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The challenges of harmonising anti-doping policy implementation

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ABSTRACT

The policy-implementation gap conceptualises how policy intentions and outcomes often differ due to a failure to consider the realities of implementation. The World Anti-Doping Agency (WADA) directs Olympic anti-doping policy, seeking to harmonise anti-doping policy globally; however, the realisation of consistent implementation has proven challenging. A major cause of inconsistent policy implementation is inter-signatory variation, but the mechanisms of variation are poorly understood. WADA provides an excellent example to explore why policy gaps occur in international sport governance. Consequently, we aimed to analyse the different types of inter-signatory variation in anti-doping policy and identify practical solutions to address inter-signatory variation in anti-doping. Data were collected from the Regional Anti-Doping Programme (RADO), a group of organisations tasked with increasing the capacity of NADOs globally. Semi-structured interviews were conducted with 22 RADO staff and board members who were sampled as key informants to discuss how inter-signatory variation affects anti-doping policy compliance. Following reflexive thematic analysis, we identified four thematic categories explaining inter-signatory variation in anti-doping implementation: (1) socio-geographic, (2) political, (3) organisational, and (4) human resources. Based on our analysis, we theorise why the policy-implementation gap occurs and provide recommendations to improve anti-doping policy implementation.

Under the World Anti-Doping Agency (WADA), the Olympic anti-doping system is a top-down regime (Gray, 2019). In this model, responsibility for implementing the World Anti-Doping Code ("Code") and International Standards (WADA, 2022d) are delegated to Code signatories. These include National Anti-Doping Organisations (NADO), Major Event Organisations, National Olympic Committees (NOC), and International Federations. Ensuring anti-doping policy implementation is harmonised between members is a core task for WADA, exemplified by the development of policy groups that coordinate and standardise policy tools including: The International Standard for Code Compliance by

Signatories (ISCCS), the Compliance Review Committee (CRC), and Compliance Task Force (WADA, 2022a). Compliance can be seen as a sharp deployment of policy implementation as it reflects a signatory's depth of commitment to achieving anti-doping outcomes, rather than merely a resource allocation to fulfil obligations (Houlihan, 2014). Consequently, the successful harmonisation of the global anti-doping system imposed by WADA demands two key requirements: (1) comprehensive support for policy implementation by signatories, and (2) effective signatory compliance monitoring by WADA.

The policy-implementation gap (Gunn, 1978) captures how intentions and outcomes are often misaligned in policy regimes because of a lack of focus on the ways policy can be enacted in varying local contexts (Hudson et al., 2019; McConnell, 2015). Consequently, researchers in this domain criticise top-down linear approaches to policy creation favouring bottom-up, complex systems based interventions that consider the perspective of those tasked with implementation (Braithwaite et al., 2018; Elmore & Richard, 1978; Hupe & Hill, 2002). Like all transnational policy regime coordinators (Skinner et al., 2018), harmonising local policy implementation across a broad range of signatories with different resources and objectives has been a long-standing challenge for WADA (Houlihan, 2002, 2014; Houlihan & Vidar Hanstad, 2019). WADA, then, is a clear example of the policy-implementation gap and their challenge is compounded by numerous high-profile international scandals that shed light on signatories that superficially implemented policy, whilst concealing non-compliance. The result of varying degrees of compliance across signatories is an inequitable anti-doping system that subjects athletes to different levels of scrutiny based on their nationality, sport, and training location (Hanstad et al., 2010). WADA's unique position as a sporting institution tasked with regulating governments makes it an ideal context to examine how the capabilities of a policy coordinator impact implementation gaps. Identifying, understanding, and remedying harmonisation challenges, therefore, is not only a critical task in buttressing the legitimacy of WADA as a global regime regulator (Read et al., 2019), but can contribute to theoretical discussions of complexity in policy implementation research (Braithwaite et al., 2018).

Previous research primarily focuses on anti-doping implementation and compliance using national case studies of signatories. This body of work reveals that inadequate financial resourcing, technical expertise, and competing priorities are major factors undermining regime compliance, testing, and harmonisation between members (Girginov, 2006; Hanstad et al., 2010; Vidar Hanstad & Houlihan, 2015; WADA, 2019; Yang et al., 2021). Furthermore, some evidence shows that athletes and anti-doping stakeholders perceive discrepancies between signatories negatively, which undermines their views of WADA, and the anti-doping regime (see Woolway et al., 2020). Following interviews with experts in anti-doping compliance, and analysis of other international regimes, Gray (2019) structures WADA's harmonisation challenges into three factors: (1) top-down implementation, (2) cultural variation, and (3) signatory resource constraints. Gray's (2019) theoretical framework provides a structure to understand implementation challenges. In particular, the impact of cultural variation and resource constraints on anti-doping policy implementation is critical but underexplored, especially in the context of the challenges facing developing NADOs. In response, we adopt the policy implementation gap (Braithwaite et al., 2018; Gunn, 1978) as a theoretical lens to investigate inter-signatory variation, defined as the combination of cultural differences as well as financial and non-financial resource constraints, to ensure that our findings reflect issues

experienced by a range of NADOs. By focusing on the issues experienced by practitioners that implement policy, our research is positioned as a bottom-up analysis of implementation that accounts for complex systems (Braithwaite et al., 2018). To that end, data collection revolved around representatives from the Regional Anti-Doping Organisation (RADO) programme.

Literature Review

Established in 2004, the Regional Anti-Doping Organisation (RADO) programme was developed to support "less resourced National Anti-Doping Organizations and National Olympic Committees acting as NADOs with funding, training and ongoing anti-doping assistance" (WADA, 2022b, para. 1). The programme operates in Africa, Asia, the Caribbean, Central and South America, and Oceania, and is a central platform underpinning WADA's activities to harmonise anti-doping implementation globally. RADO employees, therefore, are a key source of information to understand the challenges of inter-signatory variation on anti-doping compliance, and how to develop the capacity of signatories to improve compliance. Consequently, we aim to (1) analyse the different types of inter-signatory variation in anti-doping policy facing developing NADOs, and (2) identify practical solutions to address the challenges to successful policy harmonisation arising from inter-signatory variation. In pursuing the first aim, we contribute to theoretical discussions of policy implementation and contribute four themes to inform theorisation of the policy implementation gap in sport characterised by top-down governance. In achieving the second aim, we contribute to the ongoing development of anti-doping efforts in Olympic sport.

The Olympic anti-doping regime functions to set shared norms and expectations between related actors in the field of international sport to achieve the common goal of preventing doping (Houlihan, 2014). By determining the contents of the Code and by setting International Standards, WADA functions at the heart of the Olympic anti-doping regime (Skinner et al., 2018).The success of WADA as the central regulator within the Olympic anti-doping regime has been contested throughout its existence. Commentators have argued about the best policy approach to anti-doping (e.g., deterrence and prohibition, harm reduction, criminalisation), what responsibilities should be bestowed upon WADA, and to what extent it has progressed towards the goal of drug-free sport in light of the financial support it has received (Dimeo & Møller, 2018; Houlihan & Vidar Hanstad, 2019; Skinner et al., 2018; Smith & Stewart, 2015). The success of WADA can be assessed against two standards: (1) performance, and (2) effectiveness (Houlihan & Vidar Hanstad, 2019). Performance reflects the degree to which WADA utilises its resources to generate positive organisational outputs. Against this metric, WADA has established itself at the centre of the Olympic anti-doping regime, implemented policy documents to specify signatory responsibilities, created compliance monitoring bodies, and obtained widespread global recognition indicating the organisation's positive performance (Houlihan & Vidar Hanstad, 2019).

Regime effectiveness pertains to outcomes and impacts centring on whether positive behavioural change amongst members has occurred, and if the scale of a problem has been reduced (i.e., is doping less likely). While recognising the uncertainties in measuring WADA's impact on doping given the difficulty of

assessing changes in prohibited behaviours (Gleaves et al., 2021), the available evidence suggests that WADA's effectiveness is questionable (Houlihan & Vidar Hanstad, 2019; Read et al., 2020). For example, at an athlete-level, a randomised response technique survey (considered the gold-standard in surveying prohibited behaviours), reported an estimated doping prevalence in elite athletes from Denmark of 30.6% (Elbe & Pitsch, 2018). At an organisational-level, Olympic sport has been plagued with examples of coordinated doping scandals suggesting cultural tolerance of doping is greater within certain sport federations and Olympic committees than others (Duval, 2016; Girginov, 2006; Read et al., 2021). Furthermore, experienced anti-doping professionals have suggested that the breadth of tasks that WADA coordinates, continual emergence of new problems, inadequate resourcing, and conflicts in governance constrain its effectiveness (Dimeo & Møller, 2018; Gray, 2019; Read et al., 2020).

A lack of effectiveness in reducing doping has been connected to the problem of policy implementation and compliance by signatories since WADA's creation (Houlihan, 2014; WADA, 2019). From an implementation theory perspective, this is a common issue for both national and international regulatory bodies (Gunn, 1978). The failure for policy to create impact has been attributed to unreasonable objectives, failure to appreciate local contexts, top-down linear change-based policy design approaches, and long-term political instability (Braithwaite et al., 2018; Hudson et al., 2019; McConnell, 2015).

Houlihan (2002) specified that anti-doping compliance challenges may occur due to signatory inability (e.g., financial resources), inadvertence (e.g., misunderstanding), or choice (e.g., conflict with other political objectives). Houlihan's reasoning for compliance issues coalesce with a complexity perspective on the policy-implementation gap in that regulation is designed with unified harmonisation in mind, but real-world implementation occurs in dynamic environments and therefore a bottom-up approach to research and practice is required (Braithwaite et al., 2018). Despite the recognition that policies should be designed with an appreciation that they will be applied in varying local contexts, there is little discussion of how and whether policy coordinators can overcome variation between local contexts that inhibit compliance. Cho et al. (2022) demonstrated how International Olympic Sports Federations support member compliance in a range of issues through raising awareness of international standards, offering capacity-building resources, compliance monitoring and evaluation surveys, strengthening their own resources, and reinforcing sanctioning capacity. The ability of WADA to address inter-signatory variation has not been considered. The cross-sector partnership between sporting organisations and governments provides a relevant context to theorise how policy-implementation gaps are affected by the capabilities of the transnational policy coordinator in a complex system.

Considering that the effectiveness of WADA in tackling doping is dependent upon the actions of signatories, the available evidence highlights that there are discrepancies between members that impede policy implementation (e.g., Cannock, 2021; Hanstad et al., 2010; Houlihan, 2014; Star, 2022; Yang et al., 2021). As noted earlier, in assessing compliance challenges facing WADA signatories, Gray (2019) provides a theoretical framework that identifies "three recurrent factors that have hindered compliance with the Code" (p. 252): (1) top-down policy implementation, (2) resource constraints, and, (3) cultural variations.

First, Gray argued that WADA's top-down policy implementation relied on a broad range of signatories to implement policy whilst possessing limited means and capabilities to monitor regime members. Although WADA has expanded its ability to monitor and sanction non-compliance via the ISCCS and compliance taskforce (WADA, 2022a), the organisation's effectiveness is still tethered to its capacity to monitor signatory behaviour.

Second, the resource constraints factor reflects the lack of financial support available to both WADA and signatories to enable comprehensive anti-doping activities including testing, education, and investigations. Historically, WADA has been funded by the Olympic movement and national governments, but in 2022 the organisation signed its first commercial sponsorship signalling a willingness to adopt new income sources (WADA, 2022c). It is too early to determine the profitability, practicality, or implications of such partnerships.

Last, Gray explained that anti-doping policy has been predominantly shaped by Western countries leading to policy translation issues into non-Western countries due to incompatible political, social, sporting, and moral reference points. Consequently, international-level technical and operational anti-doping standards intended to be harmonised may be distorted or unfeasible for some signatories because of incongruent national-level systems, interpretations, and/or beliefs. Buttressing this point, Zubizarreta and Demeslay (2021) conducted fieldwork in eight NADOs finding that WADA's central focus on harmonisation had curbed attempts to accommodate local nuances.

Considering the dearth of solutions to inter-signatory variation, there is a significant opportunity for theoretical development in relation to (1) how a regime coordinator impacts the gap between policy development and implementation, and (2) specify how to classify and address national differences. Accordingly, this research article focuses on how inter-signatory variations influence compliance with WADA policy in developing NADOs. Appreciating that gaps between policy intention and outcomes exist because of the complexity of real-world implementation (Braithwaite et al., 2018), the following section details how data was collected with RADO employees to understand the bottom-up challenges of implementing the Code.

Methodology

Research context

The RADO programme was introduced to provide training and operational support for developing NADOs to ensure that anti-doping policy is correctly implemented and assist NADO members in reaching sustainable self-governance. Operationally, RADOs are independent from WADA and should not be confused with WADA's four regional offices. In the 2021 Code, RADO offices were given Delegated Third-Party status, meaning that while they are not signatories to the Code, NADOs can delegate certain anti-doping responsibilities to them (e.g., testing). Crucially, NADOs who delegate anti-doping activities to a RADO are responsible for their own compliance status. At the time of data collection in 2021, there were 15 RADO offices dispersed globally although one office was in the process of closing, and two were being merged.[1] The RADO programme in 2023 has

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[1]Central America, South America, Caribbean, Eastern Europe, Africa Zone I, Africa Zone II & III, Africa Zone V, Africa Zone VI, Indian Ocean, Gulf States & Yemen, West Asia, South Asia, Central Asia, South East Asia, Oceania.

since been reduced to 12 offices and 119 members as some regions no longer require a RADO and others have been merged.

RADOs facilitate capacity building by pooling resources and information between programme members, offering technical training, brokering collaboration between NADOs, implementing anti-doping responsibilities for members, and providing access to funding opportunities such as WADA's Testing Grant (WADA, 2021b). The day-to-day role of RADO staff in developing the capabilities of member NADOs means that they are ideally positioned to explore the policy-implementation gap and comment on how inter-signatory variation influence compliance with the Code from a bottom-up perspective. Further, the global dispersion of RADO offices ensures it is possible to gain a worldwide perspective on inter-signatory variation thereby transcending the constraints of previous single case study research.

Sampling and data collection

Given the focus on RADO perspectives, a qualitative research design informed by social constructivism (Berger & Luckmann, 1966) was adopted. The qualitative social constructivist approach asserts that reality is subjective and created by those perceiving it. This approach favours unpacking participant perceptions and the exploration of different viewpoints (Berger & Luckmann, 1966). The sample comprised RADO staff and board members. RADO staff were defined as anyone employed in a managerial or operational capacity for at least two years, excluding administrative assistants, although many RADO offices are staffed by only one individual. RADO board members represent their NADO in RADO decisions. All 131 national members of the RADO programme are represented on their RADO board as well.

The research team had no existing relationships with the RADO programme. We gained access to participants through WADA's NADO & RADO Relations Department. Following a purposeful sampling approach, all 15 RADO managers were invited to participate in the study via email. Of this number, one individual declined. Board members were recruited using a snowballing sample approach from the RADO managers who were asked to identify potential participants with the requisite experience. Suitable candidates were then invited by the research team to participate via email. In total, 22 individuals voluntarily participated in an interview: 12 RADO managers, two RADO managers that responded to questions in a translated questionnaire, seven RADO board members, and one board member that completed a translated questionnaire. In some instances, participants preferred to respond to the questions by writing in their first language rather than participate in an English interview. In these cases, the interview questions were translated, and responses were translated back to English by a bilingual speaker. Every RADO programme was represented ensuring the sample was heterogeneous and diverse.

Semi-structured interviews were conducted in English via a videocall (due to COVID-19 restrictions). This methodology allowed us to collect data related to the research question, whilst also providing opportunities for additional topics to emerge. Interview questions were drafted and revised collaboratively by the research team to capture different areas in which inter-signatory variation may occur to reflect the complexity of policy implementation. The interview questions focussed on each participant's role and experience as well as their perceptions of (1) WADA, (2) communication with WADA, (3) the 2021 Code

revisions, (4) code compliance challenges, (5) RADO activities, (6) the RADO Program Strategy, and (7) the future of anti-doping. These topics were based on previous research into the legitimacy judgments of anti-doping practitioners (Read et al., 2020) and policy compliance challenges (Gray, 2019; Hudson et al., 2019). Interviews lasted between 30–60 minutes. All interviews were transcribed after completion and pseudonymised.

Analysis

We used reflexive thematic analysis (RTA; Braun & Clarke, 2021) to analyse the data. RTA is a distinct form of thematic analysis that emphasises an interpretive approach to identifying common themes between participants whilst preferencing participants views and acknowledging researcher subjectivity and reflexivity in data interpretation. RTA is grounded in interpretivism, favouring the position that realities are subjective. The technique avoids positivistic approaches to thematic analysis that attempt to promote objectivity and is emergently inductive rather than based on inter-coder reliability and pre-defined codebooks (Braun & Clarke, 2019). The inductive coding approach ensured the themes were a faithful interpretation of the data, which could then be used to explain the theoretical implications of the data in the discussion.

The RTA process of coding, theme creation, and reporting analysis are recursive. Appreciating the iterative nature of RTA, our analysis is reported in phases for simplicity; however, RTA involves moving backwards and forwards between phases including writing the report until the themes are finalised.

The first analytical phase included data familiarisation through transcription followed by re-reading once the transcripts were imported into QSR NVivo as well as inductive coding (described as phases because of the iterative repetition involved). This was undertaken by two of the authors, then discussed among the research team to generate initial ideas. In stage two, unidimensional open codes were subject to researcher interpretation to identify overarching multidimensional themes. Again, these themes were then reviewed by the research team to question their coherence in unifying codes (see Figure 1). Reflexive group discussion does not aim to confirm what is demonstrated but instead questions if alternative code consolidation and interpretation provides a more coherent explanation of the phenomenon. Specifically, as the research team became more familiar with the data through interactions with the transcriptions, our codes, themes, and definitions also changed. It was important to distinguish themes from topics, as themes draw together a shared experience or meaning whereas topics simply categorise codes (Braun & Clarke, 2023). The final stage was to consider the appropriate title and definition of each theme. This final stage evolved as the manuscript was written as our reflections and discussions identified codes that did not coherently fit with the narrative of a theme, which led to reconceptualisation.

RTA is reflexive in that there is a need to understand how the research team's experience shapes analysis as prior knowledge and judgments influence what data means and what themes are important. Therefore, researchers must consider the impact of their own thoughts and contribution during the analytical process as themes are produced through a researcher's interactions with the data, not "found". Reflexivity started during data collection as we kept detailed interview notes that informed question prompts in later interviews. Therefore, the data (and subsequent analysis) were shaped by
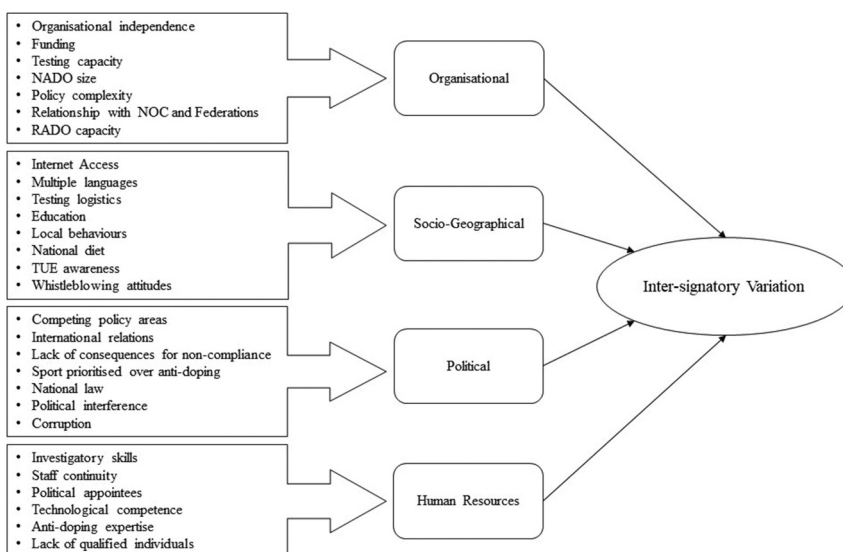
Figure 1.

responses that captured the attention of the interviewers. For example, the mention of the term "political appointees" led to questions in later interviews about this phenomenon. Through informal interview debriefing we established areas of interest that shaped the final themes. Consequently, allowing space for competing ideas to emerge is important and an initial set of themes were presented at a conference for practitioners and academics to garner feedback on our interpretation. This process led to revision of theme names and the implications.

Findings

The following section presents the four themes that we created through our RTA. Each theme brings together commonalities in our interpretations of how inter-signatory variation created compliance challenges. The four themes were (1) socio-geographical, (2) political, (3) organisational, and (4) human resources. Inter-signatory variation, in an anti-doping context, is a complex phenomenon consisting of multiple competing factors that give rise to potential challenges for NADO compliance. Given the small population of RADO staff, participant identifiers are not provided with quotes to safeguard anonymity by avoiding retrospective identification. The role of the participant is, however, provided for contextualisation.

Socio-geographical

The first theme, socio-geographical, drew together our interpretations about how variation in societal practices and geographical topography between signatories explained compliance issues which were too nuanced for a universal, one-size-fits-all global policy to accommodate. Socio-geographical inter-signatory variation included compliance challenges participants expressed in relation to: (1) the ability to educate athletes as well as

the educational level of athletes, and internet access; (2) cultural differences from Eurocentric expectations, national approaches to medicine and drug regulation, and (3) testing logistics.

Education

We labelled the first sub-theme "education" as it brought together our interpretations of variations between signatories that stemmed from their capacity to educate athletes, and/or the impact of distinct regional languages on access to educational materials. In 2021, WADA introduced the International Standard for Education (WADA, 2021a), in part to create mandatory standards for education programs. In contrast to efforts to harmonise athlete education between signatories, contextual challenges inhibited participants' ability to deliver effective educational activities. Foremost, participants expressed how the educational materials provided by WADA did not offer examples that were relatable to their context. As one RADO Manager explained:

> If we take the education tools from WADA it's not adapt to our realities, because in our region ADEL [Anti-Doping Education and Learning platform], it doesn't work well, because it is taught in a language that in reality, is not part of our reality. It is a shock in culture, in the way they expressed it, it doesn't adapt to our region, so we try to make our own tools, our own education tools, to bring that knowledge to our athletes, to our sports community.

The RADO Manager's view highlights how the lack of context-specific content forced them to produce their own educational materials, diverting time and resources away from core activities. Discrepancies in the languages available for educational materials also disadvantaged athletes in these regions. The lack of cultural relevance was blamed on the language and content of materials created by WADA. This required RADO's and developing NADO's to translate educational materials or to create their own:

> We try to customise as much as possible our materials to suit the training when we do face to face interaction to assist those that have challenges with English, to make sure that they are not left behind in terms of their understanding of their responsibilities, their rights and responsibilities as athletes. (RADO Manager)

The previous quote epitomised our interpretations about how such educational materials excluded athletes who do not speak or read English, French, or Spanish as a first language. The broader level of education in certain nations also made delivering educational content difficult for anti-doping staff, as one board member explained: "Trying to give the education in a language that is not theirs to athletes who may not have finished even primary school can be a very difficult and a very big challenge". The problem of varying levels of education between athletes raised here undermined strict liability (i.e., athletes are held responsible for any prohibited substance detected in a test regardless of intention) as this expectation rests on the assumption that all athletes can fully comprehend the Code, the prohibited list, and other technical documents.

In addition to the challenges of delivering anti-doping education, most participants recognised that some countries in their region had less-developed internet infrastructure, which complicated access to educational materials. For example, one RADO Manager observed, "ADEL is a good one. But still, if you take [continent removed], even this part of [continent removed], internet communication is not that effective. It is a bit expensive and it's very slow". The manager's point emphasised socio-geographical issues in educational

provision as athletes in certain regions face the combined challenge of reliable access to material, as well as it not being available in their first language.

Eurocentric expectations

This subtheme brought together our analysis of regional practices where participants described how local national and ethnic traditions informed how policy was implemented that did not accord with Code expectations. It is recognised in the Code that socio-cultural divergences between nations lead to local level "translation" of policy, and the Code accounts for some of this heterogeneity. Yet, some regional practices were more problematic for anti-doping policy implementation and collaboration than others. For example, differences in working practices led to challenges in coordinating anti-doping activities:

> Not all our countries work the same. Country X, Country Y and Country Z have Dutch heritage … They have different mentality, different culture, it is different … When we work with the representative from Country X and from Country Y, it's a different approach than when we do with the guy from Country A, or from Country B. (Board Member – Countries anonymised)

Although variations in local behaviour were not inherently problematic for compliance, WADA's perceived lack of understanding of regional nuances impeded implementation and limited their ability to create policy that accounted for inter-signatory variations (e.g., "So you look at the composition of the board and it's very Eurocentric and Eastern world … There are very few spaces where you can see somebody who may understand our dynamics" RADO Manager) and inability to obtain positions on policy bodies.

A reoccurring example of varying regional practices was recorded in approaches to medicine and drug regulation. Different attitudes towards when it is considered permissible to use drugs made compliance more difficult, as the normalisation of cultural realities led to policy deviance. As stated, the WADA Code cannot adapt to local interpretations of what is considered appropriate behaviour. One board member provided the following example.

> The farmers use here anabolic steroids for increasing the muscle of the cattle. So many times, we have a very complex problem because as in [Country A] and [Country B], we have been excluded from the use of Clenbuterol for our athletes that have a standard or minimum concentration in their urines. (Board Member)

Although the use of steroids in cattle might be given by an athlete as a reason for an adverse analytical finding, it does show how standardised thresholds for prohibited substances may penalise athletes in particular countries. Likewise, differences in supplement packaging regulations may adversely affect athletes in countries with lax supervision:

> Even though the supplement may have 20 different components, you don't have to declare everything not like drugs. So, within our region, we see more and more of those kind of doping when we test them and we find prohibited substances. And I can say almost half now come from contaminated products rather than people trying to really cheat. (Board member)

Variation in supplement regulations created further inequalities between athletes in different regions. The use of traditional medicine is also problematic in relation to national regulation approaches. Given the already highlighted difficulties of education in certain

regions, persuading athletes not to use deeply engrained traditional medicines presented a substantial challenge.

Testing Logistics

Socio-geographical factors also impacted drug testing requirements as testing logistics were complicated by geographical barriers (e.g., distance) and infrastructure (e.g., internet access). Participants emphasised the challenge of locating athletes for testing given the dependence on accurate "whereabouts" information required for out-of-competition testing was limited in rural areas. Whereabouts information was also complicated by access to the internet (e.g., "implementing whereabouts information on ADAMS. If you are a national athlete and you are from a rural area, some of them don't even have internet connections" RADO manager). In certain regions, there was additional consideration for the safety of doping control officers (e.g., "most our athletes come from the poorest sites of our country, so you need to deal with that. It's not even secure go to the places" RADO Manager). Poor internet access and safety concerns led to an inability to test, as one participant explained: "Let's take, for example, Country A, they planned 26 tests, they only did 9, Country B had 25, but they did only six. It was a matter of whereabouts information, which was not accurate" (RADO Manager).

Locating athletes for out-of-competition testing was further complicated by testing logistics involving distance and travel restrictions. For instance, one manager noted the difficulty of transporting viable blood samples across great distances in their region: "For four years, we did not do ABP because getting the blood to the lab in time and in good condition was a huge challenge because of logistics". Without local testing facilities, certain analytical techniques were not possible, creating further inequalities in the treatment of athletes globally. The lack of local testing facilities also heightened costs as another manager explained: "tests cost is very high, especially blood testing, because transportation is very expensive, let's say from [Country A] to [Country B], it's about 150€ or 300€, just transportation" (RADO Board). Diplomatic tensions also made it hard for anti-doping officials to access certain regions (e.g., "So our situation has always been a challenge facing doping prevention and doping control because we cannot move easily because of security, tension and economic problems" Board Member). To counter testing problems, intelligence and investigations have been promoted as a complementary tool for detecting anti-doping rule violations, yet the notion of whistleblowing did not translate well in some regions as one RADO manager explained:

> We are talking about a region that if you want to kill somebody, you can pay $50 to do it, so if you speak up about the interests of somebody powerful, it's difficult. And on the other side, we don't have the tools to give the security of that person.

It is evident from the issues discussed that variation in cultural practices and regional development create disparities in the suitability of policy, and support is required to minimise inter-signatory inconsistencies.

Political

The second theme, political, draws together our interpretations of participant perceptions that anti-doping practitioners faced because governments in their region (1) had more

pressing civil issues to address with their limited resource, and/or (2) actively prioritised success in international competition over anti-doping. Both political concerns were perceived to undermine regime compliance.

Competing Policy Areas

In terms of competing civil policy, NADOs commonly lacked the resources required for implementation because their respective governments had other pressing social issues to address. As an example, one participant listed the competing policy areas in their region: "there's climate change, social welfare, education, Covid, hurricane season's coming. Those are realities". Further, sport was trivialised by politicians: "in some countries sport is not taken as seriously as other issues like health or education or infrastructure" (RADO Manager). Trivialisation made funding for anti-doping activities vulnerable as one RADO Manager explained: "When governments face adversity and they have to undertake budgetary cuts, you'll find that in most cases the sports budget is cut". The relative importance of sport in society, there-fore, was a barrier to compliance and led to unequal testing conditions in some regions.

The problem of government funding was a consistent concern in relation to compli-ance: " . . . how do they [WADA] expect NADOs to implement the code if many govern-ments are actually not even providing any sort of funding or capacity to do so" (Board Member). The lack of government funding was particularly evident when countries were not frequently represented at international competitions: "the governments are not that keen to do government sponsored testing . . . we don't have the international competing athletes that go out to the Olympics" (RADO Manager).

A lack of consequences for non-compliance with anti-doping responsibilities encour-aged political indifference towards implementation. Participants' views stemmed from regular examples of lax implementation that had no demonstrable outcome:

> I was able to complete the code compliance, but still some countries did not. But there were no consequences. So, within the RADO I keep wondering, okay, there seems to be no consequences for code compliance anyway, because it's not like they were stopped from competing at any major sports event. (Board Member)

Arguably, although leniency was important for developing members, it had the potential to encourage apathy from other signatories. Without penalties there was no perceived impetus for change: "We have tried to educate them [politicians], but like I said, if there are no consequences for being complacent, then the status quo continues" (Board Member). Moreover, WADA is the only organisation capable of asserting adequate pres-sure. It was noted that in certain regions, governments do not have the resources to support anti-doping and have little external motivation to address the issue in other ways.

Prioritising Sport over Anti-Doping

Notwithstanding regional political tensions, there was a belief among participants that some governments prioritised national sporting performance over anti-doping:

> Most countries in [region removed] want to produce gold medals. That's their ultimate goal, and they don't want to think about anything else that might get in the way of a gold medal. (Board Member)

The prioritisation of sporting performance over anti-doping led to political interference, which impeded effective anti-doping implementation. Interference occurred either through relationships between athletes and politicians or because of politicians taking anti-doping roles. One board member provided an example of how politicians may protect certain athletes:

> Let's say you have to test an athlete out of competition in [country removed], and you need whereabouts. If that player belongs to a politician, is close to a politician. It is always difficult for the [country removed] NADO and for the RADO to test this player. (Board Member)

Similarly, a RADO manager emphasised the complexities of improving implementation when NADO staff are aligned with government objectives rather than the anti-doping regime: "If we don't get somebody correct, then we have no access to that country. They will not help me implement anything in that country". These individuals were referred to as political appointees who lacked the skills or motivation to ensure regime compliance: "So sometimes we do end up with political appointees who literally are just appointed because of somebody likes them in their countries" (RADO Manager).

Political barriers to implementation were identified at a legislative level as well as when the requirements of the Code did not align with national law, and legislative changes were slow and difficult. The potential for corruption in legal systems was also indicated as a potential barrier to legal change and anti-doping tribunals: "Here is different in many other places that, you have justice more or less well established. But here you can buy the judges. You can buy the prosecutors and they can do whatever" (Board Member). The political issues raised convey how national agendas and existing political systems create complex issues for NADOs attempting to implement policy.

Organisational

The third theme captured our interpretations of the disconnection between organisational capacity and compliance expectations. It included differences between the structural and regulatory dynamics of signatories, and RADOs, that inhibited Code compliance. Organisational challenges to compliance related to two subthemes (1) the ability of developing NADOs to achieve operational independence from other national level stakeholders, and (2) the size of NADOs relative to their policy responsibility volume.

Operational Independence

The challenge of operational independence was the first major barrier to compliance for NADOs in the RADO programme. The operational independence of NADOs from other stakeholders was sought by WADA in order to remove "Undue external influence or pressure on NADOs, whether originating from governments or from national sports bodies" (WADA, 2020, p. 4), and was a requirement of the Code. For most NADOs in the RADO programme, achieving operational independence would be a considerable challenge as most were attached to either a national Ministry of Sport or the NOC. One RADO manager explained that in their region, "just three or four NADOs are independent, every other NADO in [region removed], is part of the government" (RADO Manager). This quote exemplified the gap between WADA expectations and signatory realities. Further,

convincing governments to publicly fund anti-doping with no supervision was inconsistent with governance norms:

> You're asking the government and the sporting body not to interfere with the running of the NADO to make it operationally independent. That's already a big challenge because you're taking public money. But the time the public knows what's going on is when you actually give them an annual report back. The rest of the time, you have to be secretive. It's not the culture of this area. (Board Member)

Similarly, independence from NOCs and national federations was viewed as unlikely given the latter group's control over access to athletes and the support required to implement policy. Operational independence may even limit anti-doping activities if key gatekeepers are excluded.

NADO Size

The second major organisational obstacle was NADO size. Differences in staff numbers and employment status (i.e., voluntary versus paid) increased gaps in policy implementation between developing NADOs and developed NADOs (typically associated to countries with successful Olympic programmes). Participants made it clear that in most developing NADOs, anti-doping positions were typically part-time and voluntary work engaged in alongside other full-time careers:

> I think our board members, country representatives are 99.9% volunteers. So they do this besides their regular job and most of them are dependent, they need support from the government and from the NOC and from the National Federation. (Board member)

Anti-doping officials were required to focus on pressing compliance requirements rather than trialling optimal solutions or undertaking thorough forward planning in their regions. The part-time, voluntary nature of work in developing NADOs was made more difficult by the lack of individuals in each organisation able to take responsibility for different policy areas: "I do everything from policy to the day-to-day operations, to testing, to education because we don't have so many people, we really need to build capacity" (Board member). Without dedicated staff, developing domain expertise in particular anti-doping tasks was a challenge. As previously noted, RADOs have Delegated Third Party status, meaning that they can conduct certain anti-doping activities helping to address the limited capacity of developing NADOs. Problematically, both NADO and RADO representatives underscored the limited capacity of RADOs to support their members: "The RADO chair is there, but she's a very busy lady. And sometimes the anti-doping issues could be acute, like it needs to be sorted today or tomorrow and not next week. So, what happens?" (Board Member). The increasing complexity of policy required to be regime compliant placed further pressure on smaller developing NADOs and associated RADOs: "it's making the gap bigger between the countries that can actually implement and have established rules with the countries that are in their baby first steps" (RADO Manager). Considering the diversity in operations demonstrated above, efforts to minimise inter-signatory variation need to account for organisational-level differences between regime members.

Human resources

The final theme, human resources, captured the challenge of finding and retaining the right administrators. The subthemes draw together our interpretations of different issues related to variations in the continuity, availability, and experience of anti-doping management staff between signatories, which led to disparities in each one's Olympic anti-doping regime.

Staff Continuity and Availability

Staff continuity within NADOs was stressed as the major challenge at an administrative level, as frequent turnover of anti-doping professionals led to a loss of knowledge and the need to educate new appointees. Staff turnover was seen as a natural process in anti-doping organisations given the tendency for officials to cycle through different roles within their National Olympic Committee:

> The biggest challenges would be probably continuity of keeping people involved that have that knowledge, and that background that is keeping them within our area so that we're not constantly losing people. (Board Member)

Without continuity, additional resources need to be given to onboarding new anti-doping staff, which could be directed towards other responsibilities. NADO staffing was also subject to political change:

> There is a terminal war of staff all the time, in another country, the whole NADO team was totally changed. So when the team is totally changed, there's no sustainability in continuity. And I need to repeat all over again. (RADO Manager)

Lastly, insufficient contingency funds planning in the RADO programme and in developing NADOs risked undermining the greater anti-doping system if key funding sources were to disappear:

> WADA sponsors a lot RADO staff at the moment and at any time they might see that they can no longer sponsor such a program. I think this is a major concern because a lot of the sponsored staff have really good experience. And if they lose their salaries, they might not be able to continue in a way or another, because there's no financial resources within the RADO to cover for full time staff. (RADO Manager)

Plainly, staff retention is a challenge for developing NADOs as annual restaffing forces organisations to teach the necessary requirements to new staff and negates any accrued experience as well as opportunities to reflect and develop upon previous compliance efforts.

Staff Experience

The lack of staff continuity was compounded by a shortage of anti-doping experts, increasing expertise required in anti-doping (e.g., investigations and intelligence activities), and the lack of professionally trained sport management specialists in certain regions. Policy implementation was being delegated to individuals who did not have previous experience with the technicalities of anti-doping: "Because a lot of them [board members] don't really have a background on anti-doping, I have to create an induction program and train them into the knowledge of anti-doping" (RADO Manager).

Making the task of finding adequate administrative staff harder was the perceived increase in expertise demanded of anti-doping officials. For example, the greater use of digital software for anti-doping administration was considered a challenge for staff who had little experience of working with computers (e.g., "a lot of our representatives are older people, so they're not technologically savvy" RADO Manager). In addition, the growing reliance on intelligence-gathering and investigation as a strategy to prevent and detect doping, was an added challenge to compliance, in the process extending the gap between developed and developing NADOs (e.g., "everybody in anti-doping prior to that investigation thing either doctors or ex-athletes or teachers or something like that. Suddenly you are asked to become MI5 or MI6 or FBI" Board member). Given that future anti-doping strategies and procedures are increasing in complexity as testing, investigations, and artificial intelligence practices become commonplace in Western contexts, staff continuity and expertise gaps are likely to further marginalise developing NADOs.

In certain areas, there are a small pool of management personnel with sufficient knowledge about elite sport to fill anti-doping positions, as one board member explained: "We don't have the luxury of having multiple people running multiple organisations. It's usually the same people on the same organisations simply because of the numbers we have". The small number of individuals naturally created conflicts of interest between responsibilities:

> . . . a major challenge to find people who are knowledgeable and competent, who can sit in an anti-doping organisation without having some connection to the Olympic Committee. (RADO Manager)

Whilst minimising conflicts of interest is important where anti-doping activities may be compromised, greater consideration of the types of conflict present (e.g., financial versus non-financial) requires reassessment. The administrative difficulties present in developing NADOs expressed by participants reinforced the need for interventions that increase the expertise of individuals tasked with anti-doping compliance, but also offset against staff turnover.

Discussion and conclusion

The aims of this research were to (1) analyse the different types of inter-signatory variation in anti-doping policy facing developing NADOs, and (2) identify practical solutions to address the challenges to successful policy harmonisation arising from inter-signatory variation. Regarding the first aim, four inductive thematic categories were established to explain inter-signatory variation in anti-doping policy compliance (see Figure 1). The next section of the discussion considers the theoretical implications of the themes for implementation theory and sport policy before addressing our second aim by proposing solutions to improve harmonisation based on the demonstrated types of inter-signatory variation.

Theoretical contribution

Starting from the theoretical proposition that transnational regimes often struggle with translating rigid global policy into positive local outcomes (Gunn, 1978), our results

support work on the policy-implementation gap in other policy sectors (e.g., Galvani, 2018; Ridde, 2008; Terpstra & Fyfe, 2015). Specifically, the varying and complex environments of signatories make it difficult for a global regulator to prescribe policy expectations (Hupe & Hill, 2002; McConnell, 2015) that are as nuanced and varied as the individuals and organisations being asked to implement them. As such, the individuals responsible for implementation must often take policy and reinterpret it for their own context and capabilities.

The four themes that emerged through our analysis *extend* theorising about the policy implementation gap as it is evident that to understand what contributes to policy outcomes, it is necessary to consider what contextual issues *can* be addressed by policy designers and implementers in addition to the type of policy, design, and ongoing support (Hudson et al., 2019). From the themes, some forms of inter-signatory variation are easier to address than others. Human resourcing issues and language barriers can be accommodated in resource allocation planning; however, overcoming geographic or political challenges is beyond the scope of WADA.

In general, sporting federations can support or coerce members through hierarchical governance (Cho et al., 2022) to accommodate different socio-economic conditions, but have few methods to pressure governments other than banning countries from competition. Equally, concerning political issues, such as competing policy areas for government funding, sporting federations have limited scope other than providing resources or supporting practitioners advocating for anti-doping. It is feasible, that more influential national-level government departments or well-resourced international agencies (e.g., the United Nations) may experience comparatively greater implementation success in the same region where other policy bodies fail if they have better access to implementation brokers (Hudson et al., 2019) who understand the local context and can support accordingly. For policy implementation theory, accurate implementation is connected to the capabilities of a policy body to overcome socio-geographic, political, organisational, or human resourcing variations.

The themes were presented separately, however, in reality the issues occurr simultaneously and dynamically, which aligns with the complexity perspective on policy implementation (Braithwaite et al., 2018). From this perspective, attempts to address one issue may have unforeseen implications in relation to another. For instance, geographical barriers, such as the distance involved in transporting test samples, are being addressed by new testing methods (e.g., dried blood spot testing) that ensure samples remain viable for longer and can travel under extreme conditions. However, the cost of new methods and need to educate doping control officers may accentuate implementation gaps. Therefore, strategies to address inter-signatory variation should be designed from a complexity perspective.

From the present study, it is also apparent that if the policy-implementation gap is to be used as a measure of a policy's performance, an additional dimension of the difference between signatories should be inspected. For instance, is a policy more successful if some signatories can fulfil all obligations whilst others cannot fulfil any, or if all signatories are able to meet some standards? This will of course be dependent on the intended outcome as some targets may be absolute (e.g., anti-corruption) whereas in other cases progress towards the goal may better reflect success (e.g., increasing physical activity).

Focusing specifically on sport policy, the results are noteworthy because assessing and remedying inter-signatory variation has significant consequences for policy leaders, such as WADA, where legitimacy is inseparable from the organisations they govern (Read et al., 2019). The connection between regulator and member legitimacy is not unique to WADA given the hierarchical nature of national and international sport governing bodies, such as the IOC, International Federations, or government funding bodies that utilise top-down regulatory models (Croci & Forster, 2004). For top-down regulatory bodies, failure to address the policy-implementation gap stemming from inter-signatory variation between members diminishes their legitimacy and resulting effectiveness. Therefore, identifying and remedying compliance challenges facing members has the double-benefit of harmonising implementation as well as bolstering legitimacy. In WADA's case, this could improve athlete perceptions of inequality (Woolway et al., 2020).

The four thematic categories that emerged through our analysis can serve as a conceptual guide to further examine how inter-signatory variation within other top-down sporting regimes impacts policy implementation, such as conformity with good governance mechanisms. For example, the themes can provide a conceptual guide alongside previous research that has identified how sports federations support member compliance (Cho et al., 2022). Our understanding of the effectiveness of these strategies could be developed when combined with an understanding of which aspects of inter-signatory variation are most salient. The strategies proposed by Cho et al. are predominantly targeted at organisational and human resourcing variations reiterating the difficulty in influencing socio-geographic and political issues. Evidently, minimising implementation gaps requires political power, economic support, innovation, and cultural understanding.

Based on the theoretical implications presented, several future directions should be explored to gain a better understanding of implementation gaps using comparative research methods between different policy bodies and interventions. First, the effectiveness of methods to overcome the implementation gap (e.g., inclusive policy feedback processes, implementation support programmes, resource collaboration) should be evaluated across contexts. Second, the extent to which policy body capabilities determine the degree of policy implementation gap should be comparatively addressed. Lastly, the tractability of different variation types should be explored to assess when policies are more likely to fail. Additionally, as sports governance and policy evolve and compliance requirements change, additional research may discover new challenges.

Strengthening compliance with the olympic anti-doping regime

The second aim of this research was to demonstrate the challenges experienced when implementing policy stipulated by the Code, so that solutions can be developed. As the top-down approach to anti-doping policy implementation continues, WADA will be compelled to exercise greater monitoring and accountability over NADOs that neglect anti-doping responsibilities. As our analysis revealed, some NADOs promote sporting achievement over anti-doping activities in response to political pressures. Enhanced accountability and punishment alone are insufficient to remedy inadequate policy implementation (Cho et al., 2022), and prominent regime stakeholders should employ multiple strategies to support and increase the capacity of developing NADOs.

Based on the shared challenges identified and limited resources available to developing NADOs, forms of collaboration and resource sharing present viable interventions. The first area for development is expansion of collaboration between regime members to facilitate information transfer. In the human resources theme, the need to continually retrain new staff was revealed as a significant problem. One response might involve increasing formalised partnerships between NADOs to share technical expertise; a relatively low cost, high gain approach that reduces the pressure on under-resourced RADOs. Vidar Hanstad and Houlihan (2015) have demonstrated how bilateral collaboration between developed and developing NADOs can increase the quality of policy implementation, and the expansion of this strategy would be beneficial to staff development. Established NADOs could also support RADO activities related to training new appointees through the provision of materials and mentoring as well as offering guidance on contingency planning.

In addition to staff development collaboration, partnerships to share responsibility for technical activities can lessen the organisational and socio-geographic burden on developing NADOs. For example, each Code signatory is expected to establish their own Therapeutic Use Exemption Committee consisting of physicians with experience of sport medicine to determine the appropriateness of submissions. Rather than requiring each signatory to source experts, in some regions it might be more feasible to establish joint committees with representatives from different nations, therefore reducing the demand on individual signatories.

Similarly, all regions were characterised by relationships with specific international federations that had high sport participation rates in that region. International federations could increase the level of support provided to countries that have high participation rates or take responsibility for certain standards. Redelegation of responsibilities does raise questions about accountability for Code compliance, political interest in allowing another party to implement anti-doping activities, and the conflicts of interest imposed upon international federations, but it does reduce the resource obligations on developing programmes. The emergence of independent integrity units (e.g., Athletics Integrity Unit, Biathlon Integrity Unit, International Tennis Integrity Agency) responsible for international federation anti-doping compliance, among other activities, could appease concerns about political interference. However, they would require further investment if tasked with additional activities.

In conclusion, for aim one, four explanatory themes were created differentiating the issues stemming from inter-signatory variation helping demarcate areas for targeted policy and investment. We have advanced a theoretical understanding through four distinctions. First, socio-geographic and political variation are harder to address than organisational or human resourcing issues. Second, the policy-implementation gap is extended when policy bodies cannot meaningfully support or coerce members. Third, the success of a policy can be measured and understood using the gap between members or the number of members capable of full implementation. Last, for sport governance arranged in a hierarchical design with limited tools to address wide ranging inter-signatory variation, policy-implementation gaps present an ongoing risk. For our second aim, the recommendations centred around collaboration offer some direction towards a more coherent Olympic anti-doping regime, yet wholesale changes in regime design might

help remove burdens on developing NADOs if there is the political appetite to undertake such a drastic shift.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The datasets generated during and/or analysed during the current study are not publicly available due to an inability to sufficiently anonymise transcripts to prevent retrospective identification.

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