



## Explaining elite athletes' corruption behaviours: a comparative analysis of doping and match fixing

Stacie Jade Gray & R. Porreca

**To cite this article:** Stacie Jade Gray & R. Porreca (2024) Explaining elite athletes' corruption behaviours: a comparative analysis of doping and match fixing, International Journal of Sport Policy and Politics, 16:1, 75-92, DOI: [10.1080/19406940.2023.2290118](https://doi.org/10.1080/19406940.2023.2290118)

**To link to this article:** <https://doi.org/10.1080/19406940.2023.2290118>



© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 04 Dec 2023.



[Submit your article to this journal](#)



Article views: 728



[View related articles](#)



[View Crossmark data](#)

# Explaining elite athletes' corruption behaviours: a comparative analysis of doping and match fixing

Stacie Jade Gray<sup>a</sup> and R. Porreca<sup>b</sup>

<sup>a</sup>Faculty of Arts, Science and Technology, University of Northampton, Northampton, UK; <sup>b</sup>Faculty of Business and Law, Coventry University, Coventry, UK

## ABSTRACT

Through a qualitative application of the theory of planned behaviour, the research aimed to increase understanding of elite athletes' reasons behind intentional and actual doping and match fixing. Adopting a descriptive phenomenological approach, media interviews, admission statements and testimonies from dopers and match fixers were analysed using deductive content analysis. The final sample comprised 21 elite athlete match fixers from 15 nations and 33 elite athlete dopers from 10 nations. Whilst all three theories of planar behaviour variables were found to influence doping, only attitudinal and subjective normative beliefs influenced match fixing. Despite some similarities between doping and match fixing themes, differences exist between the primary corruption motives and unique doping attitudes emerged. By identifying the reasons behind elite athletes' engagement in corruption the results can be used to better inform the design of preventative doping and match fixing strategies within elite sport.

## ARTICLE HISTORY

Received 18 January 2023  
Accepted 26 October 2023

## KEYWORDS

Corruption; doping; match fixing; elite sport; theory of planned behaviour

## Introduction

Sport corruption represents a persistent issue that threatens the integrity of sport (Carpenter 2012, Masters 2015, Van der Hoeven *et al.*, 2020). Defined by Masters (2015, p. 11) as 'the deviation from public expectations that sport will be played and administered in an honest manner', sport corruption encompasses multiple forms, including match fixing (betting and non-betting related and the spot fixing subset), doping, salary cap abuses, scalping, tanking and host rights bribery. This study focuses upon two significant corruption issues that have been at the centre of ongoing debates regarding sport integrity breaches: doping and match fixing (Carpenter 2012, Masters 2015). Anti-doping policies, rules and regulations are harmonised through the World Anti-doping Code and the United Nations Educational, Scientific and Cultural Organization's International Convention Against Doping in Sport (Gray 2018), whilst the Council of Europe's Macolin Convention represents the only rule of international law on the manipulation of sports competitions (Marcelo 2020). Following increased public attention towards sport corruption, intensified policy responses have utilised primary and secondary anti-corruption strategies, including a zero-tolerance policy approach (Tak *et al.* 2018), education initiatives (Houlihan 2008) such as information and value-based education (Backhouse 2018), deterrence strategies (Moston *et al.* 2015), financial planning assistance (Nguyen and Gardiner 2021), whistleblowing (Gray 2018), testing, sanctions, codes of conduct

**CONTACT** Stacie Jade Gray  [stacie.gray@northampton.ac.uk](mailto:stacie.gray@northampton.ac.uk)  Faculty of Arts, Science and Technology, University of Northampton, Northampton, UK

© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

and integrity units (Chappelet 2015). However, anti-corruption policy is rarely accompanied by sufficient evidence regarding the reasons behind formulation and implementation (Marcelo 2020). To inform the policy process, enhanced understanding of the phenomena and non-compliant behaviour is needed (Houlihan 2008, Howlett 2018, Marcelo 2020). In this instance, understanding regarding the reasons behind corruption behaviours is crucial to develop more effective combative doping (Lucidi *et al.* 2008, Overbye *et al.* 2013) and match fixing (Hill 2015, Barkoukis *et al.* 2019) policy countermeasures. Although corruption can involve various actors, the complex decision-making process behind athlete doping (Lazuras *et al.* 2010, Smith *et al.* 2010, Kirby *et al.* 2011, Kegelaers *et al.* 2018) and match fixing (Hill 2015, Barkoukis *et al.* 2019, Tak *et al.* 2020, Van der Hoeven *et al.* 2020) has received increasing attention. However, when investigating athlete corruption, Chester and Wojek (2015) recommend differentiating between elite and recreational athletes; recreational athletes are not representative of elite athletes due to variations in situational pressures at different performance levels; a significant gap in terms of elite athlete empirical data exists. The illicit, secretive nature of corruption (Nguyen and Gardiner 2021), combined with the relatively small group of self-admitted elite athlete dopers and match fixers, make it notoriously difficult to obtain official elite athlete data. Consequently, current elite athlete corruption research is generally limited by perspectives about hypothetical, rather than actual, doping and/or match fixing decisions (Bloodworth and McNamee 2010, Kegelaers *et al.* 2018, Lastra *et al.* 2018) and small samples reflecting a narrow range of sporting disciplines and/or geographic areas (Kirby 2011, Lastra *et al.* 2018, Van der Hoeven 2020). Additionally, there is an overdependence on statistical data (Lazuras *et al.* 2010, Tak *et al.* 2020, Van der Hoeven *et al.* 2020).

Rational choice explanations of elite athlete doping and match fixing have commonly cited financial motives (Bloodworth and McNamee 2010, Kirby 2011, Kegelaers *et al.* 2018, Lastra *et al.* 2018, Van der Hoeven *et al.* 2020). Match fixing specific explanations include university entry, matching up with an easier opponent (Tak *et al.* 2020) and sporting interests of the club (Van der Hoeven *et al.* 2020), whilst doping specific explanations include enhanced performance (Kirby 2011, Morente-Sánchez and Zabala 2013, Kegelaers *et al.* 2018) and injury recovery (Bloodworth and McNamee 2010, Kirby *et al.* 2011, Overbye *et al.* 2013, Engelberg 2015, Didymus and Backhouse 2020). However, existing insights are generally limited by hypothetical perspectives (Bloodworth and McNamee 2010, Kirby *et al.* 2011, Kegelaers *et al.* 2018, Lastra *et al.* 2018). As a rational decision-making model, the theory of planned behaviour (TPB), has the potential to explore the attitudes towards actual doping and match fixing behaviours. Regarding doping risk perceptions, external control mechanisms include situational temptation (Lazuras *et al.* 2010) and low chances of detection to ineffective policies (Kegelaers *et al.* 2018). Less is known about internal doping control mechanisms (Lazuras *et al.* 2010). Though increasing, micro-level accounts of elite athlete match fixing are a relatively new, under-theorised research area (Numerato 2016, Kihl 2019) and limited knowledge exists regarding risk perceptions. TPB provides insight into risk perceptions through 'perceived behavioural control'.

Alternative research has sought to understand match fixing (Lee 2017) and doping (Numerato 2016) within the context of social frameworks and the cultural context in which they emerge. From a sociocultural perspective, peers influence both match fixers and dopers (Kirby 2011, Hill 2015, Kegelaers *et al.* 2018), whilst the significance of coaches in doping has been demonstrated to varying degrees (Petróczi and Aidman 2008, Kirby *et al.* 2011; Johnson 2012, Kegelaers *et al.* 2018). Whereas societal culture has been found to influence match fixing (Lee 2017, Barkoukis *et al.* 2019) sporting culture has primarily been found to lend itself to drug use (Smith 2010, Overbye *et al.* 2013, Didymus and Backhouse 2020). In contrast, sporting culture has emerged as a protective factor against match fixing (Lastra *et al.* 2018). Despite such insights, greater understanding regarding the sources of social norms and normative beliefs (injunctive and descriptive) within elite athlete match fixing (Barkoukis *et al.* 2019) and doping (Ntoumanis *et al.* 2014) is required. Using TPB, this research aims to

increase understanding of elite athletes' reasons behind intentional and actual corruption behaviours, specifically doping and match fixing.

TPB represents a well-established and empirically validated social-psychological framework (Ajzen 2020). Through attitudes, subjective norms and perceived behavioural control, TPB moves beyond an individual ethics view (Aubel and Ohl 2014), to focus on the 'dopogenic environment' (Backhouse *et al.* 2018). Focusing upon the variety and interdependence of corruption motivations has the potential to contribute towards a better understanding of athlete sport corruption behaviours (Kihl 2019). Contributing to the lack of micro-level, comparative corruption analysis (Kihl 2019), the authors conduct (to their knowledge) the first qualitative study to compare two forms of actual corruption behaviours (doping and match fixing) amongst *elite* athletes. Comparative research is important as numerous sports (e.g. badminton, hockey, equestrian, athletics and tennis) have shifted towards integrity units that are responsible for multiple corruption issues (Institute of National Anti-doping Organisations 2021). Subsequent efforts have included joint anti-corruption initiatives, for example, the International Tennis Integrity Agency's combined approach to anti-corruption and anti-doping education (International Tennis Integrity Agency 2020). Policy makers and practitioners, particularly those within integrity units responsible for various forms of corruption, may use the results to inform the design of preventative doping and match fixing strategies within elite sport.

## Elite athlete corruption

The subsequent literature review indicated that elite athlete corruption behaviours have primarily been explained using four broad theories: rational choice, strain theory, moral disengagement, and the sociocultural context. Through its three variables, TPB has the potential to capture components of each theory, whilst advancing understanding regarding the multitude of, and interplay between, factors behind elite athletes' actual match fixing and doping behaviours.

### Rational choice

Rational choice theory, originally a psychological theory applied to criminal behaviour, assumes an individual cost/benefit decision-making process (Clarke 1997). Despite evidence of financial motives, drawing conclusions is difficult as results have been based upon hypothetical behaviours (Bloodworth and McNamee 2010, Kirby *et al.* 2011, Kegelaers *et al.* 2018, Lastra *et al.* 2018) or small match fixing (Lastra *et al.* 2018, Van der Hoeven, 2020) and doping (Kirby *et al.* 2011) sample sizes. Unique match fixing rational explanations include university entry, matching up with an easier opponent (Tak *et al.* 2020) and sporting interests of the club (Van der Hoeven *et al.* 2020). Unique doping rational explanations include injury recovery (Bloodworth and McNamee 2010, Kirby *et al.* 2011, Overbye *et al.* 2013, Engelberg 2015) and physical benefits/enhanced performance (Kirby 2011, Morente-Sánchez and Zabala 2013, Kegelaers, 2018). Exemplifying the goal orientation doping explanation, doping to win emerged as the prevailing, and only significant psychological factor, within Engelberg (2015) research. Contrarily, Kirby *et al.* (2011) found that athletes were influenced by an internal desire to remain in the sport for as long as possible, rather than to win.

Rational choice emphasises the individual's risk perception (Clarke 1997) (this aspect is captured within TPB's 'perceived behavioural control'). Although chances of detection represent a perceived doping risk, highlighting policy push factors, dopers perceive the chances of being caught to be small (Kegelaers *et al.* 2018) and are not particularly worried about testing positive (Kirby *et al.* 2011). Although some insights have been provided into external doping control mechanisms (Lazuras *et al.* 2010, Kegelaers *et al.* 2018), knowledge regarding internal doping control mechanisms is lacking (Lazuras *et al.* 2010). As a relatively new research area, existing literature on the aetiology of match

fixing, particularly risk perceptions and control mechanisms, is limited. Despite the potential benefits, rational choice theory only provides a partial understanding of corruption behaviours, neglecting the role of socio-cultural motivations (Numerato 2016) and psychological processes (Barkoukis *et al.* 2019) (two components captured within TPB).

### **Strain theory**

Merton's (1938) seminal strain theory states that barriers may prevent individuals from attaining internalised social and cultural goals related to wealth and status. Subsequent situations of anomie may cause deviant behaviour. Supporting strain theory, Hill (2015) found that the current circumstances of Malaysian and Singaporean professional footballers were not always considered during gambling related match fixing. Instead, athletes' voluntarily match fixing was driven by considerations of potential, near future situations of anomie (no career and an inability to maintain the status and pay afforded to professional footballers). However, financial motives rarely represent the sole reason behind match fixing (Carpenter 2012) and are not always linked to strain, but greed (Manoli and Antonopoulos 2015). Developing Merton's (1938) theory, general strain theory advances understanding of social-psychological variables; the theory acknowledges a wider variety of strains and stressors (e.g. family illness, relationship breakdown, threats) and recognises that negative emotions (e.g. frustration, fear, anger) can create corrective action pressure, including deviancy (Agnew *et al.* 2002). Scant attention has been paid to doping (Didymus and Backhouse 2020) and match fixing stressors. The few insights identify similar stressors to include the discontinuation phase (Petróczi and Aidman 2008, Kegelaers *et al.* 2018, Lastra *et al.* 2018) and financial vulnerability (Bloodworth and McNamee 2010, Kirby *et al.* 2011, Kegelaers *et al.* 2018, Van der Hoeven *et al.* 2020). An additional match fixing stressor includes coercion (Carpenter 2012), whilst doping stressors include injury (Bloodworth and McNamee 2010, Engelberg *et al.* 2015, Kirby *et al.* 2011) and sport-specific stressors such as weight/size expectations (Didymus and Backhouse 2020). Compared to stressors, less is known regarding the negative emotions accompanying corruption behaviours.

### **Morality and moral disengagement**

Bandura (1996) moral disengagement theory represents a popular psychological perspective and suggests that individuals disassociate from their moral standards to absolve themselves of immoral behaviours. Moral disengagement has been evidenced among elite athlete dopers (Hodge *et al.* 2013, Engelberg *et al.* 2015) and found to significantly hypothetical doping amongst Italian high school students (Lucidi *et al.* 2008). Regarding TPB, morality and moral disengagement may be captured through 'attitude' towards doping or match fixing.

Arguably, there is a need to move beyond an individual ethics view (Aubel and Ohl 2014) and morality, to focus on the 'dopogenic environment' (Backhouse, 2018). Compared to doping, match fixing has rarely been investigated from a moral decision-making perspective. Notably, Van der Hoeven *et al.* (2020) utilised Rest's (1996) morality theory. Within the context of Flemish soccer, tennis and badminton, interests of the club emerged as the primary non-betting related motive, whilst money emerged as the primary betting related motive. However, the authors acknowledged that it is difficult to draw strong conclusions given that actual motives were based on seven athletes. Although Rest (1996) expanded previous moral frameworks to consider social information, the framework provides limited evaluation of environmental and socio-cultural factors (Garrigan *et al.* 2018).

### **Sociocultural context**

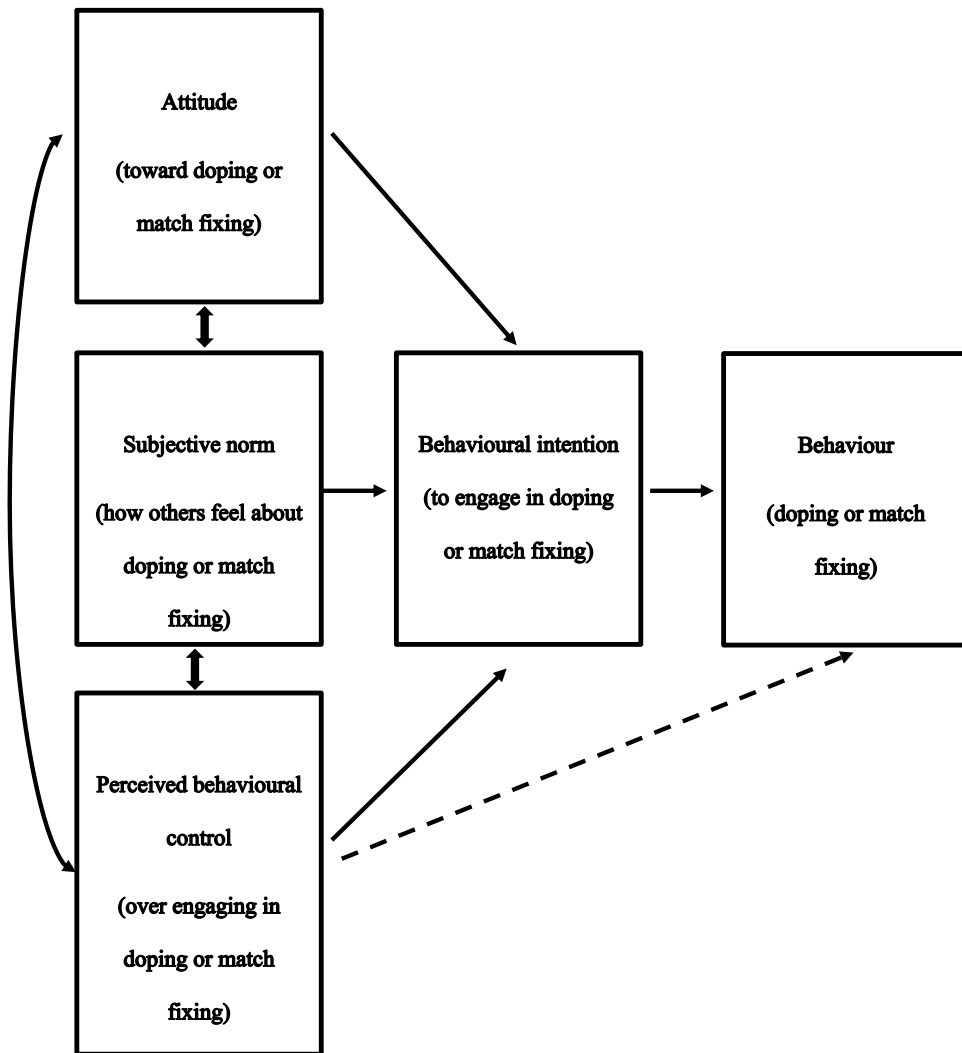
An athlete's social network includes various referent groups that can create pressure to engage in transgressive behaviours (Kihl, 2019). Supporting the influential role of senior players (Hill

2015), Lee (2017) found that the senior-buddy orientated system guided junior players to follow the orders of seniors, even if demands conflicted with their own values. Similarly, peers have been reported as a source of elite athletes' (hypothetical) doping (Kirby *et al.* 2011, Kegelaers, 2018). Although conceptual models of doping behaviour (Petróczi and Aidman 2008, Johnson 2012) include coaches, evidence of their influence varies (Kirby *et al.* 2011, Engelberg *et al.* 2015). Demonstrating the influence of culture, specifically Confucian culture, Lee (2017) found evidence of a deeply rooted culture of absolute obedience in Taiwanese professional baseball match fixing; players were found to exhibit submissive behaviours and obedience to father figure coaches. Normative pressures of actual, elite athlete doping would benefit from further investigation; previous samples included six or fewer elite athlete dopers (Smith *et al.* 2010, Kirby *et al.* 2011), were predominantly limited to national level competition and strength sports in Australia (Engelberg *et al.* 2015) or an Australasian sample (Smith *et al.* 2010). Sources of social norms and normative beliefs (injunctive and descriptive) within athlete match fixing (Barkoukis *et al.* 2020) and doping (Ntoumanis *et al.* 2014), also require further investigation; such elements are captured within the 'subjective norm' dimension of TPB.

## Theoretical framework

Ajzen's (1985) TPB extends the theory of reasoned action. According to TPB, behavioural intentions are the antecedent of behaviour. Behavioural intentions are determined by subjective norms, attitudes towards the behaviour and perceived behavioural control. Attitudes are perceived as a function of behavioural beliefs; the individual's subjective probability that performing a behaviour will lead to a particular outcome (Ajzen 2020). Regarding subjective norms, Fishbein and Ajzen (2010) distinguish between injunctive normative beliefs (the expectation that individuals or groups approve or disapprove of the considered behaviour) and descriptive normative beliefs (whether important others engage in the considered behaviour). Perceived behavioural control (the variable that extended the theory of reasoned action) is a multidimensional concept including internal and external control mechanisms. Derived from Bandura's construct of self-efficacy, the concept considers the perceived ease or difficulty of performing the behaviour and is based on accessible control beliefs (the presence facilitating or impeding factors). Control factor examples include time, money, resources, skills and cooperation of others (Ajzen 2020). In less volitional contexts, perceived behavioural control may predict behaviour (Ajzen 1991).

TPB has since been used to successfully investigate various unethical and illegal behaviours, including corporate fraud (Cohen *et al.* 2010), digital piracy (Yoon 2011) and sport corruption (Lucidi *et al.* 2008, Lazuras, 2010, Barkoukis *et al.* 2019). However, elite athlete match fixing behaviours remain unexplored using TPB, whilst academics have called for further TPB studies that explore doping behaviours (Sekulic *et al.* 2016). Despite the potential of qualitative data to provide rich insights, overwhelmingly, studies have used quantitative methods to explore corruption forms such as doping (for a review see Blank *et al.* 2016) and elite athlete match fixing (Van der Hoeven *et al.* 2020, Tak *et al.* 2020.). Despite successful qualitative application of TPB in alternative research areas (Cohen, 2010, Goh 2019), sport corruption studies to adopt TPB have exclusively used quantitative methods and yielded mixed results. Whereas Lazuras (2010) found that all three TPB variables significantly predicted Greek elite athletes' doping intentions and behaviours, Lucidi *et al.* (2008) only found attitudes and subjective norms to be significant predictors of Italian adolescents' hypothetical doping intentions. In contrast, in the first and only study (to date), that has used TPB to explore match fixing intentions (among student athletes competing at regional or national level), only subjective norms were found to be significant (Barkoukis *et al.* 2019). Statistical approaches may omit behavioural insights (Goh 2019) through predetermined motives (Engelberg *et al.* 2015) and questionnaires negate 'rich' data (Bloodworth and McNamee 2010). Although TPB has been successfully used to analyse qualitative data in the context of corporate fraud (Cohen *et al.* 2010) and non-compliance in national parks (Goh 2019), currently, no studies have qualitatively explored elite



**Figure 1.** Theory of planned behaviour applied to doping and match fixing (adapted from Ajzen 1991).

athlete corruption behaviours using TPB. To counter quantitative research shortcomings and contribute towards the relative paucity of qualitative elite athlete corruption research (Lentillon-Kaestner and Carstairs, 2010, Kirby, 2011, Kegelaers *et al.* 2018, Lastra *et al.* 2018), the authors adopt a qualitative approach and explore the qualitative utility of TPB to systematically examine elite athletes' doping and match fixing decisions (Figure 1).

Recognising theoretical limitations, TPB's proposition that users are consciously evaluating decisions is reflective of system 2 cognitive decision making (Kahneman 2003). Although research has supported the rational character of corruption decision making (Huybers and Mazanov 2012), psychological dual process approaches distinguish between system 2 and system 1 (not available to introspection) thinking. Supporting system 1, doping may grow from habitual engagement in performance enhancing practices such as nutritional supplement experimentation (Petróczi and Aidman 2008) and cultural practices can normalise corruption behaviours such as doping (Aubel and Ohl 2014). It is also possible that influential factors were retrospectively considered after being caught or during the athletes' admission, rather than during the actual decision-making process.

## Methodology

Given the nature of the research question, the study was informed by constructivism to capture the viewpoints of athletes and the multiple, interacting factors that influence sport corruption behaviours. As the research sought to explore lived experiences (Sparkes and Smith 2013), a descriptive phenomenological approach was adopted. To overcome the challenges associated with recruiting self-admitted dopers and match fixers at the elite level, the study used media interviews, athlete admission statements and testimonies. Previous studies have successfully used similar sources to explore doping denial strategies (Moston and Engelberg 2019) and footballer match fixing motivations (Hill 2015).

The authors searched the websites of all 97 members of the Association of Summer Olympic International Federations, Association of International Olympic Winter Sports Federations, Association of IOC Recognised International Sports Federations and Alliance of Independent Recognised Members of Sport, for doping and/or match fixing athlete sanction lists. The websites of 19 IFs outside the Olympic Movement, who are signatories of the WADA Code, were also consulted. Thirty-three websites had a doping sanction list and 16 websites had a match fixing sanction list. Additional cases that were not listed on IF websites (four doping and one match fixing), were identified through the Court of Arbitration for Sport's jurisprudence database.

Google, a reputable search engine that yields greater search engine effectiveness than other providers (Gull *et al.* 2020), was used to search the athlete's name and the relevant corruption scandal of 'match fixing' or 'doping'. Search specificity was increased through additional, relevant terminology, for example 'admission', 'testimony' 'statement' and 'interview'. To reflect the rational nature of TPB, the study focused upon intentional corruption behaviours (where an athlete knowingly engaged in doping or match fixing); confessions of accidental, elite athlete doping were not included. Google searches were conducted to identify additional elite athletes whose federation was not listed on the Global Association of International Sport Federations list (e.g. Yu Delu), who were not listed on the current respective sanction lists or had self-admitted despite never being caught (e.g. Mia St. John). To classify athletes as elite, the authors utilised Swann (2015) model; using the criteria of highest standard or level of performance, athlete success, and the amount of experience at the highest level, elite athletes may be classified as semi-elite, competitive-elite, successful-elite, or world-class elite.

Recognising data collection limitations, the data may include athlete distortions (Moston and Engelberg 2019). Due to the potential self-interest underlying testimonies (Barnoy and Reich, 2022), athletes may falsely express contrition and/or dishonestly divulge their corruption motivations. Predictors of trust included statement consistency with previous research (Barnoy and Reich, 2022), consistency between athletes' multiple statements and factual accuracy within the statement (Palmer *et al.* 2016). Recognising that athletes can be consistently deceitful, statements were examined for Reinold's (2021) six communication techniques routinely applied by deceivers and compared to available narratives provided by others. Although it is difficult to fully trust confessions (Lamont-Mills and Christensen, 2008), due to the challenges associated with recruiting elite level match fixers and dopers, the sample overcame previous study limitations, specifically hypothetical perspectives and small sample sizes. Trustworthiness can be increased through reputable sources (Wintterlin 2017). This consulted professional media sources, specifically IF/NGB press releases, the Court of Arbitration of Sport's Jurisprudence, statements from the athletes' official social media channel and broadsheet news articles (tabloids, blogs and forums were excluded). Although caution is required when using news sources, most reporters claim to prioritise information verification to avoid shaky epistemic foundations and reduce erroneous reporting (Barnoy and Reich, 2022). Rather than accept singular accounts as the truth, cross referencing (Manoli and Antonopoulos 2015) contributed towards ensuring that athletes' statements were accurately produced in the media.

Like Hill (2015), the findings were recorded using an athlete admission database, which included athletes' names, the corruption issue (match fixing or doping), year(s) the corruption took place,



admission year, sport, nationality, sanction (if applicable) and source links. Only athletes who met Swann (2015) criteria were included. In preparation for the case-by-case data analysis, Microsoft Word documents were created for each athlete to store athlete-specific data (e.g. athlete interview transcripts and testimony data).

The final match fixing sample comprised 21 elite-level match fixers (male = 21) from 15 nations and 7 sports, all of which were caught. The sports included cricket ( $n = 7$ ), football ( $n = 4$ ), tennis ( $n = 4$ ), darts ( $n = 2$ ), snooker ( $n = 2$ ), Esports ( $n = 1$ ) and formula one ( $n = 1$ ). Match fixing admissions occurred between 2000 and 2020. The match fixing cases represent all the admissions (in English) from elite-level match fixers, that the authors were able to find during the data collection period. The final doping sample comprised 33 elite-level dopers (male = 29; female = 4) from 10 nations and 9 sports, specifically cycling ( $n = 13$ ), athletics ( $n = 5$ ), baseball ( $n = 4$ ), skiing ( $n = 3$ ), boxing ( $n = 3$ ), mixed martial arts ( $n = 3$ ), cross country ( $n = 1$ ) and race walking ( $n = 1$ ). Of the 33 athletes, 13 never tested positive; 3 admitted during their career following links to doping investigations, 3 admitted post career following links to doping investigations and 7 voluntarily admitted post career. Doping admissions occurred between 1999 and 2019. Only confessions available in English were included. Although additional elite athlete doping admissions existed, the authors ceased data analysis when a priori thematic saturation was reached (Saunders *et al.* 2018). The data collection process occurred between March and June 2021. With the largest qualitative sample of self-admitted elite athlete dopers and match fixers to date (please see the appendix for a list of cases), the study responds to the need for samples that represent actual elite athlete corruption behaviours from a broader range of sporting disciplines (Kirby, 2011) and geographical areas (Nowy and Breuer, 2017; Van der Hoeven *et al.* 2020).

Data were analysed using the systematic research method of content analysis, which enables replicable and valid inferences from data to their context (Krippendorff 1980). Braun and Clarke's (2006), six phases of thematic analysis guided the data analysis, whilst their 15-point criteria checklist contributed towards ensuring rigorous application of the analytical framework.

During each stage, trustworthiness was enhanced through the means recommended by Nowell *et al.* (2017). First, after prolonged engagement with the data, data were organised and prepared. Second, the authors judiciously read the data and reflected on its overall meaning. Third, a deductive content analysis approach (Sparkes and Smith 2014) was applied; a coding method was created for doping and match fixing cases according to the three TPB variables. To maintain flexibility, codes that could not be anticipated by the TPB were inductively developed to capture the complete complexity of the phenomenon. To offset biases and enhance reliability, multiple-analyst triangulation (Sparkes and Smith 2013) was used; two researchers independently completed the data analysis before reflecting on coding similarities and differences. Any analytical discrepancies were discussed until a consensus was reached. Fourth, related responses were clustered and a frequency analysis was conducted for the key themes. Fifth, tables were generated to convey the analytical findings and draw inferences about doping and match fixing (Creswell and Poth 2018). NVivo software was used to facilitate the data analysis. Prior to conducting the research, the authors obtained ethical approval from their institution.

## Results and discussion

### Attitudes

Four broad attitudinal doping and two broad attitudinal match fixing themes were found (Table 1).

### Career

Career related attitudes (reported by fourteen athletes across five sports) emerged as the prevailing reason behind doping. Although fewer match fixers (five athletes across three sports) referred to career-related attitudes, some similarities in subthemes occurred. Both dopers and

**Table 1.** Attitudes towards doping and match fixing (the first number between brackets represents the dopers who admitted after testing positive. The second number represents admissions from athletes who never tested positive).

Theme Sub Theme	Doping	Match Fixing	Example quotations
<b>Career</b>	<b>14</b> <b>(7/7)</b>	<b>5</b>	
<i>Career advancement</i>	6 (3/3)	4	'I thought that with the help [of blood doping] I could reach the global top ten' ( <i>Algo Kärp – doping</i> )
<i>Career prolongment</i>	6 (4/2)	0	'It [doping] seemed like the only way to continue to follow my dream at the highest level of the sport' ( <i>Vande Velde – doping</i> )
<i>Obtain or renew contract</i>	2 (0/2)	1	'I wouldn't have gotten a contract without doping' ( <i>Stefan Deniff – doping</i> )
<b>Improve physicality/ health</b>	<b>11</b> <b>(8/3)</b>	<b>0</b>	
<i>Improve physicality</i>	9 (7/2)	0	'My goal, to get big and strong' ( <i>Stephan Bonnar – doping</i> )
<i>Improve health</i>	2 (1/1)	0	'I did this for health purposes. There's no way I did this for any type of strength use' ( <i>Mark McGwire – doping</i> )
<b>Injury recovery</b>	<b>4</b> <b>(3/1)</b>	<b>0</b>	
<i>Promote faster injury recovery</i>	2 (1/1)	0	'I was dealing with a nagging injury and I turned to products. The products were a cream and a lozenge, which I was told could help expedite my rehabilitation' ( <i>Ryan Braun – doping</i> )
<i>Overcome injury pain</i>	2 (2/0)	0	'I experienced some residual pain in my foot from a previous injury. I made the extremely poor choice to take some pain medications that I did not have a prescription for' ( <i>James Irvin – doping</i> )
<b>Financial</b>	<b>3</b> <b>(2/1)</b>	<b>10</b>	
<i>Financial gains/rewards</i>	2 (1/1)	4	'Driven by greed' and the 'lure of easy money' ( <i>Hansie Cronje – match fixing</i> )
<i>Make a living</i>	1 (1/0)	0	'My first goal as a boxer was always to make a living' ( <i>Larry Olubamiwo – doping</i> )
<i>Alleviate financial pressure</i>	0	6	'I was in a very vulnerable financial state' ( <i>Lonwabo Tsotsobe – match fixing</i> )

match fixers evidenced the 'win at all costs' mentality (Numerato 2015) through reference to career advancement. Three match fixers and three dopers who referred to attitudinal, career progression beliefs, participated in individual sports and were driven solely by self-interest (Kihl 2019). However, the range of additional motivating factors demonstrate that this explanation alone is insufficient to account for corruption behaviours. Contrary to Van der Hoeven et al. (2020), 'best interest of the club' did not emerge as a primary match fixing motive; within this study, one athlete (the only athlete who fixed solely to win), referred to this motive. Capturing the influence of negative emotions on corrective behaviours (Agnew et al. 2002), the athlete referred to the scare of relegation, whilst evidence of moral disengagement (Bandura et al. 1996) appeared through the belief that fixing for the best interest of the team is incomparable to financial motives. Unlike Hill (2015), strain theory did not provide sufficient explanation of match fixing behaviours; just one athlete referred to potential future situations of anomie, believing that match fixing would help to secure future contract renewal. Given the relative absence of future anomie concerns, career development (e.g. subsidised higher education opportunities) may have limited effect on corruption behaviours (though their potential to support post-career transitions is recognised).

Contrary to Engelberg et al. (2015), desire to win did not emerge as the prevailing doping factor. Supporting Kirby et al. (2011), six athletes were driven by the internal desire to remain in the sport, whilst six believed that doping would prolong their elite athlete career. These athletes were facing the discontinuation phase, confirming that career transitions influence athletes' doping behaviours (Petróczi and Aidman 2008, Kegelaers et al. 2018). The findings indicate that during critical incidents of career transition (Kirby et al. 2011), a need exists for targeted doping prevention. Highlighting

differences between doping and match fixing stressors, contrary to Lastra et al. (2018), match fixers did not refer to the discontinuation phase.

### **Financial**

Previous evidence of elite athletes' financial motives has been based upon hypothetical doping (Bloodworth and McNamee 2010, Kirby et al. 2011, Kegelaers et al. 2018)). Financial factors (cited by three dopers across three sports) represented the least recurrent theme and was reported alongside additional motivations. Echoing previous studies (Smith et al. 2010, Kegelaers et al. 2018), two athletes reported financial pull factors. Only one athlete referred to a vulnerable financial position and their belief that doping would help them to make a living. Contrary to doping, the financial theme (cited by ten athletes across four sports), emerged as the primary match fixing motivation. This result contrasts with the research of Van der Hoeven et al. (2020), which reported sporting interests of the sports club as the main match fixing rationale. Although money alone is rarely thought to drive match fixing decisions (Carpenter 2012), evidencing the rational choice explanation of match fixing (Kihl 2019), four athletes referred solely to the financial pull factor of perceived financial gain; two of these athletes simultaneously referred to weakness of character. Contrasting Hill's (2015) suggestion that athletes are not thinking about gaining income, the athletes evidencing personal greed motives (Manoli and Antonopoulos 2015), agreed to match fix for amounts ranging from £5,000 GBP to \$15,000 USD per match. Although the rational choice model explained the decision of four match fixers, additional subthemes demonstrate that the theory only provides a partial understanding.

Cited by six athletes across four sports, alleviating financial pressure (Lastra et al. 2018, Tak et al. 2020, Van der Hoeven et al., 2020) was the prevailing match fixing subtheme. Contrary to Hill (2015), athletes emphasised current financial vulnerability, rather than near future situations of financial anomie proposed within strain theory (Merton 1938) and reported financial stress at the start, rather than backend of, their careers (Lastra et al. 2018). Contributing to the limited knowledge regarding the financial benefits that incentivise match fixers, financially vulnerable athletes agreed to match fix for amounts unknown to the athlete and known amounts ranging from \$1,000 USD to \$15,000 USD per match. Evidencing that match fixing is the consequence of multiple, including socio-cultural motivations (Numerato 2016), four of the athletes who referred to financial vulnerability, simultaneously identified career-related attitudinal beliefs and/or subjective normative beliefs.

### **Improve physicality and health**

Contrary to previous research, the doping behaviours were not linked to anticipated psychological outcomes, including happiness gains (Kegelaers et al. 2018), feeling more relaxed (Engelberg et al. 2015), improved self-esteem, confidence and cognitive ability (Petróczi and Aidman 2008). Instead, eleven athletes emphasised the perceived physical and health outcomes (Morente-Sánchez and Zabala 2013, Engelberg et al. 2015, Kegelaers et al. 2018). Representing the second most cited doping subtheme, nine athletes believed that doping would improve physicality. Like Engelberg et al. (2015), differences across sports emerged; the desire to build strength was most notable amongst boxers and mixed martial artists, whilst the desire to build stamina was reported by road cyclists and marathon runners. However, the majority (six) did not aim to improve their performance beyond natural capabilities. Supporting doping research (Kirby et al. 2011, Engelberg et al. 2015, Kegelaers et al. 2018), the physical improvements associated with doping were sought to 'keep up' with competitors, or at the very least, 'maintain a level playing field'. This result evidences the 'dopogenic environment' (Backhouse et al. 2018); athletes simultaneously referred to attitudinal beliefs (the belief that doping would improve physicality) and subjective norms (specifically the descriptive normative belief that others engage in doping).

Although two athletes highlighted perceptions regarding the enhancement of health, rather than performance (Overbye et al. 2013), it is curious that the athletes did not obtain therapeutic use exemptions. Whereas doping prevention strategies have focused upon the negative health side-

effects of doping (Engelberg *et al.* 2015), this finding indicates the contrary belief amongst some athletes that doping may positively impact health. Highlighting the unique benefits of certain forms of corruption, physicality and health improvement attitudes only emerged within the doping analysis (injury recovery also emerged as a unique theme to doping, although this represented a minor theme). Although these themes only speak to one form of corruption (doping), the findings provide important insights, particularly given the shift towards integrity units that are responsible for multiple corruption issues (Institute of National Anti-doping Organisations 2021). When delivering joint anti-corruption initiatives (e.g. International Tennis Integrity Agency's combined approach to anti-doping and anti-corruption education) (International Tennis Integrity Agency 2020), careful design is required to ensure that various (including corruption specific) motivations are integrated into the combative strategy.

### Subjective norms

The same two doping and match fixing subjective normative themes (culture and pressure from others) emerged (Table 2).

#### Culture

Supporting the importance of the cultural context, which is neglected in rational choice models (Numerato, 2016), culture (reported by thirteen athletes across five sports) was the second most frequently cited reason behind doping. Sporting culture was referred to by twelve dopers across five sports and four match fixers across three sports; this was the sole reason provided by three dopers across two sports and one match fixer. Evidencing descriptive normative beliefs and supporting previous research, athletes perceived doping to be highly prevalent within their sports (Lazuras *et al.* 2010) and identified the widespread, pervasive nature of doping as a doping incentive (Kirby *et al.* 2011). Contributing to the lack of knowledge regarding social norms within match fixing (Barkoukis, 2019), match fixers also referred to descriptive normative beliefs. Perceptions regarding the culture of match fixing within athletes' respective sports, contrasts the research of Lastra *et al.* (2018), where participants perceived the extent of match fixing corruption to be non-existent or non-concerning in

**Table 2.** Subjective norms towards doping and match fixing.

Theme Sub Theme	Doping	Match Fixing	Examples of selected quotations
<b>Culture</b>	<b>13</b> (8/5)	<b>4</b>	
<i>Doping/match fixing culture in sport</i>	12 (7/5)	4	'Everyone does it [doping] in the sport' ( <i>Mia St John – doping</i> )
<i>Societal culture</i>	1 (1/0)	0	'What is the difference between someone using these drugs [caffeine and alcohol] and an athlete using other drugs to improve themselves?' ( <i>Larry Olubamiwo – doping</i> )
<b>Pressure from Others</b>	<b>8</b> (6/2)	<b>7</b>	
<i>Coaches</i>	5 (4/1)	0	'I made the decision under the influence of a longtime trusted coach' ( <i>Kelli White – doping</i> )
<i>Teammates</i>	2 (1/1)	4	'He was the instigator in all of this, who introduced me to this world. I guess in some ways I was following my mentor' ( <i>Lou Vincent – match fixing</i> )
<i>Medics</i>	1 (1/0)	0	Hondo said he was talked into blood doping by Doctor Mark Schmidt [German physician and former Milram team doctor] in the fall of 2011 ( <i>Danilo Hondo Trial Evidence – doping</i> )
<i>Managers</i>	0	1	Defense barrister Hartnett said Nicolas McKoy was a small fish in the syndicate, who simply followed orders ( <i>The Guardian</i> ). 'The boss had lost a lot of money on games when we didn't pull the mission off. He said this was like life and death' ( <i>Nicolas McKoy – match fixing</i> )
<i>External pressure</i>	0	2	'I was put under external pressure' ( <i>Wessel Nijman – match fixing</i> )

rugby league, water polo and swimming. Adding insights regarding injunctive normative beliefs (Fishbein and Ajzen 2010), these were not evidenced for doping or match fixing.

When athletes become socialised to a specific sports culture, they may not perceive doping to be a form of cheating (Overbye *et al.* 2013). Indicating that not all athletes are morally disengaged (Engelberg *et al.* 2015), two athletes recognised their action to be morally incorrect. In such instances, value-based and ethical principle (Nguyen and Gardiner 2021) education alone, are unlikely to be effective. Athletes from athletics, boxing and cycling, notably referred to the acceptability of doping in their sport. Although the doping culture of sport was widely reported, contrary to previous research, athletes did not state that doping was conducted to demonstrate solidarity with peers (Petróczy and Aidman 2008). Contrary to previous match fixing research (Lee 2017, Barkoukis, 2019), societal culture did not emerge. Instead, athletes referred to the match fixing culture within their sport. Regarding doping, societal culture was not significant; only one athlete referred to the acceptability of recreational drugs in societal culture.

Reinforcing that corruption behaviours involve a complex decision-making process driven by multiple factors (Kihl 2019), seven dopers who referred to the sporting culture, simultaneously referred to attitudinal beliefs (e.g. career progression) and/or accessible control beliefs (e.g. time to remove drugs from the system), whilst all match fixers referred to sporting culture and attitudinal beliefs.

### **Pressure from others**

Eight dopers across three sports and seven match fixers across four sports reported pressure from others. For match fixing, this was the second most cited reason. Confirming the doping research of Smith *et al.* (2010), coaches (identified by five athletes in this study), were the most cited source of normative pressure. This finding contrasts with the research of Kirby *et al.* (2011), which identified teammates or training partners as the greatest influencers. Highlighting differences in the primary source of normative pressure across corruption behaviours, teammates (reported by four athletes), rather than coaches, were identified as the most frequent source of match-fixing pressure. Alongside peer pressure, two athletes referred to their weakness of character, whilst two others referred to their state of confusion. In peer pressure cases, like Hill's (2015) match fixing results, senior players generally exerted pressure on junior players. Supporting Lee (2017), three of the four match fixers who referred to team pressure, simultaneously referred to conflict with their own values. The significance of teammate pressure contrasts previous research (Tak *et al.* 2020, Van der Hoeven *et al.* 2020). Confirming the role of managers (Lee 2017), two match fixers stated that pressure was exerted by managers. This finding provides further evidence that individuals may abuse their position of power to pressure subordinates to engage in corruption (Kihl 2019).

Doping research has reported indirect (Kirby *et al.* 2011) and subtle (Lentillon-Kaestner and Carstairs, 2010) pressure from teammates. In contrast, in this study, both dopers (cyclists who commenced their career prior to the Festina scandal) reported direct teammate pressure. Although previous cycling anti-doping research has evidenced the significant influence of former cyclists on younger cyclists (Lentillon-Kaestner, 2012), similar findings were not reported in this study. Contrary to previous doping research, support staff (Engelberg *et al.* 2015), parents, nutritionists and sponsors (Kegelaers *et al.* 2018) were not reported as direct influencers and athletes did not refer to the pressure that they impose upon themselves (Engelberg *et al.* 2015). Despite athletes previously referring to the role of health professional (Engelberg *et al.* 2015), in this study, only one athlete referred to pressure exerted by health professionals. Contrary to Manoli and Antonopoulos (2015) and Carpenter (2012), no evidence of coercive match fixing pressure emerged.

### **Perceived behavioural control**

One perceived behavioural control theme emerged for doping (Table 3). None were reported for match fixing.

**Table 3.** Perceived behavioural control (doping).

Theme Sub Theme	Doping	Match Fixing	Examples of selected quotations
<b>Perceived control over, and chances of, detection</b>	<b>8</b> (5/3)	<b>0</b>	
<i>Time to remove drugs from system</i>	4 (4/0)	0	<i>'I thought I would have plenty of time to get it out of my system' (Tim Sylvia – doping)</i>
<i>Ability to mask doping</i>	3 (1/2)	0	<i>'There's many methods to get around it [returning a positive test]' (Mia St John – doping)</i>
<i>Infrequent testing</i>	1 (0/1)	0	<i>'There wasn't much out-of-competition testing' (Lance Armstrong – doping)</i>

### **Perceived control over, and chances of, detection**

Accessible control beliefs (referred to by eight dopers across four sports), were perceived to reduce the risk of detection. At the policy level, like Kegelaers et al. (2018), athletes referred to ineffective policies, specifically the predictable timing of doping tests; four athletes believed that they had sufficient time to remove evidence of drugs from their system before a possible doping test. Although increased testing may act as a deterrent (Engelberg et al. 2015), the practicality of this strategy is hindered by high costs and only one athlete reported infrequent testing as a perceived factor that facilitated their ability to successfully dope. Confirming that athletes sometimes try to mask illegal substance use, three athletes believed that they possessed the skills to mask doping and avoid returning a positive test. Highlighting contrasts between previous doping research, ease of access to doping products (Kirby et al. 2011, Lentillon-Kaester et al. 2012) did not emerge as an incentive, whilst misuse of the therapeutic use exemption process (Lentillon-Kaestner and Carstairs, 2010) and infrequent testing (Didymus and Backhouse 2020) were rarely cited. Regarding the facilitating factor of 'cooperation by other people' (Ajzen 2020), unlike the findings of Kegelaers et al. (2018), athletes in this study did not state that their doping decision was influenced by individuals who helped to administer the drugs.

Contrary to doping, the absence of match fixing perceived behavioural control categories, suggests that the theory of reasoned action is an appropriate theoretical framework when analysing match fixing behaviours. Similarly, in the quantitative research of Barkoukis (2019), perceived behavioural control was statistically insignificant. Regarding the facilitating factor of 'cooperation by other people' (Ajzen 2020), athletes in the research of Lastra et al. (2018) believed that match fixing within team sports was more likely when teammates cooperated. Although this study included athletes from team sports (football, cricket) who colluded with other teammates to fix matches, these athletes did not refer to the control factor of 'cooperation by other people' when explaining their match fixing decisions.

### **Conclusion**

This research aimed to increase understanding of elite athletes' reasons behind actual (rather than hypothetical) doping and match fixing and provide policymakers with evidence to inform corruption countermeasures (Marcelo 2020). Within the context of sport corruption, this study represents the first to indicate the qualitative utility of TPB to explore elite athlete doping behaviours. In contrast, the absence of perceived behavioural control categories suggests that the theory of reasoned action (Fishbein and Ajzen 2010) may explain match fixing. The range of subthemes related to attitudes, subjective norms (and in the case of doping, perceived behaviour control), confirm that sport corruption behaviours are the consequence of various, and in some cases interdependent, motivating factors (Kihl 2019). Capturing the complex nature of policy design (Howlett 2018), policy makers must therefore integrate multiple, rather than singular, preventative anti-corruption strategies that target various motivations.

The emergence of similar sub-themes within the doping and match fixing analysis indicates some potential (particularly for practitioners within integrity units responsible for multiple corruption behaviours), to develop preventative strategies that target both corruption behaviours. However, policy makers should not rely exclusively on combined corruption efforts. Instead, policy developments should consider the prevailing motivations behind specific corruption behaviours and prioritise policy responses accordingly, particularly where resource constraints exist. For example, whereas the financial theme emerged as the prevailing match fixing motive, this theme was cited least frequently by dopers.

The most cited doping (career) and match fixing (financial) motives demonstrate attitudinal beliefs. Changing positive attitudinal beliefs regarding corruption behaviours into negatives ones, may weaken corruption intentions. However, achieving attitudinal change will require a shift to long term, continuous strategies; the current, typically short educational seminars or online resources provided by regulators and federations, are unlikely to be sufficient. The increasing emergence of player's unions (Nguyen and Gardiner 2021) within policy networks (e.g. WADA, IOC, Council of Europe, international and national sport federations, governments, national anti-doping organisations, integrity units), could provide a supplementary forum to foster anti-corruption attitudes. However, singly, attitudinal change strategies may be insufficient to compete with other factors, such as peer pressure or necessity.

References to pressure and weakness of character points towards the need for strategies that build peer resistance skills. Although policy makers within sport were initially slow to appreciate the potential of education (Houlihan 2008), in line with increasing emphasis upon education (e.g. WADA International Standard for Education, UEFA anti-match fixing education initiative), it is recommended that policy makers develop and implement well-resourced, long term, character-building education programmes that are tailored to individual sports, career stages and athletes' ages. Continued expansion of the existing policy network (e.g. WADA, national anti-doping organisations, international and national sport federations, integrity units) through the inclusion of additional partners (e.g. bookmakers in the instance of match fixing) (Tak *et al.* 2018), should be explored as an avenue for collaborative education programmes. Whilst this may reduce athletes succumbing to peer pressure, such skills may be less effective in scenarios where athletes are subordinate to their coach or manager. Based on the results, the authors advocate strategies (for example value based and information education) that target and instil anti-corruption behaviours in multiple actors beyond the athlete. Simultaneously, stronger cultural frameworks must be established, where ongoing efforts prioritise moral integrity, and, in the long term, aim to develop a culture of inadmissible corruption (Nguyen and Gardiner 2021). Raising awareness of, and transparency throughout, the 'zero-tolerance' policy approach (Tak *et al.* 2018), can contribute to the development of such culture.

Considering the perceived behavioural control results, it is recommended that actions focus upon policies that aim to increase athletes' perception of risk and reduce perceived control in relation to the chances of detection. Given that biological anti-doping testing and associated costs present limited scope for enhancing the certainty of detection (Moston *et al.* 2015), heightened investment in anonymous whistleblowing platforms (Gray 2018) that are supported by quality whistleblower protective policies and monitoring is recommended. Ongoing value-based education that develops moral strength could also foster a more supportive and 'speak up' whistleblowing culture.

The prevalence of financial strain as a match fixing motive indicates the importance of modifying the sporting environment (Backhouse *et al.* 2018), particularly during the initial stages of athletes' careers, to ensure that the financial demands of the sport do not exceed the financial resources of the athletes. Given that some athletes are incentivised by relatively small amounts (e.g. \$1,000), stakeholder collaboration to implement financial resource programmes (Nguyen and Gardiner 2021) for financially vulnerable athletes may disincentivise match fixing, particularly amongst athletes who experience moral conflict. Implementation could come in the form of a fund for athletes held by the league, association, governing body, or sport ministry (Nguyen and Gardiner 2021). Capturing

'information' policy tools (Howlett 2018; Tak *et al.* 2018), financial awareness campaigns, which promote legal revenue streams/support (e.g. FANTium, SportsAid) and are timed around periods of vulnerability, may also reduce athlete corruption behaviours. The findings encourage policy reviews and amendments (recent examples include updates to the Olympic Charter rule 40 and the National Collegiate Athletic Association's endorsement rule change), to enhance monetisation opportunities for athletes.

## Limitations and future research

The match fixing cases were limited to athletes who were caught. Whilst shared factors may exist, it is plausible that different views exist amongst undetected match fixers; further comparative research is needed. Given the relative paucity of match fixing research, the findings call for greater regarding the extent to which match fixing is culturally embedded in different sports and the existence of perceived behavioural control factors. The sample was also limited to English accounts; multilingual research teams may be able to expand the elite athlete corruption confession database. Another limitation relates to the use of secondary data. Future, primary data would be useful to support the findings, although the authors appreciate the significant challenges associated with accessing the required sample population. To enhance the concluding policy recommendations, future research could critically analyse the extent to which existing policies address the identified match-fixing and doping motivations.

## Disclosure statement

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

## Data access statement

All data underpinning this publication are openly available from the University of Northampton Research Explorer at <https://doi.org/10.24339/65d92c3d-2f11-4f41-9dec-8fd73717ca39>

## References

- Agnew, R., *et al.*, 2002. Strain, personality traits and delinquency: extending general strain theory. *Criminology*, 40 (1), 43–72. doi:10.1111/j.1745-9125.2002.tb00949.x
- Ajzen, I., 1985. From intentions to actions: a theory of planned behavior. In: J. Kuhl and J. Beckman, eds. *Action-control: from cognition to behavior*. New York: Springer, 11–39.
- Ajzen, I., 1991. The theory of planned behaviour. *Organisational behaviour & human decision processes*, 50 (2), 179–221. doi:10.1016/0749-5978(91)90020-T
- Ajzen, I., 2020. The theory of planned behavior: frequently asked questions. *Human behaviour and emerging technologies*, 2 (4), 314–324. doi:10.1002/hbe2.195
- Aubel, O. and Ohl, F., 2014. An alternative approach to the prevention of doping in cycling. *International journal of drug policy*, 25 (6), 1094–1102. doi:10.1016/j.drugpo.2014.08.010
- Backhouse, S., *et al.*, 2018. Tackling doping in sport: a call to take action on the dopogenic environment. *British journal of sports medicine*, 52 (23), 1485–1486. doi:10.1136/bjsports-2016-097169
- Bandura, A., *et al.*, 1996. Mechanisms of moral disengagement in the exercise of moral agency. *Journal of personality and social psychology*, 71 (2), 364–374. doi:10.1037/0022-3514.71.2.364
- Barkoukis, V., *et al.*, 2019. A preliminary investigation of the decision-making process towards match fixing. *Crime Law and social change*, 74 (1), 45–54. doi:10.1007/s10611-019-09870-5
- Barnoy, A. and Reich, Z., 2022. Trusting others: a pareto distribution of source and message credibility among news reporters. *Communication research*, 49 (2), 196–220. doi:10.1177/0093650220911814
- Blank, C., *et al.*, 2016. Predictors of doping intentions, susceptibility, and behaviour of elite athletes: a meta-analytic review. *Springer Plus*, 5 (1), 1333. doi:10.1186/s40064-016-3000-0
- Bloodworth, A. and McNamee, M., 2010. Clean Olympians? Doping and anti-doping: the views of talented young British athletes. *International journal of drug policy*, 21 (4), 276–282. doi:10.1016/j.drugpo.2009.11.009



- Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative research in psychology*, 3 (2), 77–101. doi:10.1191/1478088706qp063oa
- Carpenter, K., 2012. Match-fixing: the biggest threat to sport in the 21st century? *International sport in Law review*, 2 (1), 13–24.
- Chappelet, J., 2015. The Olympic fight against match-fixing. *Sport in society*, 18 (10), 1260–1272. doi:10.1080/17430437.2015.1034519
- Chester, N. and Wojek, N., 2015. Doping control in sport. In: D. Mottram and N. Chester, eds. *Drugs in sport*. London: Routledge, 50–62.
- Clarke, R., 1997. *Situational crime prevention*. Chicago: Harrow and Heston.
- Cohen, J., et al., 2010. Corporate fraud and managers' behavior: evidence from the press. *Journal of business ethics*, 95 (2), 271–315. doi:10.1007/s10551-011-0857-2
- Creswell, J. and Poth, C., 2018. *Qualitative inquiry and research design choosing among five approaches*. Thousand Oaks: SAGE.
- Didymus, F.F. and Backhouse, S.H., 2020. Coping by doping? A qualitative inquiry into permitted and prohibited substance use in competitive rugby. *Psychology of sport and exercise*, 49, 101680. doi:10.1016/j.psychsport.2020.101680
- Engelberg, T., et al., 2015. The final frontier of anti-doping: a study of athletes who have committed doping violations. *Sport management review*, 18 (2), 268–279. doi:10.1016/j.smr.2014.06.005
- Fishbein, M. and Ajzen, I., 2010. *Predicting and changing behavior: the reasoned action approach*. New York: Psychology Press.
- Garrigan, B., et al., 2018. Moral decision-making and moral development: toward an integrative framework. *Developmental review*, 49, 80–100. doi:10.1016/j.dr.2018.06.001
- Goh, E., 2019. Breaking the rules to venture off-trail at national parks: exploring salient beliefs through a planned behaviour approach. *Tourism Recreation research*, 45 (2), 277–283. doi:10.1080/02508281.2019.1679526
- Gray, S., 2018. Achieving compliance with the world anti-doping Code: learning from the implementation of another international agreement. *International journal of sport policy & Politics*, 3 (3), 247–260. doi:10.1080/19406940.2018.1550798
- Gul, S., et al., 2020. Retrieval performance of Google, Yahoo and Bing for navigational queries in the field of “life science and biomedicine”. *Data technologies and applications*, 54 (2), 133–150. doi:10.1108/DTA-05-2019-0083
- Hill, D., 2015. Jumping into fixing. *Trends in organized Crime*, 18 (3), 212–228. doi:10.1007/s12117-014-9237-5
- Hodge, K., et al., 2013. Psychological mechanisms underlying doping attitudes in sport: motivation and moral disengagement. *Journal of sport and exercise Psychology*, 35 (4), 419–432. doi:10.1123/jsep.35.4.419
- Houlihan, B., 2008. *Detection and education in anti-doping policy: A review of current issues and an assessment of future prospects*. Available from: <https://hermes-ir.lib.hit-u.ac.jp/hermes/ir/re/16448/HJart0490100550.pdf>
- Howlett, M., 2018. Matching policy tools and their targets: beyond nudges and utility maximisation in policy design. *Policy & politics*, 46 (1), 101–124. doi:10.1332/030557317X15053060139376
- Huybers, T. and Mazanov, J., 2012. What would Kim do: a choice study of projected athlete doping considerations. *Journal of sport management*, 26 (4), 322–334. doi:10.1123/jsm.26.4.322
- Institute of National Anti-doping Organisations, 2021. *Independent integrity units*. Available from: [https://www.inado.org/newsroom/detail?tx\\_news\\_pi1%5Baction%5D=detail&tx\\_news\\_pi1%5Bcontroller%5D=News&tx\\_news\\_pi1%5Bnews%5D=42&cHash=d769da9b9da8a7eefbeb2cbd349e1930](https://www.inado.org/newsroom/detail?tx_news_pi1%5Baction%5D=detail&tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Bnews%5D=42&cHash=d769da9b9da8a7eefbeb2cbd349e1930) [Accessed 3 January 2022]
- Johnson, M., 2012. A systemic social-cognitive perspective on doping. *Psychology of sport and exercise*, 13 (3), 317–323. doi:10.1016/j.psychsport.2011.12.007
- Kahneman, D., 2003. A perspective on judgement and choice. Mapping bounded rationality. *American Psychologist*, 58 (9), 697–720. doi:10.1037/0003-066X.58.9.697
- Kegelaers, J., et al., 2018. Incentives and deterrents for drug-taking behaviour in elite sports: a holistic and developmental approach. *European sport management quarterly*, 18 (1), 112–132. doi:10.1080/16184742.2017.1384505
- Kihl, L., 2019. Individual-level explanations of corruption within an intercollegiate context. *Journal of intercollegiate sport*, 12 (1), 43–72. doi:10.17161/jis.v12i1.11560
- Kirby, K., et al., 2011. A qualitative analysis of the experiences of elite athletes who have admitted to doping for performance enhancement. *International journal of sport policy & Politics*, 3 (2), 205–224. doi:10.1080/19406940.2011.577081
- Krippendorff, K., 1980. *Content analysis: an introduction to its methodology*. Pennsylvania: Sage Publications.
- Lamont-Mills, A. and Christensen, S., 2008. 'I have never taken performance enhancing drugs and I never will': drug discourse in the Shane Warne case. *Scandinavian journal of medicine & Science in sports*, 18 (2), 250–258. doi:10.1111/j.1600-0838.2007.00639.x
- Lastra, R., Bell, P., and Bond, C., 2018. Sports betting and the integrity of Australian sport: athletes' and non-athletes' perceptions of betting-motivated corruption in sport. *International journal of Law, Crime and justice*, 52, 185–198. doi:10.1016/j.ijlcrj.2017.11.005
- Lazuras, L., et al., 2010. Predictors of doping intentions in elite-level athletes: a social cognition approach. *Journal of sport & exercise Psychology*, 32 (5), 694–710. doi:10.1123/jsep.32.5.694

- Lee, P., 2017. Understanding the match-fixing scandals of professional baseball in Taiwan: an exploratory study of a Confucianism-oriented society. *European sport management quarterly*, 17 (1), 45–66. doi:10.1080/16184742.2016.1225111
- Lentillon-Kaestner, V., et al., 2012. Health and doping in elite-level cycling. *Scandinavian journal of medicine & Science in sports*, 22 (5), 596–606. doi:10.1111/j.1600-0838.2010.01281.x
- Lentillon-Kaestner, V. and Carstairs, C., 2010. Doping use among young elite cyclists: A qualitative psychosociological approach. *Scandinavian journal of medicine and Science in sports*, 20 (2), 336–345. doi:10.1111/j.1600-0838.2009.00885.x
- Lucidi, F., et al., 2008. The social-cognitive mechanisms regulating adolescents' use of doping substances. *Journal of sports sciences*, 26 (5), 447–456. doi:10.1080/02640410701579370
- Manoli, A.E. and Antonopoulos, G.A., 2015. 'The only game in town?': football match-fixing in Greece. *Trends in organized Crime*, 18 (3), 196–211. doi:10.1007/s12117-014-9239-3
- Marcelo, M., 2020. Deconstructing match-fixing: a holistic framework for sport integrity policies. *Crime, Law and social change*, 74 (1), 1–12. doi:10.1007/s10611-020-09892-4
- Masters, A., 2015. Corruption in sport: from the playing field to the field of policy. *Policy and society*, 34 (2), 111–123. doi:10.1016/j.polsoc.2015.04.002
- Merton, R., 1938. Social Structure and Anomie. *American Sociological review*, 3 (5), 672–682. doi:10.2307/2084686
- Morente-Sánchez, J. and Zabala, M., 2013. Doping in sport: A review of elite athletes' attitudes, beliefs, and knowledge. *Sports medicine*, 43 (6), 395–411. doi:10.1007/s40279-013-0037-x
- Moston, S. and Engelberg, T., 2019. And justice for all? How anti-doping responds to 'innocent mistakes'. *International journal of sport policy & Politics*, 11 (2), 261–274. doi:10.1080/19406940.2018.1550799
- Moston, S., Engelberg, T., and Skinner, J., 2015. Athletes' and coaches' perceptions of deterrents to performance-enhancing drug use. *International journal of sport policy & Politics*, 7 (4), 623–636. doi:10.1080/19406940.2014.936960
- Nguyen, T. and Gardiner, S., 2021. The fight against corruption in Vietnamese football: a closer look at typical corruption cases, causes and possible solutions. In: C. Ordwat, ed. *Restoring trust in sport*. Abingdon: Routledge, 163–175.
- Nowell, L.S., et al., 2017. Thematic analysis: striving to meet the trustworthiness criteria. *International journal of qualitative methods*, 16 (1), 160940691773384. doi:10.1177/1609406917733847
- Nowy, T. and Breuer, C., 2017. Match-fixing in European grassroots football. *European sport management quarterly*, 17 (1), 24–44. doi:10.1080/16184742.2016.1193212
- Ntoumanis, N., et al., 2014. Personal and psychosocial predictors of doping use in physical activity settings: a meta-analysis. *Sports medicine*, 44 (11), 1603–1624. doi:10.1007/s40279-014-0240-4
- Numerato, D., 2016. Corruption and public secrecy: an ethnography of football match-fixing. *Current sociology*, 64 (5), 699–717. doi:10.1177/0011392115599815
- Overbye, M., et al., 2013. To dope or not to dope: elite athletes' perceptions of doping deterrents and incentives. *Performance enhancement & health*, 2 (3), 119–134. doi:10.1016/j.peh.2013.07.001
- Palmer, M.A., et al., 2016. Inconsistencies undermine the credibility of confession evidence. *Legal and criminological Psychology*, 21 (1), 161–173. doi:10.1111/lcrp.12048
- Petróczy, A. and Aidman, E., 2008. Psychological drivers in doping: the life-cycle model of performance enhancement. *Substance abuse treatment. Prevention and policy*, 3 (7), 1–12. doi:10.1186/1747-597X-3-7
- Reinold, M., 2021. Techniques of deceptive communication about doping. *European journal for sport and society*, 19 (3), 232–249. doi:10.1080/16138171.2021.1930944
- Saunders, B., et al., 2018. Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & quantity*, 52 (4), 1893–1907. doi:10.1007/s11135-017-0574-8
- Sekulic, D., et al., 2016. Doping attitudes and covariates of potential doping behaviour in high-level team-sport athletes: gender specific analysis. *Journal of sports science & medicine*, 15 (4), 606–615.
- Smith, A.C.T., et al., 2010. Contextual influences and athlete attitudes to drugs in sport. *Sport management review*, 13 (3), 181–197. doi:10.1016/j.smr.2010.01.008
- Sparkes, A.C. and Smith, B., 2013. *Qualitative research methods in sport, exercise and health: from process to product*. London: Routledge.
- Swann, C., et al., 2015. Defining elite athletes: issues in the study of expert performance in sport psychology. *Psychology of sport and exercise*, 16 (1), 3–14. doi:10.1016/j.psychsport.2014.07.004
- Tak, M., et al., 2018. The politics of countermeasures against match-fixing in sport: a political sociology approach to policy instruments. *International review for the Sociology of sport*, 53 (1), 30–48. doi:10.1177/1012690216639748
- Tak, M., et al., 2020. Too much at stake to uphold sport integrity? high-performance athletes' involvement in match-fixing. *Crime, Law and social change*, 74 (1), 27–44. doi:10.1007/s10611-020-09887-1
- Van der Hoeven, S.V.S., et al., 2020. Match-fixing: moral challenges for those involved. *Ethics & behaviour*, 30 (6), 425–443. doi:10.1080/10508422.2019.1667238
- Winterlin, F., 2017. Trust in distant sources: an analytical model capturing antecedents of risk and trustworthiness as perceived by journalists. *Journalism*, 21 (1), 130–145. doi:10.1177/1464884917716000
- Yoon, C., 2011. Theory of planned behavior and ethics theory in digital piracy: an integrated model. *Journal of business ethics*, 100 (3), 405–417. doi:10.1007/s10551-010-0687-7

## Appendix: Cases

Match fixing: Cao Yupeng, Cheon Min-Ki, Cristiano Doni, Danish Kaneria, David Obaze, David Savic, Hansie Cronje, Hershelle Gibbs, Joe Woolley, Karim Hossam, Kyle McKinstry, Lonwabo Tsotsobe, Lou Vincent, Mervyn Westfield, Mohammad Amir, Nelson Piquet Jr, Nicolas Kicker, Nicholas McKoy, Oliver Anderson, Wessel Nijman, Yu Delu

Doping: Alex Schwazer, Algo Kärp, Andy Pettitte, Antonio Pettigrew, Bo Hamburger, Bobby Julich, Danilo Hondo, David Millar, Eddy Hellebuyck, Floyd Llandis, Georg Preidler, George Hincapie, James Irvin, Johannes Dürr, Jonathan Vaughters, Kelli White, Kirk O'Bee, Lance Armstrong, Larry Olubamiwo, Lieuwe Westra, Tim Montgomery, Tim Sylvia, Mark McGwire, Marion Jones, Max Hauke, Mia St John, Mike Jacobs, Ryan Braun, Shannon Briggs, Stefan Denifl, Stephen Bonnar, Tyler Hamilton, Vande Velde, Yuliya Stepanova