination of the nation's anti-doping education system. This study explored the experiences of 45 stakeholders involved in Chinese anti-doping education via in-depth interviews and provides a critical analysis of the system's target audience, delivery methods, timing, and content. The study developed an anti-doping education policy implementation model, assessing its efficacy within the Chinese context. The model posits that while China has made significant strides in addressing key factors of anti-doping education, improvements are still required. Notably, broadening the selection of target groups, enhancing awareness-raising efforts, and establishing comprehensive plans for anti-doping education throughout an athlete's lifecycle are crucial. Additionally, clear timelines for these initiatives and an optimized anti-doping policy evaluation process, involving increased collaboration with academic institutions and scholar participation in research, are recommended. These findings underline the importance of a continuous and context-specific refinement of China's anti-doping education strategies, aligning with the evolving needs of stakeholders and the broader demands of the sporting ecosystem.

Keywords**:** CHINADA; anti-doping education policy; governance; point-based system; International Standard for Education

Introduction

In the world of competitive sports, a challenge that has plagued international agencies, as well as nations, is the need to curtail doping and raise awareness through anti-doping programmes. To combat doping in sports, the International Olympic Committee established the World Anti-Doping Agency (WADA) in 1999. Since then, WADA has routinely developed testing approaches and updated its list of prohibited substances and methods in sports (Read *et al.* 2021).

With competitive sport at its historical peak—both in quality and quantity—WADA has also improved its doping testing techniques. Despite the ramping up of anti-doping measures, the goal to fully eradicate doping in sports remains elusive; doping remains rampant and continues to create both national and international controversies (Dimeo and Møller 2018). The Russian Olympic doping scandal may be the best example of the futility of the precautionary measures for doping. This issue relates not only to the effectiveness of the testing process but also to the institutional disruption and failed education of athletes' and officials' awareness of doping (Dasgupta 2019, Dowling *et al.* 2021, Read *et al.* 2021).

Critics contend that doping tests are bound to be ineffective due to the rapid development of new performance-enhancing substances, which outpace updates to the 'prohibited list'. This essentially means that athletes who choose to dope are always one step ahead of the list (Dimeo and Møller 2018, Vlad *et al.* 2018). Instead, prioritising anti-doping education may be the key to reversing this situation. Consequently, there has been a growing emphasis on anti-doping education (Boardley *et al.* 2021), which is viewed as a more effective strategy for combating doping.

In keeping with the times, WADA published an International Standard for Education (ISE) and other auxiliary regulation guidelines as part of its 2021 International Standard for Education (WADA 2021). The new system is expected to greatly support anti-doping education across sports and countries. In the realm of international sports, China has emerged as a formidable competitor. To align its national anti-doping efforts with international standards and attain a high level of compliance, the Chinese government has undertaken several initiatives (Tan *et al.* 2020, Yang *et al.* 2022). The China Anti-Doping Agency (CHINADA) has issued numerous supportive regulations, including the 'Detailed Rules for the Implementation of Anti-Doping

Education', the 'Guidelines for the Anti-Doping Education Qualification Access Control Programme', and the 'Anti-Doping Educator Management Regulation' (CHINADA 2021a).

Houlihan (2002) posited that the attainment of compliance with international policies, such as those of WADA, presents nations with significant challenges. Central to these challenges is the necessity to adapt such policies to the idiosyncratic features of each country, which involves amending domestic legislation and legal and administrative processes, as well as transcending ideological impediments that have become entrenched in each nation's political culture. The velocity of implementing changes must correspond to the progress achieved in the transformation of domestic policies or the emergence of innovative strategies or alternative interpretations of the World Anti-Doping Code (Code) that WADA finds acceptable (Houlihan 2002). This study delves into the intricacies of the implementation of anti-doping education in China, extracting valuable insights from stakeholder perspectives on the strengths, weaknesses, and challenges inherent in the process. With China being one of the world's most populous athletic nations, understanding its unique responses to new anti-doping regulations can shed light on the nuanced aspects of these standards and their practical applications.

Literature review

The corpus of literature on anti-doping education is fairly substantial, and its focus has traditionally followed two distinct directions. The first category focuses on the design of anti-doping education programmes in general, while the second category is specifically concerned with relevant anti-doping organisations. In the former case, most of the research has attempted to create a framework to guide anti-doping education or to gauge the effectiveness of different types of anti-doping education programmes (Backhouse

2015, Murofushi *et al.* 2018, Woolf 2020, Boardley *et al.* 2021, Tan *et al.* 2021). While scholars have tried to identify the real effects of knowledge- and values-based education on athletes and the relationships between them, Woolf (2020) notes that it is still difficult to assess or examine athletes' comprehension of doping even when they demonstrate some anti-doping knowledge. In other words, there is no direct link between the effectiveness of the anti-doping education programmes and the reduction or determent of doping (Yang *et al.* 2022). Therefore, further research is necessary to enhance understanding of the effectiveness of anti-doping education programmes and their potential in preventing doping in sports.

Accordingly, in the stream of research that evaluates the efficacy of sports federations and National Anti-Doping Organisations (NADOs) in implementing anti-doping policies (Winand 2015, Gatterer *et al.* 2020, Yang *et al.* 2022), Winand (2015) made five recommendations based on an analysis of UK anti-doping education: clearer responsibilities for sports federations, improved delivery of anti-doping education, more collaboration among sports federations, a better monitoring system, and policy reforms. The research by Gatterer *et al.* (2020) adopted five main activities (knowledge-focused, affective-focused, social skills training, life skills training, and ethic- and values-based) to evaluate the anti-doping prevention work in 53 NADOs. The study findings indicate that only knowledge-based anti-doping activities are being properly implemented, while the other four types of activities are largely inadequate. Moreover, the study raises concerns about the accuracy and consistency of self-reported data from NADOs regarding their anti-doping efforts as they may not accurately reflect the actual implementation of anti-doping measures (Gatterer *et al.* 2020). However, Winand (2015) and Gatterer *et al.*'s (2020) studies are not the best foundation to understand

Chinese anti-doping education policy because of the vast political and cultural differences between the UK, Europe, and China.

The implementation of the ISE in January 2021 was a noteworthy achievement in the progress of anti-doping education, which is mandatory for all signatories. Consequently, the assessment of a country's compliance with ISE standards is a crucial factor in evaluating the effectiveness of China's anti-doping education policy. The ISE is divided into three parts. The first part mainly covers the ISE's scope and includes definitions of relevant terms. The second part, which relates closely to the current study, stipulates minimum standards for signatories in terms of the planning, implementation, and evaluation of education programmes. The ISE requires signatories to first establish the education pool and then deliver the education programme by incorporating the following four components: awareness-raising, information provision, values-based education, and anti-doping education (WADA 2021). Moreover, each of these programmes must be evaluated and developed annually. The third part of the ISE clarifies the roles and responsibilities of each signatory (e.g. NADOs, international federations, major event organisations, and national Olympic committees). The current study focuses only on the Chinese anti-doping education work related to the NADOs.

As such, this study is of great significance as it seeks to delve into the intricacies of anti-doping education policy implementation in China, in particular by examining the effectiveness of the existing anti-doping education programmes. Through this investigation, this study seeks to explore and deepen an understanding of Chinese anti-doping education initiatives, illuminating the challenges associated with implementing the ISE. This, in turn, will aid in charting a way forward for promoting clean sport in China.

Methodology

This study explored the nuances of anti-doping education policy in China through the lived experiences and interpretations of stakeholders. Embracing an interpretivist epistemology, this research sought to understand the multiple realities constructed by these actors, utilising qualitative methods to delve into these diverse perspectives. Qualitative methods, such as in-depth interviews with various policy actors, legislators, agencies, and other representatives, are often applied in policy issue areas (Yanow 2007). This makes the present research an inductive approach. The interviews with stakeholders were semi-structured face-to-face, telephone, and email interviews because open-ended, flexible questions allowed us to explore the interviewees' views, interpretations of events, understanding, experiences, and opinions (Byrne 2012, Signal *et al.* 2018).

Sampling

Although the primary focus of this research is anti-doping education, it is inherently connected to the broader issue of anti-doping, rendering it a sensitive topic. Furthermore, the collection of data for this study was complex due to China's intricate cultural and political milieu. As a result, to enhance the probability of successful data collection in China, it was necessary to consider the cultural and political factors that are unique to the country.

In Chinese social contexts, the primacy of social relationships is commonly grounded in the concept of *Guanxi*, which encompasses the notion of social connections or relationships among individuals (Wen 1988, Chang and Holt 1994, Bian 2019). *Guanxi* dynamics are primarily determined by the degree of closeness between individuals, which in turn significantly impacts their behaviours and communication

patterns with one another. As Wen (1988) elucidates, Chinese individuals tend to exhibit a heightened sensitivity towards *Guanxi*, which profoundly shapes their inclination towards veracity, support, and assisting others. In essence, individuals are more likely to be open and forthcoming with other individuals with whom they share close *Guanxi* connections, thereby enhancing the credibility and reliability of interviews.

In the current study, the successful identification of an appropriate gatekeeper was deemed essential for ensuring the veracity and accuracy of the research findings. The gatekeeper was selected based on their close *Guanxi* connections to both the researchers and anti-doping stakeholders in China. It is noteworthy that nearly half of the interviewees were introduced by the researchers' in-group acquaintance, who had affiliations with the anti-doping fraternity. This approach not only enhanced the credibility of the research but also addressed the principle of dependability, a concept in qualitative studies analogous to reliability in quantitative research (Janis 2022). The dependability of the study was thus ensured by the consistency and stability of data provided by the interviewees, who were more open and willing to share due to the Guanxi connection.

Additionally, political conditions were considered during the recruitment process as China operates under a top-down political system (Saich 2015). This necessitated a preference for interviewing superiors before subordinates since consent or introductions from a superior allowed for more cooperation from subordinates. Thus, a top-down approach was employed to recruit the remaining half of the interviewees. Specifically, the researchers initiated contact with WADA, which then facilitated the introduction of interviewees from CHINADA. Finally, CHINADA introduced interviewees from local anti-doping agencies.

Although this study successfully identified an appropriate 'gatekeeper' and method for data collection, it remained challenging to obtain a representative sample of stakeholders given China's vast population. To address this challenge, the researchers have been visiting these stakeholders since 2016 to establish personal connections and build rapport.

The first three rows of Table 1 reflect the basic anti-doping administration in China, starting from the top of the pyramid with CHINADA. CHINADA, the leading anti-doping governing body[1] in charge of all anti-doping work, was targeted. The interviews also investigated anti-doping work by local authorities in China's administrative divisions. Data collection was conducted in 10 different geographical locations, including eight provinces and two municipalities. Provinces and municipalities were chosen based on (a) the relative ranking of their overall competitive sports performance and (b) the relative ranking of their economic development. The selection of coaches and athletes from the sports federations and local anti-doping agencies in select geographical locations was achieved by purposive sampling. Rows 4 and 5 are labelled 'media' and 'scholars', respectively: these participants were relevant stakeholders outside of the national anti-doping system who offered valuable perspectives on the promotion and research of anti-doping initiatives. To further enrich our understanding, WADA and other staff from NADOs were also interviewed in order to gain descriptive knowledge of China's anti-doping education from outside the administrative structure of the country itself.

[Table 1 near here]

Interview question design

Data collection lasted seven years, from 2016 to 2022, which required the researchers to

update the interview guide continually. To compose the interview questions, this research followed a logical process that aimed to elicit information about anti-doping education policy in China from relevant stakeholders. The questions were designed to cover different aspects of anti-doping education policy, including its target group, delivery methods, programme types, and learning outcomes. This study also included sub-questions to gather more specific information and clarify any ambiguities, including, 'Does the China Anti-Doping Agency host anti-doping education programmes on a regular basis?', and, 'Is it true that some students are susceptible to doping in sport trials as a part of the university-level entrance exam?' Questions about the effect of the ISE on practices in China were added later, which mainly asked about the education programme and its implementation. Furthermore, the focus of each question varied depending on the types of interviewees, for example, officials, scholars, athletes, or coaches. For instance, when asking the question, 'How should anti-doping knowledge be delivered?', the researchers expected officials and scholars to answer from a policy implementation perspective, whilst athletes and coaches were encouraged to share their grassroots perspectives on and experiences of anti-doping education.

Owing to the length of the data collection process, some comments from the early interviews may be potentially irrelevant to current Chinese anti-doping education work.[2] However, the comprehensive nature of the data collection provides details on the long-term development of anti-doping education in China.

Data analysis

The data were subject to a process of thematic analysis, following Braun and Clarke's (2019) approach which is often employed in qualitative sports research. This enabled the exploration of participants' experiences and the identification of influential factors within the context (Braun *et al.* 2016). All audio-recorded and email interviews were

imported into NVIVO 12 for rigorous and systematic analysis.

The analytical process involved an iterative cycle of coding, classifying, and re-coding data, guided by participants' responses rather than the pre-determined structure of the interview guide. Initial categories were developed by the lead author as a preliminary step to condense the data and facilitate deeper analysis. Subsequently, five main themes emerged from the data, reflecting the richness and diversity of the participants' perspectives. These themes were not strictly anchored to the 'five Ws' initially identified but evolved to encapsulate a broader understanding of the anti-doping landscape in China:

- the target group for anti-doping (Who)
- delivering anti-doping education (How and where)
- timing of delivering anti-doping education (When)
- content of anti-doping education programmes for the target groups (What)
- effectiveness of anti-doping education in China

Each of the five themes included sub-themes; for example, the theme ‘target group of anti-doping education’ had four sub-themes: ‘registered athletes’, ‘athlete support personnel (ASP)’, ‘students’, and ‘public’. All sub-themes were derived from the interviews and relevant regulations and policies.[3] This thematic analysis offered an in-depth understanding of the complex interplay between the themes and sub-themes, encapsulating the dynamics of anti-doping education in China. This study emphasises the fluid nature of qualitative analysis, where themes emerge, intertwine, and evolve throughout the process, providing a rich, detailed, and nuanced picture of the subject matter.

Results and discussion

Target group of anti-doping education (Who)

As stipulated by the ISE, it is imperative for NADOs to identify and specify the target groups of their anti-doping programmes (WADA 2021). According to the interviewees, the primary groups targeted for anti-doping education in China include 'registered athletes' and 'ASPs'.

In China, the term 'registered athletes'[4] refers to those who have been granted the authority to compete on behalf of their registered organisations or teams (Interviewees 1.1, 2.10). China employs a three-tiered pyramid training system, with the national and provincial teams positioned at the top, followed by city and provincial sports schools[5] (professional) in the middle, and extra-curricular sports schools (children) at the base (Zheng *et al.* 2019, Ma and Kurscheidt 2021). Athletes at the highest level are all registered, while the majority of students at the provincial sports schools are registered, with only some young students being an exception (Interviewees 2.2, 2.5). Although they are not registered athletes, the interviewees expressed the belief that young athletes in sports schools should still receive anti-doping education (Interviewees 1.1, 2.2, 2.5). Interviewees from sports schools reported that CHINADA places a greater emphasis on young athletes enhancing their anti-doping awareness (Interviewees 2.2, 2.5). It is customary for individuals who attend regular schools, and who are typically younger in age, to constitute the predominant group of participants in extra-curricular sports schools. However, these individuals often remain unregistered and, consequently, receive barely any anti-doping education.

Accordingly, ASPs, such as coaches, officials, medics, and family members, also need to be educated about anti-doping (Interviewees 1.1, 3.1, 3.8). From CHINADA officials' perspective:

> The behaviour of athletes, especially young ones, is strongly influenced by their coaches, who thus need to be targeted more. (Interviewee 1.1)

One interviewee also mentioned Tyler Hamilton, a former American professional road cycle racer who was invited to WADA to disclose that his doping behaviour was influenced by his coaches (Interviewee 1.1). According to the interviews, the anti-doping education for this group mainly focuses on coaches. Some of them noted that they had received different types of anti-doping education (Interviewees 3.8, 3.10). CHINADA adopts joint responsibility, which means that if athletes test positive and receive punishment, the support personnel (usually only the coach) and administrative units also face penalties (Yang *et al.* 2022). Fundamentally, this joint responsibility system makes coaches more accountable for anti-doping education (Interviewees 1.1, 2.8).

The ISE highlighted that signatories are required to identify and prioritise the target groups that are to be included in their education pools based on their available resources and capacity and document this selection in their education plans. Since the reforms to integrate sports and education in China, sports have played a much more important role in college and school entrance exams; one consequence of this change has been the proliferation of performance-enhancing drugs at schools (Interviewees 1.1, 2.10, 4.3). Therefore, students from both sports schools and regular schools need anti-doping education. Some officials from the Local Institute for Sport Science (a local anti-doping agency) shared that they had been cooperating with the education system; they strongly believed that they should strengthen this cooperation and pay attention to enrolments and sports teams in colleges and universities, and even training and anti-doping education after enrolment (Interviewees 1.1, 2.1, 2.4, 2.10). One of the interviewees offered a possible solution to achieve this objective.

> We could integrate anti-doping education into the compulsory physical education and health classes for school-aged youth in China. This would help them to better understand the importance of staying clean and the measures they can take to avoid doping. (Interviewee 2.1)

Given that social progress and the rapid development of sports have increased the number of people involved in mass sports, anti-doping education may also be a necessity for such individuals (Interviewees 1.1, 2.1, 2.10). For example, numerous marathons are held in China each year, attracting thousands of participants across genders, ages, and regions (including international participants; Interviewee 1.1).

One interviewee noted that they were aware of frequent doping incidents involving bodybuilders in public clubs (Interviewee 2.10). In the interviews, officials from each local anti-doping agency stated that they had already realised the importance of providing education for participants at mass sporting events and public clubs; however, no clear standards or regulations for these groups of people exist. The disparate administrative systems operating within public clubs and mass sporting events further complicate the efforts to synchronise anti-doping educational initiatives (Interviewees 2.4, 2.10, 2.1).

As previously stated, the Chinese anti-doping education pool has accorded priority status to ‘registered athletes’ and ‘coaches’. Nevertheless, education organisations are encouraged to broaden their anti-doping education coverage for other groups, such as school students and mass sports participants, when formulating their education plans. According to the interviewees, incidents of doping have transpired in mass sports, public sports clubs, and even college and university admission examinations. Despite the longstanding existence of this predicament, there are currently no explicit standards or practical interventions for anti-doping education targeting students in schools, public sports clubs, and mass sporting events. CHINADA

and local anti-doping agencies have recently begun to appreciate the potential hazards. While students in schools and participants in public sports clubs and mass sports are not currently designated as target groups in the Chinese anti-doping education pool and education plan document (Interviewees 1.3, 4.1, 4.4), it may be beneficial from a research standpoint to consider their inclusion. This is in line with the broader aspirations of the ISE's standards, even though it is not explicitly stipulated as a requirement.

Delivering anti-doping education (How and Where)

To firmly establish anti-doping awareness for athletes, anti-doping education will be conducted throughout athletes' sporting lives (Interviewees 1.1, 1.3), and an Anti-Doping Education Qualification Access Control Programme (hereinafter referred to as Access Control Programme) will also be created (CHINADA 2020a). This programme is the most essential anti-doping education approach in China: almost every interviewee mentioned this programme when talking about anti-doping education. One of the interviewees concluded:

> This system is preventative and echoes the principle of 'taking prevention as the aim and education as the method'. (Interviewee 1.1)

A more comprehensive explanation of the Access Control Programme from CHINADA demonstrates that all athletes participating in competitions, as well as their assistant personnel, must receive anti-doping education, pass the anti-doping knowledge exam, sign a letter of commitment to anti-doping, and take an oath on anti-doping (CHINADA 2021b). Athletes and their assistants who pass the test and are approved are qualified to participate in competitions (Interviewees 1.1, 2.3, 2.16, 3.2, 3.6, 3.9, 3.13).

Seven respondents from local sports bureaus believed that ensuring the success of this programme was one of their most important tasks (Interviewees 2.1, 2.3, 2.4, 2.8, 2.10, 2.15, 2.16). An official from the Gansu Institute of Sport Science provided details on how this programme is executed locally:

> We receive the anti-doping handbook (anti-doping learning material) from CHINADA about three months before the major competition events (province competitions or above) and distribute it to the athletes and coaches. In the meantime, we go to each sports team, prefecture-level city, and sports school to give them a lecture about anti-doping and persuade, supervise, and urge them to learn those materials. Finally, we guarantee that every athlete will pass an anti-doping exam before the major competition event. (Interviewees 2.3, 2.4)

During the interviews, athletes shared their experiences of the Access Control Programme. They emphasised that obtaining the necessary qualification was a prerequisite for participating in events (Interviewees 3.2, 3.9, 3.14), which was further supported by a coach specialised in mid- and long-distance running from the Gansu province team. He noted:

> For the major sports events (province competitions or above), the athletes need to learn the anti-doping knowledge three months in advance and pass the anti-doping exam before the competition. (Interviewee 3.3)

All the interviews demonstrated that the Access Control Programme plays a key role in anti-doping education in China. A deep understanding of this programme was demonstrated by each interviewee, from officials from CHINADA, local anti-doping agencies, and the National Sports Federations to the athletes.

To effectively implement the Access Control Programme and anti-doping education work, CHINADA provides offline and online implementation models (CHINADA 2020b). According to CHINADA's multiple-year experience with anti-

doping workers, the offline lecture on anti-doping knowledge offers effective publicity and education (Interviewees 1.1, 2.3, 2.7). As noted in the 2021 CHINADA annual report, China now has 1999 provincial and national qualified anti-doping educators and lecturers to spread anti-doping knowledge to athletes, their assistant personnel, and the public face-to-face to improve awareness (CHINADA 2021b, 2022). The sports federation and local anti-doping agency frequently invite these educators to give anti-doping lectures (Interviewees 2.3, 2.7, 2.10, 4.4). Local sports schools also organise lectures for students once they receive the anti-doping learning material from CHINADA through their local sports bureau (Interviewees 2.2, 2.5). Some sports-oriented universities have also established an optional course on anti-doping, which mainly introduces knowledge of some regular prohibited substances to students to guide them with a more in-depth understanding of anti-doping (Interviewee 4.2).

Regarding these lectures, all the athletes firmly believed that they had participated in anti-doping education before every major competition. However, three athletes noted that, during the training period, they barely received an anti-doping education (Interviewees 3.4, 3.6, 3.7). One canoe and kayak athlete stated:

> We only receive formal anti-doping education and tests before major competitions; for the out-of-competition period, the coach may remind us about anti-doping in weekly meetings (this is a regular meeting, not specifically about anti-doping). (Interviewee 3.4)

CHINADA has also created the China Anti-Doping Education Platform (CADEP) for online dissemination. By 2022, 282,700 sports participants had registered on this online platform, which proved to be especially safe and effective during the 2019 coronavirus pandemic (Interviewee 2.4) (CHINADA 2022). Through the CADEP, athletes and relevant personnel can not only browse and download all anti-doping publicity and education materials and obtain anti-doping information online but also check their level

of understanding by answering test questions (e.g. in an anti-doping quiz) (Interviewee 2.3). Additionally, the Access Control Programme exam can be taken online (Interviewee 1.3) (CHINADA 2020b).

Another factor that should not be neglected is the role of media. CHINADA focuses on delivering knowledge and information via the media to improve the awareness of the public, including athletes and assistant personnel, and to create a good social opinion environment regarding anti-doping (Interviewees 5.1, 5.2) The interviewee from *China Sports Daily* firmly believed the following:

> *China Sports Daily* is at the forefront of anti-doping education; we report the majority of activities about the promotion of universal anti-doping education every month or so. (Interviewee 5.1)

As stated above, the Access Control Programme is the main education programme for the distribution of anti-doping education, and CHINADA takes several approaches (e.g. anti-doping lectures, online website, and media) to ensure this programme runs smoothly. According to CHINADA, with a continuous deepening of access to sports, anti-doping education will become increasingly normalised (Interviewee 1.1). Through a gradual improvement of knowledge of anti-doping work and a continuous increase in the demand for anti-doping knowledge, there will be more opportunities to deliver anti-doping education to participants in schools and mass sports (Interviewees 1.1, 2.1). Accordingly, and based on the ISE, China has indeed adopted different methods, including face-to-face sessions, e-learning, and websites, to achieve the objectives of the education plan.

Timing of delivering anti-doping education (When)

Anti-doping education should involve athletes at different stages of their careers. In

general, an athlete's career has two major stages. The first stage is when athletes are young and in sports schools. It is advantageous for these athletes to develop ethics during this early period (Interviewee 1.1, 2.10). This is reflected in the statement made in the ISE (WADA 2021, p. 4) that 'an athlete's first experience with anti-doping should be through education rather than doping control'.

In the second stage, athletes become properly registered. At this stage, the athletes start to take the Access Control Programme. Based on the interviews and the Guidelines for the Access Control Programme, there are three times for athletes to receive this programme: when they become a registered athlete, when they join a sports team at any level or are promoted to a higher sports ranking, and before major competitions (Interviewees 1.1, 2.10, 2.16) (CHINADA 2020b). Some officials from local anti-doping agencies also mentioned that they may provide anti-doping education when athletes are at a critical point in their life (e.g. when they are upset or depressed after a loss or negative life event) (Interviewees 2.10, 2.16). One of the long jump athletes specified when and how many times she had received anti-doping education:

> I received the anti-doping education and training when I was joining a provincial team. After that, I received irregular anti-doping education and training …. The maximum number of anti-doping education programmes I had per year was six times. (Interviewee 3.14)

The official from the Swimming Department of the Swimming Administrative Centre also spoke about why and when athletes need anti-doping education:

> The athletes in the national swimming team are from all over China; they have different backgrounds before they participate in the team. Therefore, all the athletes have to sign the anti-doping agreement and take anti-doping education when they join the national team. (Interviewee 2.7)

As illustrated by the target groups for anti-doping education, students are also potential targets for anti-doping education. Those who are going to face the college entrance examination are also beneficiaries of such education, and the right moment for them to learn about anti-doping is before the examination (Interviewees 1.1, 4.3), as noted by the official from CHINADA:

> Some high school students resort to doping to help them pass the college entrance exam (sports performance evaluation tests), and some of them are even helped by their parents … because they all assume they are only taking it once. (Interviewee 1.1)

Kegelaers *et al.* (2018) put forth a hypothesis, primarily based on the views of clean athletes, that the decision to dope might be influenced by critical junctures in an athlete's career. This suggests that the timing of anti-doping education could potentially impact its efficiency and effectiveness, although this remains a theoretical proposition rather than a proven conclusion. In the present study, there were no opportunities to interview young athletes or athletes who had violated doping regulations. Thus, the information regarding anti-doping education for these two groups was derived solely from officials. There is currently no empirical evidence to verify that these two groups receive adequate anti-doping education, particularly for those athletes who have previously committed doping violations. Although the ISE does not explicitly focus on the timing of anti-doping education, it is noteworthy that the associated guidelines emphasise the importance of timing and provide suggestions for delivering specific anti-doping education content (WADA 2020).

Content of anti-doping education programmes for the target groups (What)

According to the ISE, a good education programme should incorporate four components: values-based education, awareness-raising, information provision, and

anti-doping education (WADA 2021). More specifically, based on the interviews and the Detailed Rules for the Implementation of Anti-Doping Education, anti-doping education should focus on the 'spirit of sport', 'the rights and responsibilities of athletes and their assistant personnel', 'the principle of strict liability', 'types and consequences of doping', 'anti-doping rule violations', 'the prohibited list', 'the risk of food, medicine and supplement use', 'therapeutic use exemptions', 'testing procedures', 'whereabouts system', and 'report doping' (Interviewees 1.1, 2.3. 2.8, 2.10, 2.16, 4.4) (CHINADA 2020a). One of the synchronised swimming athletes noted:

> What I remember most about the anti-doping education is how to choose medicine when we are sick [to avoid prohibited substances in the medicine they choose; if they must take certain medications that contain prohibited substances, athletes need to apply for a therapeutic use exemption in advance] and food safety. (Interviewee 3.7)

The athletes also mentioned what they had learnt from anti-doping education, such as the therapeutic use exemption, the anti-doping testing process, and food and nutrition. The coach from the Guangdong Track and Field team also noted about the lectures:

> We can also gain knowledge about what we are going to do after a sample has tested positive; for example, apply for the 'B' sample testing, appeal, and so on. (Interviewee 3.10)

CHINADA also expects the target group to understand the domestic and foreign historical evolution of anti-doping, important events, China's standpoint on anti-doping, the anti-doping legal system, and measures on how to prevent doping issues in anti-doping education (Interviewee 1.1). It produces written material (anti-doping education knowledge handbooks, question answering, and knowledge textbooks) and distributes it to athletes and relevant assistant personnel of different ages and rankings in different

programmes, such as coaches, team leaders, team doctors, and managerial personnel (Interviewees 1.1, 2.3, 2.4, 2.15, 2.16).

For the younger audience (who are attending sports schools), CHINADA has created a cartoon series on anti-doping in line with the cognitive ability and age of these athletes; these cartoons deal with physiological hazards, checking procedures and the prevention of ingestion by mistake, and prudence in taking nutrients (Interviewees 1.1, 2.8). It features lively multimedia teaching materials and instructs athletes to enhance their anti-doping awareness via practical cases and prevent doping issues from happening in injury treatment and daily life (Interviewee 2.8). A copy was obtained after an interview with the official of the Anhui Institute of Sport Science. It focuses on young athletes (but is not limited to them); the whole book adopts a cartoon style and has only 52 pages. This handbook mainly helps young, registered athletes to pass the anti-doping exam and be eligible to compete in competitions. CHINADA's official website concludes that the anti-doping publicity and education materials and their transmission lay a solid foundation for athletes, their assistant personnel, and relevant others to establish a proper outlook and to improve their ability to reject doping application behaviour (Interviewee, 1.1, 1.2) (CHINADA 2020a).

This section expands upon earlier findings related to the target groups for anti-doping education, illuminating the principal content that CHINADA seeks to deliver among anti-doping stakeholders. The reported alignment of CHINADA's policies with the Code and ISE is derived from the perspectives of a selection of interviewees and does not represent a comprehensive evaluation of ISE implementation. Data from interviews with officials suggest that CHINADA offers a wide-ranging anti-doping education. However, the focus among athletes and coaches during interviews predominantly centred around practical aspects of anti-doping, such as nutritional safety

and testing processes (Interviewee 3.1, 3.2, 3.7, 3.9, 4.4), with minimal emphasis on values-based education or doping awareness-raising. The observations from China resonate with findings from other studies. It has been noted that most NADOs are proficient in providing ample knowledge-based anti-doping education but often lack an emphasis on values-based education or raising awareness. Furthermore, there is currently a lack of empirical evidence to demonstrate that knowledge-based education significantly impacts the actual doping behaviour of athletes or ASP, as indicated by Gatterer *et al.* (2020) and Sipavičiūtė *et al.* (2020).

Effectiveness of anti-doping education in China

The most frequent question about Chinese anti-doping education raised by foreign interviewees is about how CHINADA proceeds with or implements anti-doping education throughout such a large country (Interviewees 6.2, 7.1, 7.2). As the former Chief Executive of UK Anti-doping, Andy Parkinson, noted:

> The challenge they face may be related to the size of the country and its large population…I don't know how [anti-doping] education is delivered and received by individuals in China. (Interview 7.2)

This section aims to elucidate the effectiveness of anti-doping education in China by considering the successful strategies that have been deployed and identifying areas requiring further enhancement. Prior scholarly endeavours undertaken by the research team have discerned that the successful implementation of anti-doping education in China is attributed to the strong administrative power that enables the relevant agencies, such as CHINADA and local anti-doping agencies, to work together and effectively meet their responsibilities (Yang et al. 2022). Regarding anti-doping education, CHINADA's duty is to interpret the Code and the ISE and, subsequently, set each

standard and create education regulations and programmes (Interviewees 1.1, 1.2). At the implementation level, CHINADA needs to distribute relevant regulations and policies to each local anti-doping agency and sports federation and supervise their proper implementation (Interviewees 1.1, 2.3, 2.4). However, properly implementing current anti-doping programmes does not mean that China has high effectiveness or good policy performance in the overall work of anti-doping education. To better elucidate this, the following anti-doping education policy implementation model was created (Figure 1).

[Figure 1 near here]

The presented model, crafted based on the insights obtained from the interviewees, fuses the ISE, the policy stage model[6] by Knill and Tosun (2012), and the delineated four core themes (variables). Initiated by signatories identifying the target group (Who), it leverages available policy resources (such as funding, human resources, and jurisdiction) to establish a framework outlining the learning objectives (What) tailored for each target group. Correspondingly, pertinent education activities or programmes (How/Where) are selected to accomplish these objectives. This progression concludes with the stipulation of a timeline for anti-doping education delivery (When). Bilateral cooperation is underscored before the evaluation of policy effectiveness and performance ensues. This model is not intended to function independently but serves to augment the ISE Guidelines, assisting NADOs in adapting and implementing the ISE according to their specific circumstances.

The ensuing discussion commences with the inner loop (microcosmic perspective) depicted in Figure 1 (pertaining to Who, What, How/Where, and When). Based on the analysis, it is apparent that China has accorded priority (Who) to educating athletes and ASP. Moreover, in terms of policy resources, implementing anti-doping

education proves to be more cost-effective compared to anti-doping testing (Interviewees 1.1, 2.3). This advantage allows for broader coverage of a larger spectrum of participants. To ensure that other potential target groups, such as students in schools and participants in public sports clubs and mass sports, successfully receive anti-doping education, CHINADA must coordinate its efforts with different administrative systems and provide more practical policies.

The variables 'How/Where' and 'What' play a crucial role in the inner loop. Regarding the Chinese anti-doping education work, the Access Control Programme is a key factor. Compared with other countries, the most unusual aspect of Chinese anti-doping education is the exam in the Access Control Programme. The CEO of Anti-Doping Norway, Ander Solheim, commented on the initiation of this programme:

> I think that the culture is different in the way people think. How much pressure can you put on athletes based on different cultures and countries? In China, it seems like the [athletes] simply need to pass the exam, and this is the general way of thinking and working. (Interviewee 7.1)

Speaking further, he discussed the cooperation with China in anti-doping education:

> What we discussed with China is … what are the target groups and what kind of message do you have to give [the athletes]? What kind of means do you have to use? For example, is it lectures, webpages, e-learning, or meeting athletes? How do we know that they [athletes] have basic knowledge? That is the overall picture of anti-doping education …. Finally, China chose to use the examination to make sure all of the athletes understand the relevant anti-doping knowledge, which we do not have. (Interviewee 7.1)

Viewed from this standpoint, while China has its unique approach to promoting anti-doping education, it is also actively learning from and incorporating practices from other countries. The collaboration between China and Norway serves as an exemplary case of effective bilateral cooperation in this field (Vidar Hanstad and Houlihan 2015).

In relation to the Access Control Programme, the anti-doping education exam may deviate from conventional examinations, yet its objectives remain consistent to stimulate the comprehension of specific knowledge. Mandatory for all athletes, the anti-doping exam necessitates attention as failure results in exclusion from participation. The primary advantage of the anti-doping exam is that it enhances athletes' understanding of anti-doping measures, facilitating the better organisation of anti-doping knowledge, and ultimately raising awareness of doping practices (Interviewees 1.1, 1.2).

Several interviewees noted the exam's relative simplicity, indicating that it is intended to be a manageable component of athletes' anti-doping education. This approach is intended to promote engagement and discourage avoidance, as opposed to being a strict test of knowledge. Even in the event of failure, athletes are provided with the opportunity to retake the exam, a feature that underscores the exam's purpose as a learning tool rather than a punitive measure (Interviewees 2.3, 2.15, 3.2, 3.9, 4.4). As one official from CHINADA explained:

> Actually, why we adopt the Access Control Programme is not deliberately to fail somebody. The main purpose of this programme is to raise the athlete's awareness of anti-doping. What we are doing is just like what a school or university does; we are trying to educate the students to help them pass the exam, not eliminate students who fail the exam. (Interviewee 1.2)

The original purpose of the Access Control Programme, as noted by Ander Solheim (Interviewee 7.1), was to pressure athletes and encourage them to learn about anti-doping measures. However, it is important to guard against complacency or a lack of seriousness among athletes towards the exam, given its ease of passing. While CHINADA's exams may be primarily designed for awareness and comprehension, they should still maintain sufficient standards to ensure their effectiveness and prevent their purpose from being compromised (Interviewee 6.1).

The last variable of the inner loop is ‘When’. According to responses in the interviews, CHINADA tries to build up the lifecycle of anti-doping education and provide anti-doping education at a specific time for athletes (e.g. if they lose a game or feel depressed). However, this aspect is still only theoretically applied without practical intervention.

The outer loop represents a simplified version of the policy stage model, which includes the planning, implementation, and evaluation of anti-doping education policy. The evaluation stage is a crucial aspect of China’s current anti-doping education policy as it allows for a feedback loop that can inform the subsequent planning and implementation stages (Interviewee 1.3). China conducts evaluations of all of its current anti-doping programs, as reported by interviewees who noted that CHINADA holds an annual meeting on anti-doping work, which is attended by relevant personnel and organisations in each province. The meeting provides an annual summary and assessment of the development of anti-doping education (Interviewees 2.6, 2.15) (CHINADA 2020a).

Consequently, to make the Access Control Programme more reliable and effective, after evaluating the education programme, CHINADA formulated and developed the relevant exam procedure in 2021. CHINADA has now adopted a points-based exam system for the Access Control Programme (Interviewee 1.3). In this system, athletes must collect enough points by studying and taking the exam before participating in competitions (Interviewee 1.3). For example, for the Tokyo Olympic Games, there were six anti-doping courses (i.e. ‘rights and obligations of athletes in doping control’, ‘declaration of whereabouts information’, ‘prevention of the misuse of drugs’, ‘the consequences of anti-doping rule violations’, ‘therapeutic use exemptions’, and ‘six regulations for anti-doping’). Each course was worth 15 points, adding up to 90

points in total, and one Olympic Game preparation course was worth 10 points. Participants were given three chances to pass each course and were required to score at least 80 points in order to generate an entry qualification certificate to participate in the games. In comparison to the old exam system, this new system is more humanised and flexible, allowing for more comprehensive and long-term anti-doping study. These exam-oriented activities allowed CHINADA to effectively monitor the athletes' and ASP's understanding of anti-doping education at the knowledge level.

China's anti-doping education initiatives have demonstrated a multifaceted approach, encompassing both values-based education and awareness-raising as recommended by the ISE. Elements such as the Access Control Programme, learning materials and lectures, as well as the requirement for athletes to sign a letter of commitment and take an anti-doping oath, collectively work towards nurturing an environment of clean sports and instilling ethical behaviour among athletes (Interviewees 1.1, 4.4).

However, there is potential for further refinement and focus in these areas. While existing measures like anti-doping oaths contribute to values-based education, they could be complemented with activities that cultivate critical thinking and ethical decision-making. This might involve interactive sessions focused on ethical dilemmas in sports or group discussions on the principles of clean sport.

For awareness-raising, while China has made strides, more innovative strategies could be adopted. It would be beneficial to consider high-impact approaches such as widespread multimedia campaigns or leveraging social media platforms for broader reach and engagement.

Finally, the effectiveness of values-based education and awareness-raising is challenging to measure because of their intangible and personal nature (Interviewees

2.4, 2.17). While this complexity is acknowledged, there is a need for more systematic methods to evaluate these components. Regular and direct communication with athletes could be a crucial part of this evaluation, providing valuable insights into athletes' ideologies, needs, and understandings (Interviewees 1.3, 2.4). However, it is also important to explore other innovative approaches to evaluate the impact of these initiatives.

The evaluation of the anti-doping education policy in China reveals that progress has occurred but there remains room for improvement in terms of effectiveness, for example, by exploring values-based education and awareness-raising in anti-doping programmes. Evaluating the entire anti-doping education system is also crucial given China's large territory and population. Local anti-doping agencies have been established in 27 out of 37 provincial-level administrative regions, and half of the 40 national sports management units have anti-doping departments (CHINADA 2022) through top-down approaches. Although the grassroots management system is gradually improving, the implementation of anti-doping policies can differ because of varying local circumstances, such as educational methods, propaganda media, and teaching frequency (Interviewee 1.3). Therefore, to align each local anti-doping agency with CHINADA, frequent evaluations of the distribution system and improvements are necessary.

During the interviews, it was found that the evaluation of the Chinese anti-doping policy is conducted singularly and internally. To improve the effectiveness of policy evaluation, CHINADA should increase its cooperation with external parties. One significant issue is the lack of academic research on anti-doping work in China, especially on anti-doping education (Interviewees 1.2, 4.1, 4.3). To enhance the feedback loop and promote the development of anti-doping education policies, it is crucial for CHINADA to collaborate more closely with universities and incentivise

scholars to undertake research on anti-doping education. Although CHINADA has taken some steps to address this gap, for example, through the joint publication of the *Anti-Doping Research Journal* with Beijing Sport University, the limited scope and accessibility of this journal pose a challenge (Interviewee 4.4). Therefore, stronger collaborative relationships with universities should be established to yield novel perspectives and insights that can inform and improve anti-doping education policy formulation and implementation.

Conclusion

This research offers an in-depth exploration of Chinese anti-doping education work, drawing on insights gained from 45 interviews. It demonstrated the whole picture of anti-doping education work in China and created a framework to identify the challenges and barriers China faces in the development of anti-doping education.

This study contributes to the collection of data on this sensitive topic in China. During the sampling process, it was imperative to consider the political and administrative factors that influenced participation (e.g. the top-down administrative system typical in China). Cultural background was also key to data collection and reduced the amount of time the researchers spent collecting reliable data during this process. Therefore, this research contributes a revised definition of 'purposive sampling with Chinese characteristics' for future studies. It suggests that it is important for researchers to carefully choose 'gatekeepers' prior to targeting stakeholders directly.

This study's anti-doping education policy implementation model (Figure 1) demonstrates various policy implementation variables that can be considered in China. Certain variables require further improvement. For instance, there is a need to expand the target group of the anti-doping education policy and develop more feasible and comprehensive plans for delivering anti-doping education throughout the athlete

lifecycle, as well as specifying the time frame for its delivery. Since CHINADA's points-based exam system is still new, its practical effects still require testing. Additionally, this programme must ensure that all education activities and work are linked with values-based education and awareness-raising. To enhance the effectiveness of anti-doping education policy evaluation, CHINADA should establish close connections with universities and encourage more scholars to conduct relevant research.

The procedural framework established by ISE and WADA for anti-doping education is critically important; however, it may inadvertently restrict its scope owing to the specificity of its targeted demographics. This issue is not exclusive to China but represents a wider challenge for WADA, which tends to concentrate predominantly on Olympic sports and disciplines benefiting from significant state funding. This focus risks marginalising commercially lucrative and public sports, potentially leading to a shortfall in the widespread application of anti-doping education. Consequently, a comprehensive investigation into the delivery of anti-doping education across a more diverse array of sports, extending beyond 'elite' or Olympic sports, becomes essential. Moreover, it would behoove WADA to foster increased bilateral cooperation, allowing for a reciprocal exchange of successful strategies employed across various contexts. For instance, China's efficacious use of a points-based system for anti-doping education could provide an exemplary blueprint. If adapted and promulgated amongst other NADOs, such an approach could significantly augment the reach and impact of anti-doping education globally.

All conclusions drawn in this study are principally informed by stakeholder perspectives, highlighting that comprehensive ISE compliance extends beyond merely performing a checklist of activities. As the interviews were conducted soon after the introduction of ISE, they might not fully encapsulate its long-term implementation and

impact. Hence, future research should strive for a more nuanced, longitudinal evaluation of ISE's implementation, incorporating diverse evidence sources for a more holistic understanding of anti-doping education policies and their effects.

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Endnotes

1 CHINADA is still supervised and guided by China's General Administration of Sport and central government (Yang *et al.* 2022).

2 A total of seven interviewees were interviewed following the implementation of the ISE, specifically: 1.2, 1.3, 2.4, 2.5, 2.17, 4.1, and 4.4.

3 This article combines the results and discussion sections for improved coherence. Given the large number of interviewees, it is impossible to quote all opinions directly. Furthermore, given the similarities in the views shared by the interviewees, many of the comments and conclusions have been summarised for brevity.

4 This group includes athletes in the 'Registered Testing Pool ' (RTP), but it is important to note that not all 'registered athletes' are part of the RTP, which mainly involves elite competitors.

5 In China, a sports school refers to a specialised institution that delivers comprehensive sports training primarily to children and young athletes. These schools offer a curriculum blending academic instruction with intensive athletic training, the latter taking precedence. They are systematically run and organised, akin to professional institutions, but not 'professional' in the sense typically associated with for-profit sports organisations. Managed predominantly by the Chinese government, the aim of these schools is to identify and nurture young talent in order to cultivate high-performing athletes for national and international sporting events (Hong 2004).

6 In the policy stages model or policy cycle model, each stage in the policy process can be treated as a series of political activities, which include the following four factors: (1)

problem definition and agenda-setting, (2) policy formulation and adoption, (3) implementation, and (4) evaluation (Knill and Tosun 2012). The present research focuses only on the last three stages.

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Table 1. Study participants.

Category	Profiles of interviewee
1. CHINADA officials	1. An official from CHINADA (1) 2. An official from CHINADA (2) 3. An official from CHINADA (3)
2. Local anti-doping agency officials/Sports federations/Sports schools (China)	1. An official from the Shanghai Sport Science Centre 2. An official from the Lanzhou College of Sport 3. An official from the Gansu Institute of Sports Science (1) 4. An official from the Gansu Institute of Sports Science (2) 5. An official from the Gansu Athletic School 6. An official from the Gansu Competitive Sports Department 7. An official from the Swimming Department of the Swimming Administrative Centre 8. An official from the Anhui Institute of Sports Science 9. An official from the Guangdong Institute of Sports Science 10. An official from the Jinan Institute of Sports Science 11. An official from the Jinan Athletics Management Centre 12. An official from the Qinghai Institute of Sports Science 13. An official from the Qinghai Competitive Sports Department 14. An official from the Anshun Sports Bureau 15. An official from the Guiyang Institute of Sports Science 16. An official from the Hunan Institute of Sports Science 17. An official from the Sichuan Institute of Sports Science
3. Athletes/Coaches	1. A mid- and long-distance running coach from the Gansu Province team. 2. A marathon runner from the Gansu Province team 3. A coach from the Gansu Athletic School 4. A canoe and kayak athlete 5. A judo athlete from Beijing Sport University 6. A walking race athlete from Beijing Sport University 7. A synchronised swimming athlete from Beijing Sport University 8. A walking race coach from the Anhui Province team 9. A walking race athlete from the Anhui Province team 10. A track and field coach from the Guangzhou track and field team 11. A track and field coach from the Jinan track and field team 12. A walking race coach from the Xining Sport team 13. A coach from the Hunan Athletics Management Centre 14. A long jump athlete from the Hunan Province team
4. Scholars	1. A scholar from the Shanghai University of Sports 2. An associate professor from Beijing Sport University 3. A sports legalist from the Capital University of Physical Education and Sports 4. A qualified anti-doping educator
5. Media	1. A journalist from *China Sports Daily* 2. A Journalist from *Xinhua News* 3. A journalist from the Guangdong Radio and Television station
6. WADA officials	1. Dick Pound (The first president of WADA) 2. An official from WADA
7. NADO officials	1. Mr. Anders Solheim (CEO of Anti-Doping Norway) 2. Mr. Andy Parkinson (Former Chief Executive of UK Anti-doping)

Figure caption

Figure 1. Anti-doping education policy implementation model.