WORLD ANTI-DOPING AGENCY

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Final Report for WADA's Social Science Research Grant Program

Project Title:	The 'Selves' in Doping: A Multi-Country Study
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Executive Summary

Addressing one of the WADA social science research priorities, the current project is set to investigate person-level risk and protective factors for doping. The primary aims of the present research were to investigate narcissism-related risk, compassion-related protection, and the relevant underlying psycho-behavioural factors in the context of doping (Work Package 1). We also aimed to examine an alternative, related conceptualisation that posits the fantasy-reality discrepancy in sport as a risk and the resilient coping as a protection against risk factors for doping (Work Package 2). We focused on assessing two important, related but different aspects of risk factors for doping, namely doping moral disengagement (i.e., an individual's false rationalisation of doping to avoid unpleasant affect when using banned substances; see Boardley et al., 2018) and doping willingness (i.e., an individual's openness to use prohibited substances under certain circumstances in risk conducive situations such as returning from injury and struggling to keep up in training; see Stanger et al., 2020).

We implemented a cross-sectional data collection in the UK, China, and US during January – October 2023. Four hundred ninety-nine high-performing athletes (Mage = 21.89 years; 54.5% male; 58.4% team sports; 80% competing at national level or above) from the three study countries completed psychometric measures assessing person-level characteristics (i.e., narcissism, self-compassion, fears of compassion, sport fantasy proneness), psycho-behavioural factors (i.e., resilient coping, fear of failure, deflated reality), and risk factors for doping (i.e., doping moral disengagement, doping willingness). We performed a series of multi-group (i.e., UK, China, US) multi-variant (i.e., two doping risk factors) cluster-controlled (i.e., adjusting for athletes' coach/team membership) path models for hypothesis testing. For the cost-effectiveness of the project, we used combined data collection to enable analyses for both work packages (i.e., primary and secondary aims).

Work Package 1 suggested that vulnerable narcissism was consistently associated with greater doping risks in all study countries when grandiosity was low compared to high. The protection of a compassionate mind (i.e., high self-compassion, low fears of compassion) in resisting doping appeared greater when narcissistic grandiosity co-existed in athletes. A self-compassionate approach appeared more useful in addressing intention proxies of doping behaviours (i.e., doping willingness) than psycho-social mechanisms of doping (i.e., doping moral disengagement). Mediation analysis provided strong (invariant across countries), moderate (consistent in two study countries), and contrasting evidence that resilient coping, deflated reality, and fear of failure, respectively, explained the narcissism × compassion interaction in doping.

Work Package 2 revealed that, the mitigating effect of resilient coping and the way it protected against the sport fantasy × deflated reality interaction on doping risks were invariant across the UK, China, and US. More specifically, high resilient coping consistently contributed to reduced doping moral disengagement regardless of the level of deflated reality. Resilient coping also protected against sport fantasy-related doping willingness, especially when an athlete suffers deflated reality. A combination of low sport fantasy proneness, low sense of deflated reality, and high resilient coping predicted the lowest doping willingness among athletes from all study countries.

Overall, the project provides support to usefulness of a self-compassionate approach for anti-doping. When designing and delivering a compassion-focused programme for doping prevention, incorporating an element of resilient coping to facilitate coping with adversities and tackling potential fantasy-reality discrepancies in athletes may be particularly beneficial. Future psychology-based clean sport education and anti-dopinhg programmes should consider not only existing value-based intervention strategies that tackle morality issues but also enhance athletes coping thus addressing intention proxies of doping behaviours.

Introduction

Doping, especially the intentional use of banned substances, is a goal-directed behaviour influenced by a range of psychological drivers (Petróczi & Aidman, 2008). Following substantial efforts in anti-doping since the first World Anti-Doping Code launched in the 2003, a recent report of prevalence rate in banned substances use continues to be a concerning issue at global level (Faiss et al., 2020). According to an evaluation of prevention initiatives to date by 53 national anti-doping organisations (Gatterer et al., 2020), one limitation that accounts for the critical gap between anti-doping efforts and effectiveness is the emphasis of knowledge-based anti-doping education which does not work well in addressing psychological underpinnings of intentional doping. The position to call for significant investment in research that tackles psychological risk and protective factors of doping is also supported by an international Delphi study that involved 82 anti-doping stakeholders for co-creating a social science research agenda for clean sport (see Boardley et al., 2021). The present research programme, therefore, primarily aimed to investigate the role of two important self-concepts (i.e., narcissism, self-compassion) relevant to sport and performance and to examine their relative influences and underpinned psycho-behavioural mechanisms in (anti-)doping.

Narcissism as a Risk

Despite the limited knowledge in psychological risk factors of doping at a person-level, considerable research has considered narcissism or narcissistic personality traits as a psychological driver of intentional use of banned substances (Nicholls et al., 2017, 2019; Zhang & Boardley, 2022). In this context, researchers have typically recognised narcissism as a sub-clinical personality trait that is characterised by self-important, self-centredness, and a disposition of seeking self-enhancement to maintain a (overly) positive self-portrait (Morf et al., 2011). One would expect athletes high in narcissism to be more likely of using banned substances for performance enhancement, because doping offers them a (potential)

'short-cut' to increase work rate and improve faster thus they are more likely to construct and maintain an inflated self-image via being an exceptional performer and to beat their competitors (Zhang & Boardley, 2022). Such an intention to gain unfair advantage over competitors for self-enhancement in athletes high in narcissism makes them less likely to confirm with fair play norms and more likely to cheat more (Brunell et al., 2011) whilst taking unnecessary risks for self-promotion (Foster et al., 2009).

Despite the sound conceptualisation of narcissism and doping, early research generated mixed findings revealing a null (i.e., Nicholls et al., 2017) vs positive (i.e., Nicholls et al., 2019) relationship between athletes' narcissism and doping attitudes. Zhang and Boardley (2022) suggested that, the inconsistent findings on narcissism-doping relationship is due to unidimensional conceptualisation and measure of narcissism adopted in those early research. More specifically, Nicholls et al. (2017, 2019) utilised a dark-triad-based measure of narcissism (D. N. Jones & Paulhus, 2014) which overlooked the two distinctive 'faces' of narcissism namely narcissistic grandiosity and vulnerability (see Campbell & Miller, 2011; Krizan & Herlache, 2018; Miller et al., 2011). To expand on the multi-faceted conceptualisation of narcissism (see also Weiss & Miller, 2018), the grandiose aspect of narcissism (hereafter '*grandiose narcissism*') is characteristic of self-assertiveness with a hubris, exhibitionistic, and dominant behavioural tendency. For comparison, the vulnerable aspect of narcissism (hereafter '*vulnerable narcissism*') features hypersensitivity and hypervigilant to ego threat and a defensive, resent behavioural tendency.

Based on the grandiosity-vulnerability distinction, Zhang and Boardley (2022) hypothesised that the two aspects of narcissism interactively influence doping. In particular, vulnerable narcissism would amplify the risk factors of doping (e.g., doping moral disengagement, doping willingness, see Boardley et al., 2018; Stanger et al., 2020) associated with grandiose narcissism, because the hypersensitivity and

hypervigilance characterised in vulnerable narcissism could be a catalyst for grandiose narcissism in striving for personal glory and self-enhancement, thus more likely to dope for performance enhancement. However, findings from Zhang and Boardley (2022) preliminary study in a sample of UK athletes suggested a slightly different story: Vulnerable narcissism is more problematic than its grandiose counterpart in the contexts of doping, as athletes high in vulnerable narcissism appeared to be more prone to intentional doping regardless their levels of grandiose narcissism. The finding suggest vulnerable (not grandiose) narcissism is a drive for doping.

However, we acknowledge that Zhang and Boardley' (2022) preliminary study did not account for the nested nature of data (i.e., athlete nested in coach/sport team) thus failed to adjust for coach-level doping climate and social/environmental confounding (e.g., Matosic et al., 2016) when assessing relative risk in doping at the athlete-level. Moreover, the study sample was UK-based with a majority (83%) competing at regional levels, thus generalisability of the findings in elite- or higher-level athletes and outside the UK is questioned. Therefore, in the present project, we aimed to recruit high-level athletes (predominately competing at national or international levels) from three different countries (i.e., UK, China, US) and adjust for coach-level confounding when examining narcissism-related risk in doping (see *Methods*).

Self-Compassion as a Protection

Besides assessing narcissism-related risks in doping, the current project was also set to examine the extent to which a self-compassionate mind helps alleviate narcissism-related risks. According to Neff's (2003) conceptualisation, self-compassion encapsulates positive characteristics of *self-kindness* (e.g., being kind to oneself under suffering situations), a sense of *common humanity* (e.g., seeing adversities as part of a common life experience), and *mindfulness* (e.g., taking a balanced view and keeping things in perspective under difficult times). In contrast to narcissism that seeks self-enhancement and self-satisfaction via approach (i.e., grandiose

narcissism), defensive (i.e., vulnerable narcissism), or indeed both mechanisms, self-compassion allows individuals to experience positive emotions and satisfy psychological needs without having to bolster or protect one's (overly) inflated self (Neff, 2003). Given that competitive sport environments are not always rewarding and can cultivate distressed feelings, negative emotions, and even hostility (Hardy et al., 2017), high in self-compassion appears to offer a wide range of benefits to athletes, including but not limited to being more capable of navigating emotionally difficult times (Ferguson et al., 2015), enhancing mindfulness and preventing burnout (Amemiya & Sakairi, 2020), reducing fears of failures and negative feedback (Mosewich et al., 2011), and improving coping and recovery from adversities (Ceccarelli et al., 2019).

Importantly, evidence exists to support the protection of self-compassion on narcissism-related risks in sport. For example, in a cross-sectional sample of UK-based professional footballers (Study 1) and a longitudinal sample of competitive athletes from different sports (Study 2), Zhang et al. (2024) found that high self-compassion mitigated athletes' antisocial behaviours in sport, of which such protection is particularly prominent for individuals high in grandiose narcissism. In the context of doping, a pioneering study by Zhang and Boardley (2022) revealed that self-compassion protects against narcissism-related doping moral disengagement and doping willingness, especially when fear of self-compassion (particularly for grandiose narcissism) and fear of receiving compassion from others (particularly for vulnerable narcissism) were low. We, therefore, further established hypotheses from Zhang and Boardley's (2022) findings, anticipating that high self-compassion and low fears of compassion towards oneself (see Zhang & McEwan, 2023) alleviate the risk of doping related to the two aspects of narcissism and their interaction. Such a conceptualisation suggests that it is the 3-way interaction between vulnerable narcissism, grandiose narcissism, and self-compassionate mind (i.e., dispositional self-compassion, fear of self-compassion, fear of

receiving compassion from others), rather than narcissism or self-compassion alone, that predict risk factors for doping (e.g., doping moral disengagement, doping willingness).

Psycho-Behavioural Mechanisms

Centre to our conceptualisation of narcissism-related risk and compassion-related protection in the context of doping is how an athlete reacts to and deals with difficult situations. Indeed, the ideal-actual discrepancies (Higgins, 1987) that are common in sport and competitive environments. On one hand, athletes high in narcissism see themselves as exceptional performers and tend to strive under pressured, competitive situations for self-enhancement (Roberts et al., 2018); on the other hand, these athletes are more likely to experience discomfort or even distressed feelings under adversities (e.g., failures, performance not developing as expected). By adopting a self-compassionate approach, athletes (especially those high in narcissism) are more likely to accept failures or any related distress or sufferings, allowing themselves to slow down, recuperate, and return to routine training and performance rather than taking banned substances for performance enhancement (Zhang & Boardley, 2022).

As such, we argue that psycho-behavioural factors that contribute to athletes' mental states and behaviours under difficult times should explain narcissism-related risk and compassion-related protection in the context of doping. The psycho-behavioural factors we emphasised in the project include *resilient coping* (i.e., one's ability to maintain psychological and physiological functioning under highly disruptive situations or setbacks; Sinclair & Wallston, 2004), *performance failure appraisal or fear of failure* (i.e., one's interpretation and sources of fearful feelings towards performance failure; Conroy et al., 2002), and *perception of deflated reality in sport* (i.e., athletes' pessimistic perception of their training and performance; Zhang & Boardley, 2023). Given the emotional regulation benefits of high resilient coping (e.g., Gaudreau & Blondin, 2004), low fear of failure (e.g., Sagar et al., 2011), and low deflated reality in sport (e.g.,

Zhang & Boardley, 2023), we predicted that narcissism-related risk is underpinned by reduced resilient coping and increased fear of failure and deflated reality, whilst compassion-related protect is underpinned by enhanced resilient coping and reduced fear of failure and deflated reality, in the context of doping. We examined this hypothesis across all study countries for comparison.

The Fantasy-Reality Discrepancy: An Alternative Conceptualisation

While examining narcissism-related risk and compassion-related protection in the context doping, one relevant, important, but overlooked psychological property in athletes is sport fantasy proneness. Sport fantasy proneness reflect an extensive and deep involvement in fantasising about oneself being an exceptional performer in sport and receiving glory that is considered unrealistic, which is closely linked narcissistic personality especially its grandiose aspect (Zhang & Boardley, 2023). In general population, individuals high in narcissism tend to be high in fantasy proneness, as engaging in fantasy experience helps them fulfil the desperate need for self-enhancement and alleviate the discomfort of incongruence between inflated self and deflated reality (McCain et al., 2015). In sport, narcissism-related fantasy can on one hand magnify one's willingness to dominate or to fulfil personal control especially when performing under high pressure (Zhang et al., 2020), but on the other hand increase the likelihood of immoral conduct for gaining unfair advantages (Jones et al., 2017). As such, one would expect overwhelmed sport fantasy or high in sport fantasy proneness to be linked to greater doping risk such as doping moral disengagement and doping willingness, because doping may help them realise their sport fantasy and ease the discomfort of fantasy-reality discrepancy. To this end, we further proposed that deflated reality in sport (i.e., athletes' pessimistic perception of their training and performance; Zhang & Boardley, 2023) would magnify any risk of sport fantasy proneness in relating to doping because it creates a greater

fantasy-reality discrepancy that is difficult, if not impossible, for athletes to cope with via routine training and performance.

Given the similarities in the conceptualisation of narcissism-related risk and the fantasy-reality discrepancy in the context of doping, we further argued that resilient coping (i.e., one's ability to maintain psychological and physiological functioning under highly disruptive situations or setbacks; Sinclair & Wallston, 2004) would protect against doping risks in relation to the fantasy-reality discrepancy, akin to compassion's protection to narcissism-related doping risks. Indeed, research has suggested that a positive link between self-compassion and resilient coping among elite athletes. Athletes high in resilient coping, therefore, would be more accepting to failures and distressed feeling in relating to fantasy-reality discrepancy in sport and performance, whilst taking a gentler mind to overcome adversities in training and performance thus reducing the likelihood of use banned substances for performance enhancement. Therefore, we hypothesised that sport fantasy proneness contributes greater doping risks as athletes' perceived deflated reality in sport increases; however, such risks would be buffered or alleviated when the athletes are capable of coping with adversities in training and performance.

The Present Research

Overall, the primary aims of the present research were to investigate narcissism-related risk, compassion-related protection, and the relevant underlying psycho-behavioural factors in the context of doping (Work Package 1). We also aimed to examine an alternative, related conceptualisation that posits the fantasy-reality discrepancy in sport as a risk and the resilient coping as a protection in risk factors for doping (Work Package 2). We focused on assessing two important, related but different aspects of risk for doping, namely doping moral disengagement (i.e., an individual's false rationalisation of doping to avoid unpleasant affect when using banned substances; see Boardley et al., 2018) and doping willingness (i.e., an individual's openness to use prohibited substances under certain

circumstances in risk conducive situations such as returning from injury and struggling to keep up in training; see Stanger et al., 2020).

For cost-effectiveness of the project, we implemented a cross-sectional data collection in the UK, China, and US during January – October 2023, which enabled data analyses for both work packages (i.e., primary and secondary aims) and brought in a multi-country perspective building on the Zhang and Boardley's (2022) preliminary study. This research project was the first to examine the role of two competing selves (i.e., narcissism vs self-compassion) and the related psycho-behavioural mechanisms across UK, China, and US for comparison. The project was also the first to assess the relative risk of the interaction between sport fantasy proneness and deflated reality in sport (i.e., fantasy-reality discrepancy) and the protection of resilient coping for such risk. Besides these novelties and the multi-country scope, this work also features an advancement in methodological robustness such as recruitment of high-level athletes (majority competing at national or international levels), adjustment of coach/team level confounders when assessing athlete-level risk, etc. (see Methods section for more details). We summarised the tested hypotheses in this project as below:

Hypothesis 1: The interaction of vulnerable narcissism, grandiose narcissism, and self-compassionate mind (i.e., self-compassion, fear of self-compassion, fear of compassion from others) predicts risk factors for doping (Work Package 1).

Hypothesis 2: Resilient coping, fear of failure, and deflated reality in doping underpins the relationship between narcissism and doping and between self-compassionate mind and doping (Work Package 1).

Hypothesis 3: The interaction of sport fantasy proneness, deflated reality in sport, and resilient coping predicts risks for doping (Work Package 2).

Methods

Participants

Participants were 499 high-level athletes (Mean age = 21.89 years old, SD = 3.75, 54.5% men; 10% competing at international level, 70% competing at national level, 20% competing at the regional/state/county level) from the UK (35% of the total sample), China (33% of the total sample), and the US (32% of the total sample). These participants had an average of 8.83 years of competitive experience at the time of data collection and were training with 202 coaches (58.3% from team sports), with the top 5 of 23 sports in the UK including soccer (54%), rugby (14.2%), volleyball (4.5%), track & field (3.4%), and tennis (1.7%), the top 5 of 16 sports in China including track & field (22.6%), basketball (14.6%), tennis (12.2%), badminton (9.1%), volleyball (7.3%), and the top 5 of 16 sports in the US including track & field (32.7%), cross-country (13.2%), baseball (7.5%), softball (6.9%), and soccer (6.3%).

A prior power analysis using G*Power (Faul et al., 2007) suggested that a minimum of 159 athletes is required from each study country (477 participants in total) in order to achieve .80 power to detect a small-to-moderate regressive and moderation effect (i.e., Cohen's f^2 = .05 for testing Hypothesis 1 and 3) and a small-to-moderate indirect effects (i.e., standardised beta coefficient of all paths = .25 for testing Hypothesis 2). The project sample, therefore, fulfilled the sample size requirement.

Measures

Risk Factors for Intentional Doping

Doping Moral Disengagement. We used the *Doping Moral Disengagement Scale* (DMDS-S; Boardley et al., 2018) to assess the extent to which one may rationalise the use of banned substances in sport. The DMDS-S contains six statements describing thoughts that athletes might have about doping (e.g., "*Doping is okay if it helps an athlete advice others*

on how to do it right", "*Compared to most lifestyles in general public, doping isn't that bad*") rated on a 7-point Likert scale from 1 (strongly disagree), 4 (neutral), to 7 (strongly agree). Standard translation-back translation strategies were followed to create the Chinese version DMDS-S (see Procedures for more details). We generated mean scores for further analysis, with higher scores indicating greater (risk of) doping moral disengagement in sport.

Doping Willingness. We employed the Doping Willingness in Sport Scale (DWISS; Stanger et al., 2020) to evaluate the level of one's intention to use prohibited substances. The DWISS assesses athletes' willingness to dope under eight hypothetical circumstances (e.g., "*It increased your chances to gain a professional contract or funding*", "*You thought everyone you were competing against was using a banned substance and getting away with it*") rated on a 5-point Likert scale ranging from 1 (not at all willing) to 5 (extremely willing). Standard translation-back translation strategies were followed to create the Chinese version DWISS (see Procedures for more details). We generated mean scores for further analysis, with higher scores indicating greater doping willingness.

Self-Concepts

Narcissism. We adapted the 16-item Narcissistic Personality Inventory (NPI-16; Ames et al., 2006) and the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997) to assess grandiose and vulnerable aspects of narcissism, respectively. More specifically, we adopted a 6-point Likert scale version of the 40-item NPI (Raskin & Terry, 1988) to replace the forced-choice response of the original NPI. This is because the Likert-scale items yielded better psychometric properties than the force-response items of NPI in its Chinese version (Feng et al., 2012a), whilst recent research has supported the advantages of Likert-scale over forced-choice response in assessing grandiose narcissism using NPI-based measures (e.g., Brown et al., 2020). Participants rated the extent to which they agreed on

sixteen narcissistic self-statements (e.g., "*I like to be the centre of attention*", "*I am more capable than other people*") from 1 (strongly disagree) to 6 (strong agree).

For the HSNS, we instructed participants to determine the extent to which the ten HSNS statements describe their feelings or behaviours (e.g., "*My feelings are easily hurt by ridicule or by the slighting remarks of others*", "*I dislike being with group unless I know that I am appreciated by at least one of those present"*) from 1 (very uncharacteristic or untrue) to 5 (very characteristic or true). We implemented the original HSNS for the UK and US participants and used the Chinese version HSNS (Feng et al., 2012) which contains identical items of the original HSNS for the Chinese participants. Mean scores were generated for both the NPI-16 and the HSNS, with higher scores indicating greater levels of grandiose and vulnerable narcissism, respectively.

Self-Compassion. We measured dispositional self-compassion and fears of compassion in sport using the 12-item Self-Compassion Scale Short (SCS-S; Raes et al., 2011) and the 10-item Fears of Compassion in Sport Scale (FCSS; Zhang & McEwan, 2023). The SCS-based measure is the most commonly used inventory for assessing self-compassion in athletes (Cormier et al., 2023). Participants rated the frequency they behave in the stated manners described in the SCS-S (e.g., "*When I fail at something important to me, I become consumed by feelings of inadequacy*", "*When I fail at something that's important to me, I tend to feel alone in my failure*") from 1 (almost never) to 5 (almost always). The Chinese version SCS-S validated in a recent study involving 21 countries (Matos et al., 2022) was used in this project. We adjusted the reversed SCS-S items and generated mean scores with higher scores indicating greater self-compassion.

For the FCSS, we followed Zhang & McEwan's (2023) recommendations to distinct fear of self-compassion (FSC) and fear of compassion receiving from others (FCO). The FCSS contains four FSC items

(e.g., "*I fear that if I start to develop compassion for myself, I will become dependent on it*") and six FCO items (e.g., "*Feelings of kindness from others are somehow frightening*") rated from 1 (do not agree at all) to 5 (completely agree). We used the Chinese translation of the FCSS items from Matos et al.'s (2021) multi-country study of fears of compassion and instructed participants to rate the FSC and FCO items considering themselves participating or competing in sport following Zhang and McEwan's (2023) recommendation. Mean scores were generated for FSC and FCO with higher scores reflecting greater fears.

Psycho-Behavioural Factors

Resilient Coping. We used the Brief Resilient Coping Scale (BRCS; Sinclair & Wallston, 2004) and its Chinese version (Fung, 2020) to assess resilient coping. The BRCS consists of four statements describing one's behaviour and action under adversities (e.g., "*I believe I can grow in positive ways by dealing with difficult situations*") rated from 1 (does not describe me at all) to 5 (describes me very well). We calculated mean scores for analysis, with higher scores indicating greater resilient coping.

Fear of Failure. We adopted the Performance Failure Appraisal Inventory – Short (PFAI-S; Conroy et al., 2002) and the Chinese translation-back translation version for assessing fear of failure. The PFAI-S consists of five statements describing one's perceptions and beliefs when performance failure occurs (e.g., "*When I am failing, I am afraid that I might not have enough talent*", "*When I am failing, important others are disappointed*"). Participants rated the PFAI-S items from 1 (do not believe at all) to 5 (believe 100% all the time). Following recommendation (Conroy et al., 2002), we generated mean scores of all PFAI-S items with higher scores representing greater fearful feelings towards performance failures.

Sport Fantasy Proneness. We employed the Sport Fantasy Proneness Scale (SFPS; Zhang & Boardley, 2023) to assess athletes' dispositional tendency in fantasising oneself being an exceptional performer.

The SFPS involves eight items describing athletes' experience of sport-specific fantasies (e.g., "*I have my own make-believe sporting abilities or skills*", "*I sometimes think about being a sporting idol or the greatest athlete in my sport*") rated from 1 (not at all) to 7 (very much so). We generated Chinese version SPFS using the standard translation-back translation strategies (see Procedures) and calculated mean scores for all SFPS items with higher scores indicating greater sport fantasy proneness.

Perceived Deflated Reality in Sport. We used the Deflated Reality in Sport Scale (DRSS; Zhang & Boardley, 2023) to assess athletes' pessimistic perception of their training and performance. The DRSS contains eight statements assessing the frequency of varied sport-specific pessimistic feelings emerge in athletes (e.g., "*Not seeing the bright side of my training*", "*My performances are frequently not going as I expected*"). Participants rated the DRSS items from 1 (never) to 7 (very often). We generated means of the DRSS items with higher scores indicating greater sense of deflated reality in training and performance.

Procedures

We obtained independent ethics approval from WADA and the lead institution prior to starting the project data collection. To allow implementation of the study measures in all study countries (i.e., UK, China, US), we translated questionnaire measures that did not have a validated Chinese version (i.e., DMDS-S, DWISS, PFAI-S, SFPS, DRSS) using a translation-back translation strategy. Specifically, two PhD researchers in the field of sport psychology from a Chinese background first independently translated the relevant measures into Chinese. The lead Co-I from China then generated a test Chinese version based on the independently translated versions from the two PhD candidates. A professional Chinese-English translator was then employed to translate the test Chinese version of the targeted measures into English, followed by independent assessments of the back translated versions by the PI and the lead Co-I in

the UK (i.e., the reviewers). Any potential issues or gaps between the back translated version and the original English version were identified and discussed between the reviewers, with feedback and comments sent back to the Chinese translators (i.e., the two PhD and the lead Co-I in China) for revision until satisfaction was reached between back translated and the original English versions for measures that required a Chinese translation.

With satisfaction translations for required study measures, we built an online survey using Qualtrics with support from a project research assistant under the supervision of the PI and support from the Co-I's (see Appendix for the questionnaires used). The distribution of the online survey in all study countries was centrally managed at the lead institution by a project research assistant with support from the PI. The other Co-I's facilitated the recruitment of participants in their corresponding country, which included but not limited to contacting gatekeepers for assistance, organising local research student helpers to facilitate participants recruitment and survey distributions. We created country-specific flyers that contains essential study information and a QR code for accessing the online survey. Prospective participants could scan the QR code using their mobile devices or obtain the survey URL link to access the online survey, which started with presenting full details of the study information and request for completing informed consent. The survey system would not direct a participant to the study questionnaires unless a formal consent was given. The whole survey took approximately 15 minutes to complete, with a standard briefing and debriefing provided. Participants were encouraged to contact the project research assistant should they have any questions about the survey, which would be either answered by the research assistant straightway or forwarded to the PI or the Co-I in the relevant study country for a follow up. Following the completion of each survey, the research assistant would check the survey data for participants' eligibility in receiving a cash voucher (i.e., Amazon voucher; £6 and $8 for each UK and US

participant, respectively) or partaking in a prize draw[1] (i.e., eight Apple AirPods Generation 2). These incentives were designed to facilitate recruitment process and encourage participation, and we provided an option for participants to opt out for the incentives[2]. For UK and US participants, all incentives and prizes were delivered within four weeks of 14-day cooling-off period on completion of an online survey. For the Chinese participants, the prize draw was conducted at the end of data collection, with prize delivered within four weeks of the prize draw.

Data Analysis – Work Package 1

The work package 1 aimed to 1) examine the interaction effect between athletes' narcissism and compassion on risk factors for doping and 2) test the psycho-behavioural mechanisms of narcissism-related risk and compassion-related protection in the three study countries. We used psychometrics data from DMDS-S, DWISS, NPI-16, HSNS, SCS-S, FSC, FCO, DRSS, BRCS, and PFAI-S for work package 1 analyses. Missing data and descriptive statistics (i.e., mean, SD, skewness, kurtosis) of study variables were first checked, with a cut-off of within ±3 skewness and ±10 kurtosis required for further path analyses and hypothesis testing (see Kline, 2016). We also examine the composite reliability of each study measure for assessing internal consistency or reliability of the measures. Such an approach is more rigorous than the traditional Cronbach's alpha because the composite reliability accounts for the varied loadings or weights of different items when testing internal consistency reliability for a certain measure. We then examined the zero-order correlations of each pair of

[1] We originally budged ¥50 Amazon voucher for each Chinese Participant (equivalent to £6 and $8 provided to each UK and US participant). However, when we started the project, Amazon had decided to quit the China market thus no Amazon voucher can be purchased and provided to Chinese participants as planned. We, therefore, obtained approval from WADA and altered the incentive plan for Chinese participants by running a prize draw of eight Apple AirPods Generation 2, of which the total value was equivalent to the amount of prize budgeted for the UK and US participants.

[2] Approximately 60% US participants and 31% UK participants opted out for incentives (either not providing a personal email for communicating and collecting the prize or provided a wrong email address thus unable to be reached for prize delivery). All Chinese participants opted in for the prize draw.

study variables to understand the general association of study variables without controlling for potential confounders. All these analyses were performed at country-level (i.e., repeated for each study country) for cross-country comparison. These preliminary analyses were performed using SPSS Version 28.

On completion of the preliminary analyses, we employed Mplus Version 8 (Muthén & Muthén, 2017) for the main analyses and hypothesis testing. To examine the three-way interaction between athletes' grandiose narcissism (GN), vulnerable narcissism (VN), and compassionate mind (i.e., self-compassion or SC, fear of self-compassion or FSC, fear of compassion from others or FCO) on risk factors for doping (testing Hypothesis 1) and make comparison of these effects across all study countries, we conducted three multi-variate (i.e., doping moral disengagement, doping willingness) multi-group (i.e., UK, China, US) moderation models testing the VN × GN × SC, the VN × GN × FSC, and the VN × GN × FCO interactions. To determine if a main or interaction effect of VN, GN, and SC/FSC/FCO is invariant across the three study countries or not, we applied a stepwise model testing strategy by gradually introducing constrains to compare fixed vs random coefficient(s) in the tested models and performed a series of Chi-Square difference test for model comparison. We interpreted the best-fit model for cross-country comparison, with fixed and random coefficients indicating invariance and differences in certain effects across study countries. More specifically, we first built and examined four models (i.e., M1.1 = fixed main effects fixed 2-way interaction; M1.2 = fixed main effects random 2-way interaction; M1.3 = random main effects fixed interaction; M1.4 = random main effects random 2-way interaction) to determine if the main and interaction effects of VN and GN was invariant or different across study countries. We further built the 3-way interaction models (i.e., VN × GN × SC, VN × GN × FSC, the VN × GN × FCO) by introducing a second moderator (i.e., SC, FSC, FCO) to the best-fit multi-group VN × GN model and comparing model fits for different combinations of fixed and random

effects involving the second moderator (see Table 1.2 for all models that were tested and compared). Following recommendations, we used the robust maximum likelihood estimator (i.e., MLR) for model testing and report robust Chi-Sqaure (Rχ^2) and degree of freedom (df) for Chi-Square Difference Test, with significant Chi-Square reduction suggesting better model fit (Satorra & Bentler, 1994). The MLR estimator and Rχ^2 approach was desired as it is robust to potential data non-normality (Satorra & Bentler, 1994). We further report comparative fit index (CFI), standardised root mean square residual (SRMR), and root mean square error of approximation (RMSEA) to assess model fit, with ≥.95 CFI, ≤ .08 SRMR, ≤ .06 RMSEA, indicate desired model fit (Hu & Bentler, 1999). Additionally, We report standardised beta coefficient (β), precise p value, and 95% confidence interval (CI) of regression coefficients for all main and interaction effects. We probed significant interactions ($p < .05$) via simple slopes analysis at high (+1SD) and low (-1SD) levels of the moderator(s).

To examine the extent to which resilient coping (RC), fear of failure (FOF), and sense of deflated reality (DRSS) explain narcissism-related risk and compassion-related protection on doping moral disengagement and doping willingness (testing Hypothesis 2), we conducted two multi-variate (i.e., doping moral disengagement, doping willingness) multi-group (i.e., UK, China, US) mediation models, of which one tested GN/VN whilst the other tested SC/FSC/FCO as predictors when examining their direct and indirect effects on risk factors for doping via RC, FOF, and DRSS. Similar strategy for cross-country comparison was taken, via comparing a fixed effect model (i.e., constraining the coefficients of regressive paths in the mediation model to be invariant across study countries) to a random effect model (i.e., allowing the coefficients of regressive paths in the mediation model to vary freely across study countries). Chi-Square Difference Test was used to determine the better-fit model for interpretation, with CFI, SRMR, RMSEA reported as further model fit information. Standardised

direct (beta coefficient or β) and indirect effects, precise p value, and 95% confidence interval (CI) were reported for the mediation models.

When conducting these multi-variate multi-group moderation and mediation analyses, we further implemented a cluster control using the TYPE = COMPLEX function in the Mplus to account for the nested nature of the data (i.e., athletes nested in coach). This is because coach (e.g., Matosic et al., 2016) and the coach-fostered sport team environment (Boardley et al., 2015) play an important role in doping moral disengagement and doping attitude in athletes, and thus by adjusting for the coach-level confounds (i.e., between-coach differences) enabled a more accurate estimation of the athlete-level effects (i.e., between-athlete differences) on relative risk in doping. The cluster control approach we took is equivalent to a random intercept (at coach level) fixed slope (at athlete level) approach in multilevel modelling (Hox, 1995) but has considerable advantages over the multilevel modelling approach, as it enabled the examination of the desired multi-variate multi-group moderation and mediation analyses and allowed small cluster size when adjusting for the cluster (e.g., one or two individual sport athletes under a coach). Such an approach has been recommended and received support in literature (Smith et al., 2013; Zhang et al., 2021, 2024).

Data Analysis – Work Package 2

The work package 2 aimed to 1) test the relative risk of sport fantasy proneness, deflated reality, and their interaction in risk factors for doping and 2) examine the extent to which resilient coping protects against such risk in the three study countries (testing Hypothesis 3). We used psychometrics data from DMDS-S, DWISS, SFPS, DRSS, and BRCS for work package 2 analyses. Identical approaches in the work package 1 for preliminary analyses and cluster control for adjusting the nested data were taken for the work package 2.

To examine the relative risk of sport fantasy proneness (SF) and deflated reality (DR) and the protection of resilient coping (RC), we performed a multi-variate (i.e., doping moral disengagement, doping willingness) multi-group (i.e., UK, China, US) moderation analyses testing the SF × DR × RC interaction. We adopted similar stepwise approach as was in the work package 1 for cross-country comparison via gradually introducing constrains to regressive coefficients in the tested models to determine if the relative risk of sport fantasy and deflated reality and the protection of resilient coping is invariant or different across the study countries. More specifically, we first built and test four models (i.e., M2.1 = fixed main effects fixed 2-way interaction; M2.2 = fixed main effects random 2-way interaction; M2.3 = random main effects fixed interaction; M2.4 = random main effects random 2-way interaction) to determine if the main and interaction effects of SF and DR was invariant. We further built a series of the SF × DR × RC interaction models by introducing RC as the second moderator to the best-fit SF × DR model and comparing model fits for different combinations of fixed and random effects involving the second moderator (see Table 2.2 for all models that were tested and compared). We used Chi-Square Difference Test (Satorra & Bentler, 1994) to determine the best-fit model for interpretation and report R$\mathcal{X}^2$ and its df, together with CFI, SRMR, RMSEA for model fit information. For consistency and results interpretation, we further report standardised beta coefficient (β), precise *p* value, and 95% confidence interval (CI) of regression coefficients for all main and interaction effects, and probed significant interactions ($p < .05$) via simple slopes analysis at high (+1SD) and low (-1SD) levels of the moderator(s).

Results – Work Package 1

Preliminary analyses

A total of six (1.2%) participants were found missing in the cluster variable (i.e., coach information) and eleven (2.2%) participants were found missing in an independent/exogenous variable (i.e., missing data in NPI-16 or HSNS at the construct level) thus did not fulfil the data analysis requirements and were excluded for further analysis. Missing in the dependent/endogenous variables (i.e., missing data in DMDS-S, DWISS, DRSS, BRCS, and PFAI-S at the construct level) were less than 3.6% of the total sample, of which such missing can be addressed via the Full Information Maximum Likelihood approach (FIML; see Hirose et al., 2015) enabled by the MLR estimator in Mplus we used for model testing. As such, no participants were excluded due to missing in one or more dependent/endogenous variables. Skewness and kurtosis of all study variables were within ± .73 and ± 1.21, respectively, providing support to data normality. Composite reliability of study measures was .71-.86 for the UK sample, .78-.90 for the China sample, and .71-.93 for the US sample, suggesting satisfactory internal consistency (i.e., .70, .80, .90 as cut-off for good, very good, and excellent reliability).

Correlation analysis revealed consistent, moderate-to-large association (r = .46-.67) between doping moral disengagement and doping willingness in all study countries. The correlations between narcissistic traits (i.e., grandiose and vulnerable narcissism), self-compassionate mind (i.e., self-compassion, fear of self-compassion, fear of receiving compassion from others) and risk factors for doping were inconsistent across UK, China, and US. In all study countries, fear of receiving compassion from others was correlated with inflated doping willingness, whilst resilient coping was related to decreased doping moral disengagement. Table 1.1 presents full details of the descriptive statistics and the zero-order correlation of study variables.

Table 1.1
Descriptive statistics, composite reliability, and Pearson's correlation of study variables among UK, Chinese, and US samples.

	M	SD	1	2	3	4	5	6	7	8	9	10
UK (176 in total)												
1. DMDS-S	2.54	1.65	(.76)									
2. DWISS	2.53	.96	**.57**	(.86)								
3. HSNS	2.99	.57	.02	.03	(.73)							
4. NPI	3.71	.75	**-.23**	.08	.03	(.80)						
5. SCS-S	3.07	.46	-.13	.01	**-.24**	**.28**	(.71)					
6. FSC	3.66	1.02	.11	.13	**.34**	**.16**	**-.17**	(.76)				
7. FCO	3.63	1.00	**.20**	**.20**	**.49**	.00	**-.32**	**.50**	(.72)			
8. DRSS	3.91	1.02	**.27**	**.20**	**.33**	**-.26**	**-.42**	**.31**	**.35**	(.76)		
9. BRCS	3.40	.79	**-.32**	**-.24**	**.23**	**.23**	**.25**	-.05	**-.19**	**-.15**	(.72)	
10. FOF-S	4.10	.74	.08	**-.16**	-.03	-.03	**-.26**	**.21**	**.36**	**.31**	-.05	(.71)
China (164 in total)												
1. DMDS-S	2.09	1.18	(.87)									
2. DWISS	1.97	.93	**.46**	(.88)								
3. HSNS	3.05	.57	**.16**	**.15**	(.78)							
4. NPI	3.25	.95	.09	**.15**	**.45**	(.90)						
5. SCS-S	3.27	.49	.07	-.02	**-.28**	.07	(.85)					
6. FSC	2.95	1.04	.04	.09	**.40**	**.28**	-.09	(.84)				
7. FCO	2.45	.99	.11	**.30**	**.45**	**.20**	**-.26**	**.43**	(.88)			
8. DRSS	3.77	1.02	**.18**	**.17**	**.35**	**.17**	-.11	**.40**	**.33**	(.86)		
9. BRCS	3.50	.81	**-.13**	.02	.09	**.48**	**.21**	**.24**	.03	.07	(.82)	
10. FOF-S	2.77	.86	**.23**	**.20**	**.35**	.01	**-.39**	**.21**	**.39**	**.33**	-.06	(.81)
US (159 in total)												
1. DMDS-S	2.23	1.49	(.80)									
2. DWISS	1.52	.74	**.64**	(.93)								
3. HSNS	2.81	.59	.08	.13	(.73)							
4. NPI	3.47	.83	.13	.07	**.27**	(.88)						
5. SCS-S	3.13	.60	-.07	-.12	-.43	**.26**	(.71)					
6. FSC	2.86	1.24	**.24**	**.26**	**.30**	-.10	**-.49**	(.83)				
7. FCO	2.66	1.14	**.22**	**.38**	**.38**	-.12	**-.36**	**.41**	(.86)			
8. DRSS	3.99	1.12	-.07	.09	**.40**	**-.21**	**-.50**	**.32**	**.33**	(.89)		
9. BRCS	3.69	.70	**-.27**	-.13	-.04	.09	**.23**	**-.21**	**-.17**	-.05	(.75)	
10. FOF-S	4.31	.93	-.05	.07	**.43**	-.06	**-.51**	**.21**	**.16**	**.56**	.14	(.82)

Note. DMDS-S = *Doping Moral Disengagement Scale-Short*; DWISS = *Doping Willingness in Sport Scale*; HSNS = *Hypersensitive Narcissism Scale*; NPI = *Narcissistic Personality Inventory -16 (Likert scale)*; SCS-S = *Self-Compassion Scale – Short*; FSC = *Fear of Self-Compassion in Sport*; FCO = *Fear of Receiving Compassion from Others in Sport*; DRSS = *Deflated Reality in Sport Scale*; BRCS = *Brief Resilient Coping Scale*; FOF-S = *Performance Failure Appraisal (Fear of Failure) Scale-Short*. Score range is 1-5 for DWISS, HSNS, SCS-S, FSC, FCO, BRCS, FOF-S; 1-6 for NPI; 1-7 for DMDS-S, DRSS. Pairwise deletion was applied to retain any participants with partial missing for the correlation analysis. Significant correlation coefficients at .05 alpha level are presented in bold. Composite reliability scores are presented in parentheses.

Table 1.2

Fit indices and χ^2 difference tests of nested models for model confirmation and multi-country comparison using multi-group (UK, China, US) multivariant (doping moral disengagement, doping willingness) cluster-controlled (athletes nested in coaches) path analysis.

	$R\chi^2$	df	CFI	RMSEA	SRMR	Comparison	$\Delta R\chi^2$	Δdf
Baseline VN × GN models								
1.1. Fixed main effects, fixed 2-way effect (M1)	23.82	12	.93	.08	.06			
1.2. Fixed main effects, random 2 -way effect (M2)	17.95	8	.94	.09	.05	M1.2 vs M1.1	5.77	4
1.3. Random main effects, fixed 2-way effect **(M3†)**	4.86	4	.99	.04	.03	**M1.3**† vs M1.1	19.68*	8
1.4. Random main effects, random 2-way effect (M4, saturated)	0	0	1.00	.00	.00	M1.4 vs **M1.3**†	4.86	4
VN × GN × SC models								
1.5. M3 + fixed SC main effect, fixed SC 2-way effects, fixed 3-way effect (M5)	42.72	20	.90	.08	.05			
1.6. M3 + random SC main effect, fixed SC 2-way effects, fixed 3-way effect (M6)	34.26	16	.92	.09	.05	M1.6 vs M1.5	8.45	4
1.7. M3 + fixed SC main effect, random SC 2-way effects, fixed 3-way effect **(M7†)**	22.81	12	.96	.07	.03	**M1.7**† vs M1.5	19.83*	8
1.8. M3 + fixed SC main effect, random SC 2-way effects, random 3-way effect (M8)	20.61	8	.94	.10	.03	M1.8 vs **M1.7**†	4.92	4
VN × GN× FSC models								
1.9. M3 + fixed FSC main effect, fixed FSC 2-way effects, fixed 3-way effect (M9)	63.45	20	.83	.12	.05			
1.10. M3 + random FSC main effect, fixed FSC 2-way effects, fixed 3-way effect (M10)	34.15	16	.93	.08	.04	M1.10 vs M1.9	68.34*	4
1.11. M3 + random FSC main effect, fixed FSC 2-way effects, random 3-way effect (M11)	23.60	12	.96	.08	.03	M1.11 vs M1.10	12.04*	4
1.12. M3 + random FSC main effect, random FSC 2-way effects, fixed 3-way effect **(M12†)**	9.23	8	.99	.03	.02	**M1.12**† vs M1.11	16.01*	4
VN × GN × FCO models								
1.13. M3 + fixed FCO main effect, fixed FCO 2-way effects, fixed 3-way effect (M13)	52.71	20	.87	.10	.05			
1.14. M3 + random FCO main effect, fixed FCO 2-way effects, fixed 3-way effect (M14)	42.63	16	.89	.10	.04	M1.14 vs M1.13	10.12*	4
1.15. M3 + random FCO main effect, fixed FCO 2-way effects, random 3-way effect **(M15†)**	9.93	12	1.00	.00	.02	M15† vs M1.14	35.17*	4
1.16. M3 + random FCO main effect, random FCO 2-way effects, fixed 3-way effect (M16)	40.92	8	.87	.16	.03	M1.16 vs **M1.15**†	NA	4

Note. Fixed and random effect indicates invariant (no across-country difference) vs variant (potential across-country difference) regression coefficients across countries, respectively. VN, GN, SC, FSC, FCO indicates *Vulnerable Narcissism*, *Grandiose Narcissism, Self-Compassion, Fear of Self-Compassion in sport, Fear of receiving Compassion from Others in sport*, respectively. $R\chi^2$=robust Chi-square; *df* = degrees of freedom; CFI=robust comparative fit index; RMSEA=root mean square error of approximation; SRMR = standardized root means square residual; $\Delta R\chi^2$ = robust scale adjusted Chi-square reduction; Δdf = reduction in degree of freedom in the nested model. * indicates significant Chi-square change at .05 alpha level (thus a better-fit model). NA refers to negative Chi-square change (thus a poorer-fit model). † remarks the selected model based on Chi-square difference test and model simplicity (greater degree of freedom).

Clustered multi-variate multi-group moderation analyses

We compared a series of clustered multi-variate (i.e., doping moral disengagement, doping willingness) multi-group (i.e., UK, China, US) moderation analyses by introducing different combination of fixed (i.e., invariance across countries) and random (i.e., varying across countries) effects to model testing. Test and comparison of four baseline models (i.e., M1.1-M1.4) examining the interaction between vulnerable narcissism (VN) and grandiose narcissism (GN) suggested that M3 with constrains for random main effects of VN/GN and a fixed effect interaction across countries appeared to be the best-fit model ($R\chi^2$= 4.86, *df* = 4; CFI = .99, RMSEA = .04, SRMR = .03). As such, results supported that the independent, main effects of VN and GN on doping moral disengagement and doping willingness varied across countries, but the way VN and GN interactively influence risks factors for doping was invariant in all study countries. We therefore further built and tested the VN × GN × SC, VN × GN × FSC, the VN × GN × FCO interactions based on M1.3. Table 1.2 presents all model testing details.

Self-Compassion and Narcissism-Related Risk

Comparison of M1.5-M1.8 that tested different combination of fixed (i.e., invariant across study countries) and random (i.e., varying across study countries) effects involving self-compassion suggested M1.7 was the best-fit model ($R\chi^2$= 22.81, *df* = 12; CFI = .96, RMSEA = .07, SRMR = .03), which provided support to fixed main effects of self-compassion and fixed moderation of self-compassion (indicated by VN × GN × SC interaction) on the narcissism-related risk (indicated by VN × GN interaction) across study countries. We therefore interpret the M1.7 for understanding self-compassion's moderation of narcissism-related risk in the context of doping moral disengagement and doping willingness (*see Table 1.2 for model comparison details*).

Doping Moral Disengagement. The best-fit VN × GN × SC model (M1.7) explained 8.3%, 7.8%, and 3.7% variance in doping moral disengagement in UK, China, and US athletes, respectively. Self-compassion alone did not appear to mitigate risk of doping moral disengagement, which was invariant in all study countries (β = -.01, p = .88; 95% CI [-.15, .13]). The moderation of self-compassion on narcissism-related risk (i.e., assessed by the VN × GN × SC interaction) was not significant and invariant for all study countries (β = -.06, p = .23; 95% CI [-.17, .04]). However, the VN × GN interaction was significant and invariant for all study countries (β = -.13, p < .01; 95% CI [-.22, -.04]). For UK athletes (*see Figure 1.1 top panel*), simple slope analysis of the VN × GN interaction suggested that vulnerable narcissism was associated with greater doping moral disengagement when grandiose narcissism was low (β = .14, p = .37; 95% CI [-.16, .44]) not reduced doping moral disengagement when grandiose narcissism was high (β = -.13, p = .44; 95% CI [-.44, .19]). For China athletes (*see Figure 1.1 middle panel*), vulnerable narcissism predicted significantly increased doping moral disengagement when grandiose narcissism was low (β = .38, p < .01; 95% CI [.17, .59]) not high (β = .11, p = .27; 95% CI [-.09, .32]). For US athletes (*see Figure 1.1 bottom panel*), vulnerable narcissism contributed to increased doping moral disengagement when grandiose narcissism was low (β = .22, p = .22; 95% CI [-.14, .58]) but not high (β = -.04, p = .81; 95% CI [-.39, .31]).

Doping Willingness. The best-fit VN × GN × SC model (M1.7) explained 5.8%, 8.0%, and 3.7% variance in doping willingness in UK, China, and US athletes, respectively. Again, self-compassion alone did not appear to mitigate risk of doping willingness, which was invariant in all study countries (β = -.03, p = .49; 95% CI [-.11, .05]). More importantly, the moderation of self-compassion on narcissism-related risk (i.e., assessed by the VN × GN × SC interaction) was significant and invariant for all study countries (β = -.08, p = .04; 95% CI [-.16, -.01]). For the UK (*see Figure*

1.2 top panel for illustration), simple slope analysis revealed that, when athletes' self-compassion was low, increase in vulnerable narcissism was associated with increased doping willingness regardless grandiose narcissism was low (β = .03, p = .81; 95% CI [-.22, .28]) or high (β = .09, p = .53; 95% CI [-.19, .37]); however, when athletes' self-compassion was high, vulnerable narcissism contributed to increased doping willingness only when grandiose narcissism was low (β = .23, p = .03; 95% CI [.02, .44]) but not high (β = -.03, p = .78; 95% CI [-.21, .15]). For China (*see Figure 1.2 middle panel*), simple slope analysis revealed a similar patter observed in the UK data, that when self-compassion was low, the association between vulnerable narcissism and doping willingness did not distinct regardless grandiose narcissism was low (β = -.08, p = .57; 95% CI [-.38, .21]) or high (β = -.03, p = .80; 95% CI [-.24, .18]); in contrast, when self-compassion was high, the association between vulnerable narcissism and doping willingness was reduced significantly when grandiose narcissism was high (β = .05, p = .66; 95% CI [-.16, .25]) compared to low (β = .31, p = .01; 95% CI [.09, .54]). For the US (*see Figure 1.2 bottom panel*), simple slope analysis revealed a similar pattern find in the UK and China, that when self-compassion was low, vulnerable narcissism's influence in doping willingness was not distinctive regardless grandiose narcissism was low (β = -.04, p = .74; 95% CI [-.28, .20]) or high (β = .01, p = .80; 95% CI [-.12, .15]); but when self-compassion was high, vulnerable narcissism's risk in relating to doping willingness was buffered when grandiose narcissism was high (β = .05, p = .29; 95% CI [-.04, .15]) compared to low (β = .31, p < .01; 95% CI [.17, .45]). In all study countries, lowest levels of doping willingness were observed in athletes with high self-compassion and low levels of both aspects of narcissism.

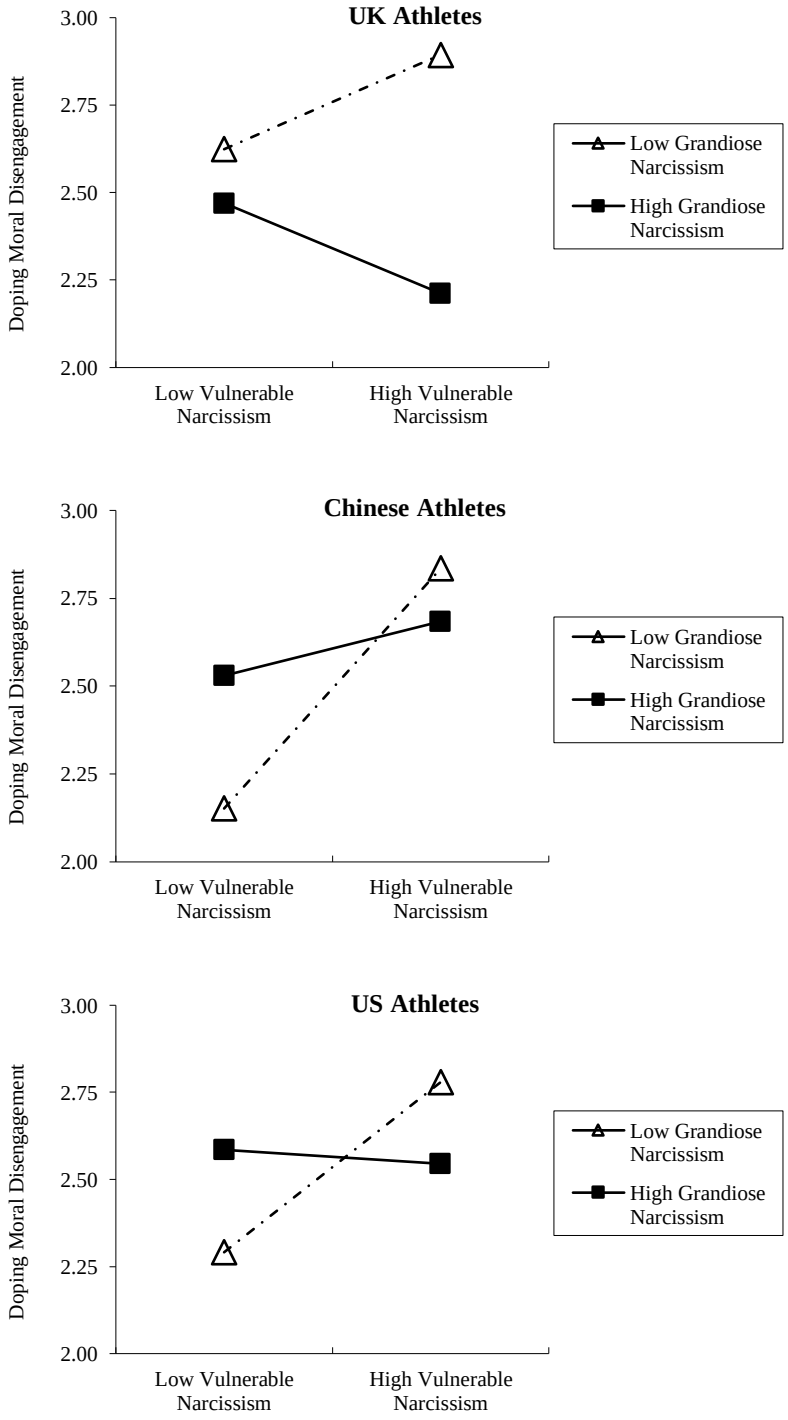

Figure 1.1

The 2-way *vulnerable* × *grandiose narcissism* interaction on *doping moral disengagement* among UK (top), Chinese (middle), and US (bottom) athletes. Coach of athletes controlled as the cluster variable (i.e., random intercept allowed across athletes nested within different coaches). High and low values are derived from mean plus and minus 1SD, respectively.

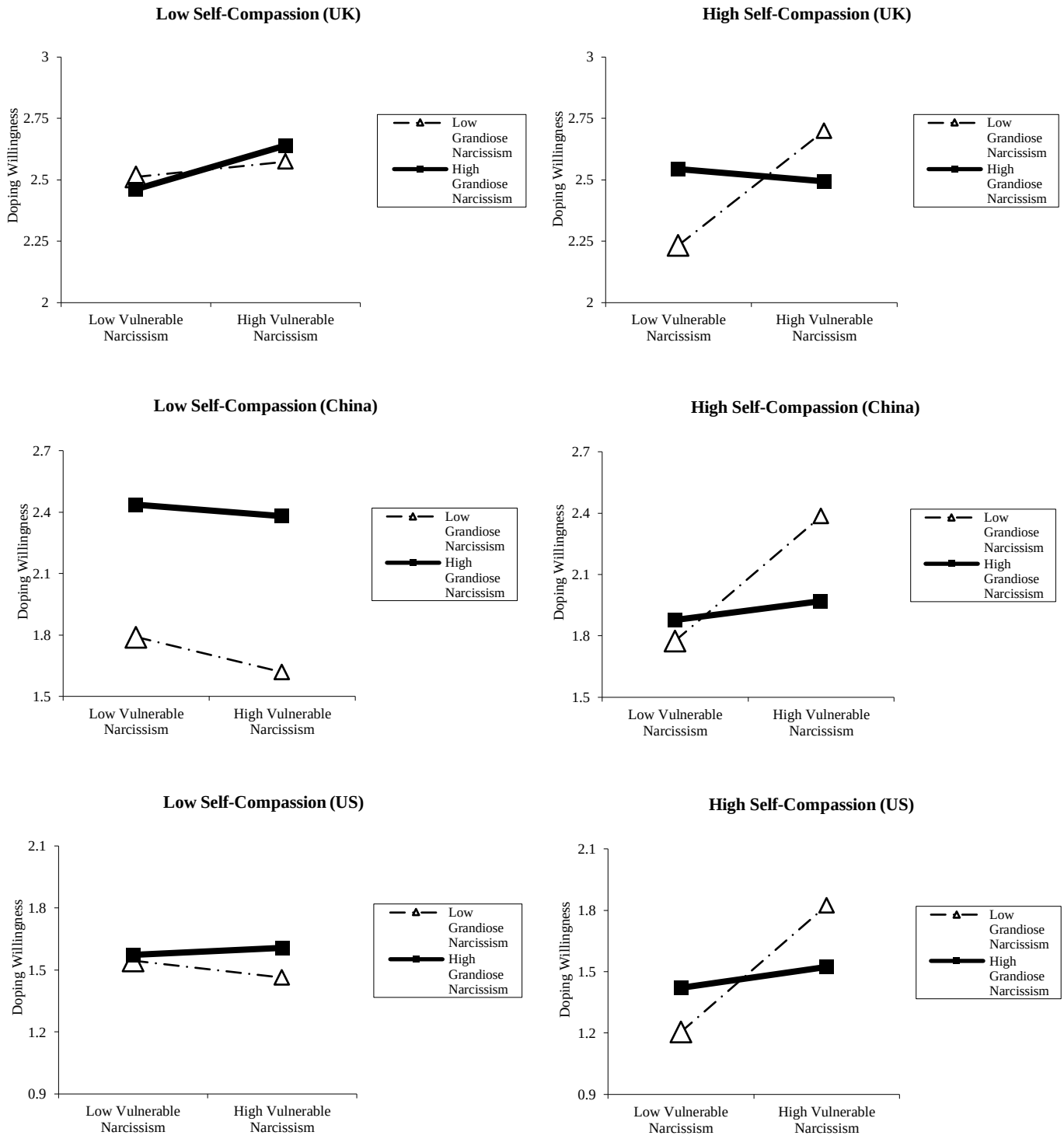

Figure 1.2

The 3-way *vulnerable* × *grandiose narcissism* × *self-compassion* interaction on *doping willingness* among UK (top panel), Chinese (middle panel), and US (bottom panel) athletes. Coach of athletes controlled as the cluster variable (i.e., random intercept allowed across athletes nested within different coaches). High and low values are derived from mean plus and minus 1SD, respectively.

Fear of Self-Compassion and Narcissism-Related Risk

Comparison of M1.9-M1.12 that tested different combination of fixed (i.e., invariant across study countries) and random (i.e., varying across study countries) effects involving fear of self-compassion suggested that M12 was the best-fit model (Rχ^2= 9.23, *df* = 8; CFI = .99, RMSEA = .03, SRMR = .02), which provided support to random main effects of fear of self-compassion and fixed moderation of fear of self-compassion (indicated by VN × GN × FSC interaction) on the narcissism-related risk (indicated by VN × GN interaction) across study countries. We therefore interpret the M1.12 for understanding fear of self-compassion's moderation of narcissism-related risk in the context of doping moral disengagement and doping willingness (*see Table 1.2 for model comparison details*).

Doping Moral Disengagement. The best-fit VN × GN × FSC model (M1.12) explained 10%, 4.9%, and 12.2% variance in doping moral disengagement in UK, China, and US athletes, respectively. Fear of Self-compassion predicted increased doping moral disengagement in the UK (β = .22, p = .02; 95% CI [.03, .41]) and US (β = .36, p = .00; 95% CI [.26, .47]) but not in China (β = -.13, p = .36; 95% CI [-.41, .15]). The moderation of fear of self-compassion on narcissism-related risk (i.e., assessed by the VN × GN × FSC interaction) was not significant and invariant for all study countries (β = -.01, p = .72; 95% CI [-.08, .06]). The VN × GN interaction was identical to that from the earlier analysis (see Figure 1 for illustration).

Doping Willingness. The best-fit VN × GN × FSC model (M1.12) explained 3.9%, 5.6%, and 7.3% variance in doping willingness in UK, China, and US athletes, respectively. Similar to its effect on doping moral disengagement, fear of self-compassion contributed to increased doping willingness in the UK (β = .15, p = .02; 95% CI [.03, .28]) and US (β = .16, p = .00; 95% CI [.10, .22]) but not in China (β = -.08, p = .45; 95% CI [-.30, .13]). However, more importantly, the moderation of fear of self-

compassion on narcissism-related risk (i.e., assessed by the VN × GN × FSC interaction) was significant and invariant for all study countries (β = .05, p = .04; 95% CI [.01, .10]). Simple slope analysis for the UK data revealed (*see Figure 1.3 top panel for illustration*), that when athletes' fear self-compassion was low, increase in vulnerable narcissism was associated with decreased doping willingness when grandiose narcissism was high (β = -.23, p = .02; 95% CI [-.42, -.03]) compared to low (β = -.03, p = .80; 95% CI [-.22, .17]); however, when athletes' fear of self-compassion was high, the association between vulnerable narcissism and doping willingness was not moderated regardless grandiose narcissism was low (β = -.05, p = .66; 95% CI [-.28, .18]) or high (β = -.04, p = .71; 95% CI [-.27, .18]). For comparison, simple slope analysis for the China data revealed (*see Figure 1.3 middle panel*), that when fear of self-compassion was low, the relationship between vulnerable narcissism and doping willingness was greater when grandiose narcissism was low (β = .19, p = .09; 95% CI [-.03, .40]) compared to high (β = -.02, p = .89; 95% CI [-.24, .21]); in contrast, when fear of self-compassion was high, the association between vulnerable narcissism and doping willingness was not distinctive regardless grandiose narcissism was low (β = -.17, p = .06; 95% CI [-.34, .01]) or high (β = -.16, p = .11; 95% CI [-.36, .04]). For the US (*see Figure 1.3 bottom panel*), simple slope analysis revealed a similar pattern find in China, that when fear of self-compassion was high, vulnerable narcissism's influence in doping willingness was not distinctive regardless grandiose narcissism was low (β = .02, p = .79; 95% CI [-.14, .18]) or high (β = .03, p = .68; 95% CI [-.11, .17]); but when fear of self-compassion was low, vulnerable narcissism's risk in relating to doping willingness was buffered when grandiose narcissism was high (β = -.08, p = .10; 95% CI [-.16, .01]) compared to low (β = .13, p = .11; 95% CI [-.03, .28]). Lowest level of doping willingness in all study countries were observed among individuals with low fear of self-compassion.

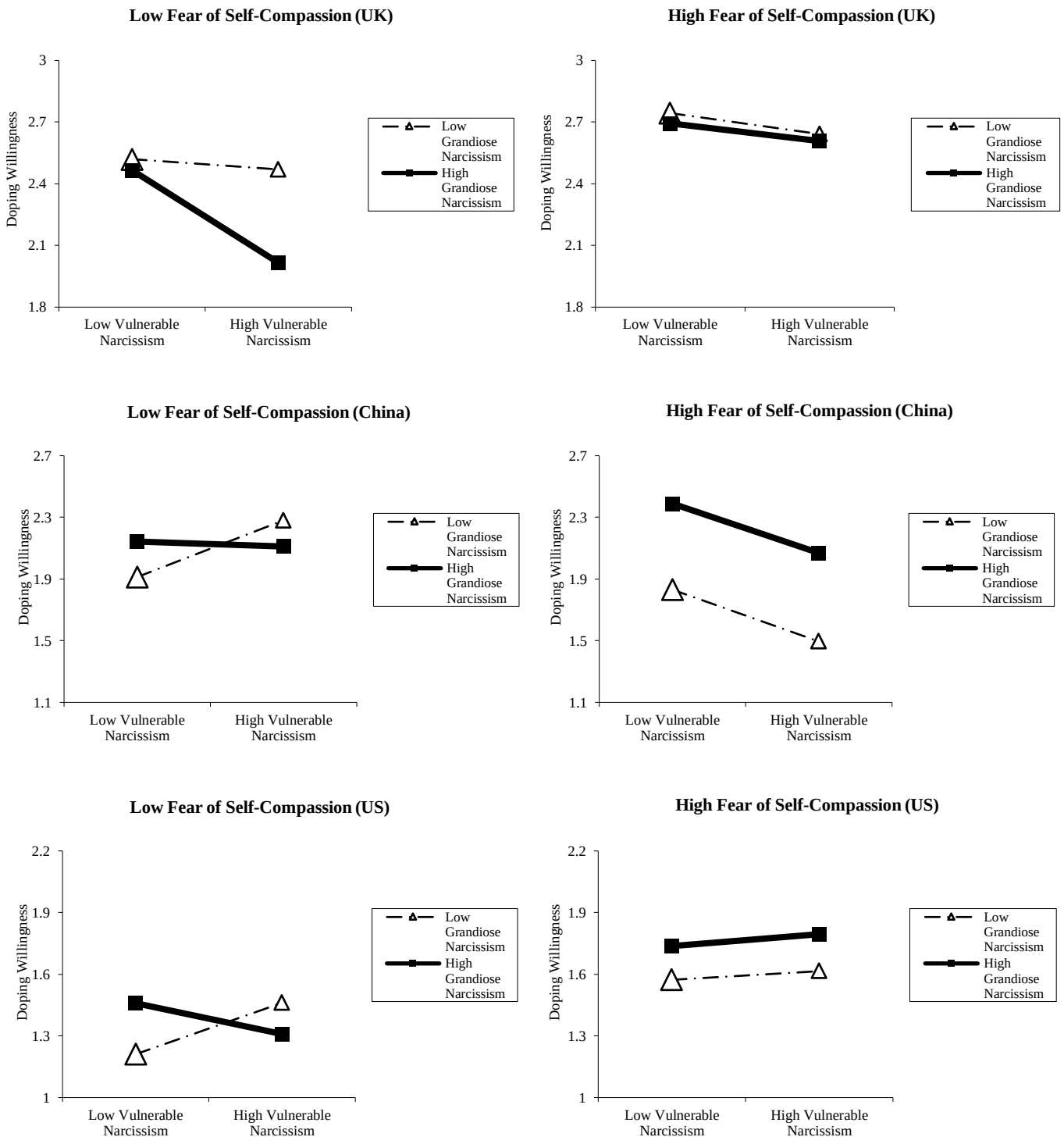

Figure 1.3

The *grandiose* × *vulnerable narcissism* × *fears of self-compassion* interaction on *doping willingness* among UK (top), Chinese (middle), and US (bottom) athletes. Coach of athletes controlled as the cluster variable (i.e., random intercept allowed across athletes nested within different coaches). High and low values are derived from mean plus and minus 1SD, respectively.

Fear of Compassion from Others and Narcissism-Related Risk

Comparison of M1.13-M1.16 that tested different combination of fixed (i.e., invariant across study countries) and random (i.e., varying across study countries) effects involving fear of receiving compassion from others suggested that M1.15 was the best-fit model (Rχ^2= 9.93, *df* = 12; CFI = 1.00, RMSEA = .00, SRMR = .02), which provided support to random main effects of fear of self-compassion and random moderation of fear of compassion from others (indicated by VN × GN × FCO interaction) on the narcissism-related risk (indicated by VN × GN interaction) across study countries. We therefore interpret the M1.15 for understanding fear of self-compassion's moderation of narcissism-related risk in the context of doping moral disengagement and doping willingness (*see Table 1.2 for model comparison details*).

Doping Moral Disengagement. The best-fit VN × GN × FCO model (M1.15) explained 7.9%, 6.9%, and 4.2% variance in doping moral disengagement in UK, China, and US athletes, respectively. Fear of compassion from others predicted increased doping moral disengagement in the US (β = .33, *p* = .02; 95% CI [.07, .60]) but not in the UK (β = .17, *p* = .06; 95% CI [-.01, .35]) and China (β = .02, *p* = .87; 95% CI [-.21, .25]). The moderation of fear of compassion from others on narcissism-related risk (i.e., assessed by the VN × GN × FCO interaction) was not significant regardless of UK (β = .05, *p* = .42; 95% CI [-.07, .16]), China (β = .03, *p* = .35; 95% CI [-.03, .09]), or US (β = -.05, *p* = .58; 95% CI [-.22, .12]). However, the GN x FCO interaction was significant and invariant across study countries (β = .15, *p* = .03; 95% CI [.02, .28]). Specifically, for UK (*see Figure 1.4 top-left panel for illustration*), simple slope suggested that grandiose narcissism was related to greater reduction in doping moral disengagement when fear of compassion from others was low (β = -.53, *p* = .00; 95% CI [-.84, -.22]) compared to high (β = -.24, *p* = .15; 95% CI [-.57, .09]). For China (*see Figure 1.4 middle-left panel*), grandiose narcissism was related to decreased doping moral

disengagement when fear of compassion from others was low (β = -.20, p = .09; 95% CI [-.43, .03]) not high (β = .09, p = .44; 95% CI [-.14, .33]). For US (*see Figure 1.4 bottom-left panel*), grandiose narcissism predicted greater increase in doping moral disengagement when fear of compassion from others was high (β = .41, p = .01; 95% CI [.11, .72]) compared to low (β = .12, p = .44; 95% CI [-.19, .43]). In all study countries, lowest levels of doping moral disengagement were observed in those who were low in fearful feelings of receiving compassion from others.

Doping Willingness. The best-fit VN × GN × FCO model (M1.15) explained 10.5%, 8.7%, and 13.4% variance in doping moral disengagement in UK, China, and US athletes, respectively. The moderation of fear of compassion from others on narcissism-related risk (i.e., assessed by the VN × GN × FCO interaction) was not significant regardless of UK (β = .05, p = .20; 95% CI [-.01, .10]), China (β = -.02, p = .51; 95% CI [-.07, .04]), or US (β = -.03, p = .10; 95% CI [-.06, .01]). However, the GN x FCO interaction was significant and invariant across study countries (β = .07, p = .04; 95% CI [.01, .14]). Specifically, for UK (*see Figure 1.4 top-right panel*), simple slope suggested that grandiose narcissism was related to greater reduction in doping willingness when fear of compassion from others was low (β = -.26, p = .01; 95% CI [-.47, -.06]) compared to high (β = -.12, p = .24; 95% CI [-.32, .08]). For China (*see Figure 1.4 middle-right panel*), grandiose narcissism was related to less increased doping willingness when fear of compassion from others was low (β = .06, p = .49; 95% CI [-.10, .21]) compared to high (β = .20, p = .04; 95% CI [.01, .39]). For US (*see Figure 1.4 bottom-right panel*), grandiose narcissism predicted greater increase in doping willingness when fear of compassion from others was high (β = .20, p = .02; 95% CI [.04, .37]) compared to low (β = .06, p = .21; 95% CI [-.03, .16]). In all study countries, the lowest levels of doping willingness were observed in those who were low in fearful feelings of receiving compassion from others.

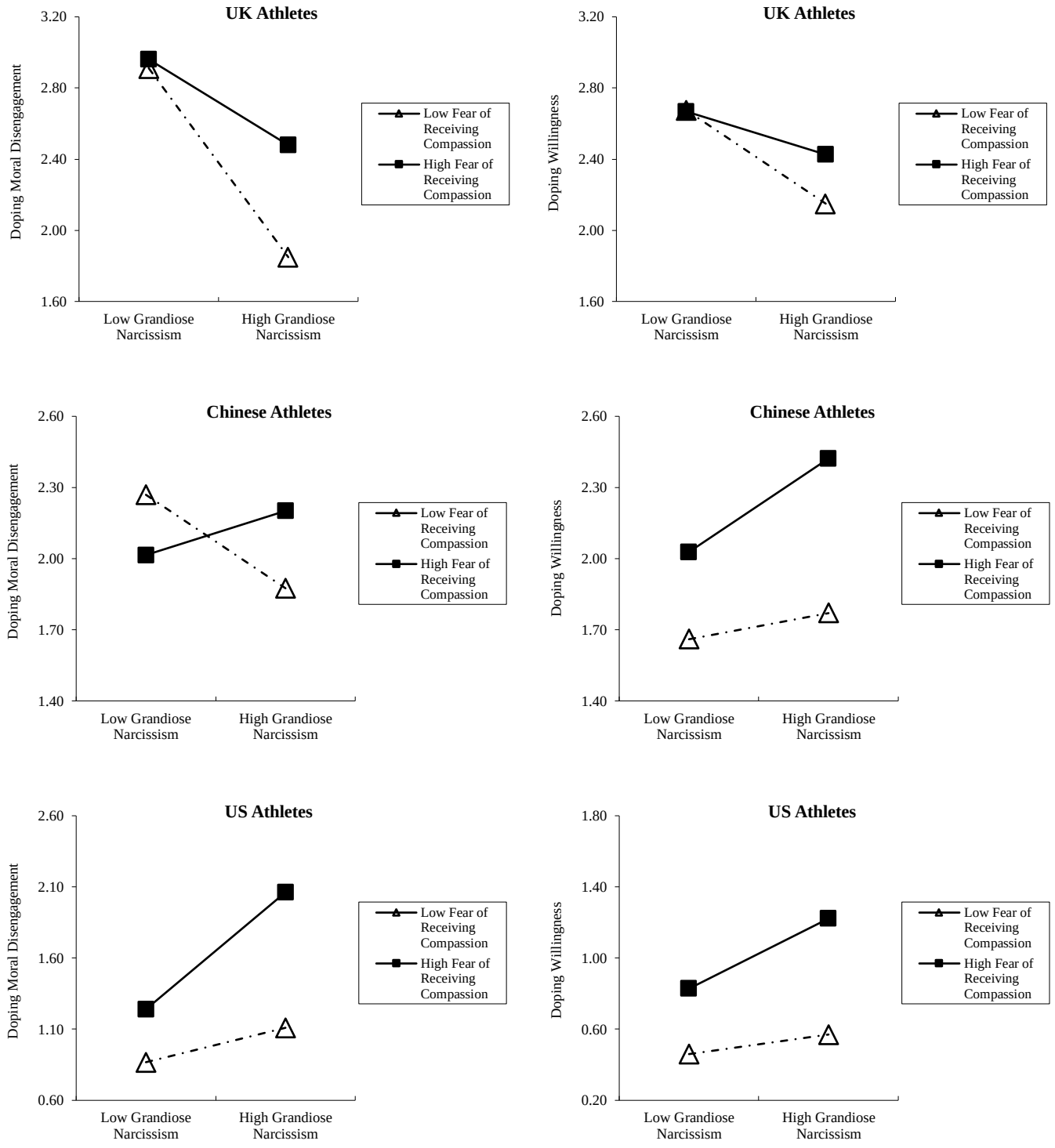

Figure 1.4

The *grandiose narcissism* × *fears of receiving compassion* interaction on *doing moral disengagement* (left panel) and *doping willingness* (right panel) among UK (top), Chinese (middle), and US (bottom) athletes. Coach of athletes controlled as the cluster variable (i.e., random intercept allowed across athletes nested within different coaches). High and low values are derived from mean plus and minus 1SD, respectively.

Mechanisms of Narcissism-Related Risk

The test of multi-variate (i.e., doping moral disengagement, doping willingness) multi-group (i.e., UK, China, US) mediation models suggested that the indirect effects of vulnerable and grandiose narcissism on doping moral disengagement and doping willingness via athletes' resilient coping, fear of failure, and sense of deflated reality varied across study countries (For the random effect model: R$\mathcal{X}^2$= 41.55, *df* = 11; CFI = .95, RMSEA = .08, SRMR = .05; For random vs fixed effect models: *Δ*R$\mathcal{X}^2$= 88.93, *Δdf* = 30, *p* = .00). Table 1.3 presents all statistics of this analysis.

To summarise key findings, vulnerable narcissism was linked to poorer resilient coping (significant direct effects in UK and US), whilst related to greater sense of fear of failure and deflated reality (significant direct effects in all countries). Decreased resilient coping and decreased deflated reality underpinned vulnerable narcissism's link to increased doping moral disengagement and doping willingness (significant indirect effects for the UK but not for China and US). However, fear of failure manifested contrasting role in UK compared to China; that is, vulnerable narcissism manifested indirect effect via increased fear of failure which accounted for increased doping moral disengagement and doping willingness in China but a decrease in these risk factors for doping in UK. For comparison, grandiose narcissism was linked to greater resilient coping (direct effects significant in UK and China) and lower fear of failure (direct effects significant in China and US) and deflated reality (direct effects significant in UK and US). Grandiose narcissism manifested negative indirect effects that reduced doping moral disengagement and/or doping willingness via increased resilient coping (significant for UK and China), reduced deflated reality (significant for UK), and alleviated fear of failure (significant for China). Among all countries, resilient coping appeared to be the most strongly and consistently contributed to reduced doping moral disengagement and doping willingness.

Table 1.3

Multi-country comparison of direct and indirect effects of vulnerable and grandiose narcissism on doping moral disengagement and doping willingness via deflated reality in sport, resilient coping, and fear of failure.

	UK Sample			China Sample			US Sample		
	Estimate	***p***	***95% CI***	***Estimate***	***p***	***95% CI***	***Estimate***	***p***	***95% CI***
Direct paths									
DRS→DMD	**.28**	**.00**	**[.11, .42]**	.11	.11	[-.03, .25]	-.09	.17	[-.22, .04]
DRS→DWI	**.29**	**.00**	**[.17, .41]**	.10	.38	[-.12, .31]	.08	.18	[-.04, .20]
RC→DMD	**-.27**	**.00**	**[-.42, -.12]**	**-.21**	**.01**	**[-.38, -.05]**	**-.32**	**.00**	**[-.41, -.22]**
RC→DWI	**-.26**	**.00**	**[-.37, -.15]**	**-.14**	**.03**	**[-.24, -.03]**	**-.17**	**.04**	**[-.33, -.01]**
FOF→DMD	**-.23**	**.01**	**[-.40, -.06]**	**.18**	**.02**	**[.03, .33]**	.02	.83	[-.16, .20]
FOF→DWI	**-.25**	**.01**	**[-.43, -.08]**	**.16**	**.04**	**[.01, .34]**	.03	.68	[-.11, .17]
VN→DMD	-.01	.90	[-.15, .14]	.01	.90	[-.15, .17]	.04	.66	[-.14, .21]
VN→DWI	.00	.99	[-.18, .18]	-.02	.88	[-.21, .18]	.04	.66	[-.14, .21]
VN→DRS	**.34**	**.00**	**[.21, .47]**	**.34**	**.00**	**[.16, .52]**	**.48**	**.00**	**[.35, .61]**
VN→RC	**-.13**	**.05**	**[-.26, .00]**	-.11	.20	[-.29, .06]	-.15	.20	[-.37, .08]
VN→FOF	**.42**	**.00**	**[.28, .56]**	**.43**	**.00**	**[.22, .65]**	**.45**	**.00**	**[.35, .55]**
GN→DMD	-.10	.22	[-.26, .06]	.16	.14	[-.05, .37]	.11	.11	[-.03, .25]
GN→DWI	**.21**	**.03**	**[.02, .40]**	.15	.14	[-.05, .36]	.11	.11	[-.03, .25]
GN→DRS	**-.27**	**.00**	**[-.43, -.11]**	.02	.81	[-.14, .18]	**-.33**	**.00**	**[-.45, -.21]**
GN→RC	**.24**	**.00**	**[.13, .34]**	**.54**	**.00**	**[.38, .69]**	.12	.45	[-.19, .43]
GN→FOF	-.04	.56	[-.19, .10]	**-.18**	**.04**	**[-.35, -.01]**	**-.16**	**.01**	**[-.28, -.04]**
Indirect paths									
VN→DRS→DMD	**.09**	**.02**	**[.02, .17]**	.04	.12	[-.01, .09]	-.04	.19	[-.11, .02]
VN→RC→DMD	**.04**	**.04**	**[.01, .07]**	.02	.27	[-.02, .07]	.05	.21	[-.03, .12]
VN→FOF→DMD	**-.10**	**.02**	**[-.18, -.02]**	**.08**	**.02**	**[.01, .14]**	.01	.83	[-.07, .09]
VN→DRS→DWI	**.10**	**.00**	**[.04, .16]**	.03	.35	[-.04, .10]	.04	.15	[-.01, .09]
VN→RC→DWI	**.03**	**.04**	**[.01, .07]**	.01	.58	[-.02, .03]	.03	.30	[-.02, .07]
VN→FOF→DWI	**-.11**	**.01**	**[-.19, -.02]**	**.07**	**.04**	**[.01, .15]**	.01	.67	[-.05, .08]
GN→DRS→DMD	**-.07**	**.02**	**[-.14, -.01]**	.00	.81	[-.02, .02]	.03	.23	[-.02, .08]
GN→RC→DMD	**-.06**	**.01**	**[-.11, -.02]**	**-.11**	**.01**	**[-.20, -.03]**	-.04	.45	[-.14, .06]
GN→FOF→DMD	.01	.57	[-.02, .04]	**-.03**	**.04**	**[-.07, -.01]**	.00	.83	[-.03, .03]
GN→DRS→DWI	**-.08**	**.01**	**[-.13, -.02]**	.00	.82	[-.02, .02]	-.03	.17	[-.06, .01]
GN→RC→DWI	**-.06**	**.00**	**[-.10, -.02]**	-.03	.55	[-.13, .07]	-.02	.47	[-.07, .03]
GN→FOF→DWI	.01	.56	[-.03, .05]	-.03	.17	[-.07, .01]	-.01	.67	[-.03, .02]

Note. DMD = *Doping Moral Disengagement*, DWI = *Doping Willingness*, DRS = *Deflated Reality in Sport*, RC = *Resilient Coping*, FOF = *Fear of Failure*, VN = *Vulnerable Narcissism*, GN = *Grandiose Narcissism*, CI = Confidence Interval. Multigroup (UK, China, US) cluster-controlled (athletes nested in coaches) path model (VN/GN as predictors, DRS/RC/FOF as mediating factors, DMD/DWI as outcome variables) were conducted. Model fit was good (i.e., Rχ2 = 41.55, *df* = 11, p = .00; CFI = .95, RMSEA = .08, SRMR = .05. All estimates were completed standardised.

Mechanisms of Compassion-Related Protection

The test of multi-variate (i.e., doping moral disengagement, doping willingness) multi-group (i.e., UK, China, US) mediation models suggested that the indirect effects of self-compassion, fear of self-compassion, and fear of receiving compassion from others on doping moral disengagement and doping willingness via athletes' resilient coping, fear of failure, and sense of deflated reality varied across study countries (For the random effect model: Rχ^2= 35.08, *df* = 9; CFI = .94, RMSEA = .08, SRMR = .04; For random vs fixed effect models: *Δ*Rχ^2= 186.53, *Δdf* = 61, *p* = .00). Table 1.4 presents all statistics of this analysis.

To summarise key findings, self-compassion was consistently linked to lowered fear of failure (significant direct effects in all countries), reduced sense of deflated reality (significant for UK and US) and increased resilient coping (significant for UK and China). For comparison, fear of self-compassion was related to increased sense of deflated reality in the UK and China whilst manifesting contradicting effects on resilient coping in China (facilitative) and US (debilitative). Fear of receiving compassion from others was linked to inflated sense of deflated reality (significant for China and US) and fear of failure (significant for UK and China). Both aspects of fear of compassion in sport contributed to increased doping willingness in all study countries. In line with the previous analysis, resilient coping appeared to be the most consistent and influential factor that contributed to alleviated risk factors for doping in all study countries. Deflated reality appeared to amplify risk factors for doping in the UK and China but reducing such risk in the US. In general, increased resilient coping (consistent across countries), reduced deflated reality (for UK and China but contrasting to the US), and lowered fear of failure (for China but contrasting to the UK) helped explain why a compassionate mind (high self-compassion, low fears of compassion) was linked to reduced risk factors for doping.

Table 1.4

Multi-country comparison of direct and indirect effects of self-compassion, fear of self-compassion in sport, and fear of compassion from others in sport on doping moral disengagement and doping willingness via deflated reality in sport, resilient coping, and fear of failure.

	UK Sample			China Sample			US Sample		
	Estimate	*p*	*95% CI*	*Estimate*	*p*	*95% CI*	*Estimate*	*p*	*95% CI*
Direct paths									
DRS→DMD	**.35**	**.01**	**[.08, .61]**	**.20**	**.02**	**[.04, .37]**	**-.23**	**.00**	**[-.34, -.12]**
DRS→DWI	**.19**	**.01**	**[.04, .35]**	.09	.44	[-.13, .30]	-.02	.73	[-.11, .08]
RC→DMD	**-.24**	**.03**	**[-.46, -.02]**	**-.17**	**.03**	**[-.31, -.03]**	**-.28**	**.00**	**[-.38, -.19]**
RC→ DWI	**-.19**	**.03**	**[-.36, -.02]**	-.03	.75	[-.21, .15]	-.12	.17	[-.29, .05]
FOF→DMD	**-.33**	**.01**	**[-.56, -.09]**	**.24**	**.01**	**[.07, .41]**	.07	.61	[-.19, .32]
FOF→ DWI	**-.55**	**.00**	**[-.79, -.31]**	.11	.29	[-.09, .30]	.09	.28	[-.08, .26]
SC→DMD	.03	.83	[-.21, .26]	.17	.09	[-.03, .37]	.02	.83	[-.19, .24]
SC→ DWI	.13	.14	[-.04, .29]	.14	.14	[-.02, .30]	.15	.20	[-.08, .39]
SC→DRS	**-.40**	**.00**	**[-.59, -.20]**	.10	.22	[-.07, .27]	**-.44**	**.00**	**[-.62, -.28]**
SC→RC	**.29**	**.00**	**[.10, .48]**	**.27**	**.01**	**[.08, .47]**	.10	.35	[-.11, .29]
SC→FOF	**-.24**	**.01**	**[-.41, -.07]**	**-.21**	**.01**	**[-.38, -.05]**	**-.57**	**.00**	**[-.71, -.43]**
FSC→DMD	.14	.20	[-.07, .35]	**-.21**	**.04**	**[-.43, -.01]**	**.21**	**.00**	**[.13, .28]**
FSC→ DWI	**.17**	**.04**	**[.03, .37]**	**-.18**	**.04**	**[-.36, -.01]**	**.15**	**.00**	**[.07, .23]**
FSC→DRS	**.25**	**.01**	**[.07, .43]**	**.25**	**.00**	**[.12, .37]**	.05	.62	[-.15, .22]
FSC→RC	.03	.88	[-.33, .38]	**.22**	**.03**	**[.02, .43]**	**-.22**	**.00**	**[-.37, -.10]**
FSC→FOF	.12	.20	[-.06, .30]	.14	.21	[-.08, .36]	-.07	.60	[-.34, .20]
FCO→DMD	.11	.26	[-.08, .29]	.14	.18	[-.06, .35]	.11	.16	[-.04, .27]
FCO→ DWI	.09	.45	[-.15, .34]	**.38**	**.00**	**[.18, .57]**	**.34**	**.00**	**[.18, .49]**
FCO→DRS	**.18**	**.03**	**[.02, .35]**	**.18**	**.04**	**[-.01, .37]**	.09	.19	[-.05, .20]
FCO→RC	-.15	.20	[-.38, .08]	.09	.49	[-.17, .34]	-.10	.10	[-.22, .02]
FCO→FOF	**.26**	**.00**	**[.10, .42]**	**.28**	**.01**	**[.08, .48]**	-.10	.18	[-.25, .05]
Indirect paths									
SC→DRS→DMD	**-.14**	**.01**	**[-.23, -.04]**	.02	.15	[-.01, .05]	**.10**	**.01**	**[.03, .17]**
SC→RC→DMD	-.07	.16	[-.20, .03]	-.04	.18	[-.09, .02]	-.03	.34	[-.09, .03]
SC→FOF→DMD	**.08**	**.04**	**[.01, .16]**	**-.05**	**.04**	**[-.10, -.01]**	-.04	.61	[-.18, .11]
SC→DRS→DWI	**-.08**	**.03**	**[-.14, -.01]**	.01	.48	[-.02, .03]	.01	.74	[-.04, .05]
SC→RC→DWI	**-.06**	**.04**	**[-.13, -.01]**	-.01	.45	[-.06, .04]	-.01	.34	[-.04, .01]
SC→FOF→DWI	**.13**	**.01**	**[.04, .23]**	-.02	.24	[-.06, .02]	-.05	.26	[-.14, .04]
FSC→DRS→DMD	**.09**	**.04**	**[.01, .17]**	**.05**	**.03**	**[.01, .10]**	-.01	.60	[-.06, .03]
FSC→RC→DMD	.00	.88	[-.09, .07]	-.03	.25	[-.08, .12]	**.06**	**.01**	**[.02, .11]**
FSC→FOF→DMD	-.04	.25	[-.10, .03]	.03	.22	[-.02, .09]	-.01	.79	[-.04, .03]
FSC→DRS→DWI	**.05**	**.04**	**[.01, .10]**	.02	.47	[-.04, .08]	.00	.71	[-.01, .01]
FSC→RC→DWI	-.01	.88	[-.07, .06]	-.01	.76	[-.05, .04]	.03	.13	[-.01, .06]
FSC→FOF→DWI	-.07	.26	[-.18, .05]	.02	.40	[-.02, .05]	-.01	.71	[-.04, .03]
FCO→DRS→DMD	.06	.14	[-.02, .15]	.04	.18	[-.02, .09]	-.02	.20	[-.05, .01]
FCO→RC→DMD	.04	.21	[-.02, .09]	-.01	.50	[-.05, .02]	.03	.13	[-.01, .06]
FCO→FOF→DMD	**-.09**	**.04**	**[-.16, -.01]**	**.07**	**.04**	**[.01, .13]**	-.01	.48	[-.03, .01]
FCO→DRS→DWI	**.04**	**.04**	**[.01, .08]**	.02	.52	[-.03, .06]	.00	.73	[-.01, .01]
FCO→RC→DWI	.03	.32	[-.03, .09]	.00	.79	[-.02, .02]	.01	.41	[-.02, .04]
FCO→FOF→DWI	**-.14**	**.01**	**[-.25, -.04]**	.03	.36	[-.03, .09]	-.01	.10	[-.03, .01]

Note. DMD = *Doping Moral Disengagement*, DWI = *Doping Willingness*, DRS = *Deflated Reality in Sport*, RC = *Resilient Coping*, FOF = *Fear of Failure*, SC = *Self-Compassion*, FSC = *Fear of Self-Compassion*, FCO = Fear of Compassion from Others, CI = Confidence Interval. Multigroup (UK, China, US) cluster-controlled (athletes nested in coaches) path model (SC/FSC/FCO as predictors, DRS/RC/FOF as mediating factors, DMD/DWI as outcome variables) were conducted. Model fit was good (i.e., Rχ2 = 35.08, *df* = 9, p = .00; CFI = .94, RMSEA = .08, SRMR = .04. All estimates were completed standardised.

Results – Work Package 2

Preliminary analyses

A total of six (1.2%) participants were found missing in the cluster variable (i.e., coach information) and twelve (2.4%) participants were found missing in an independent/exogenous variable (i.e., missing data in SPFS, DRSS, or BRCS at the construct level) who did not fulfil the data analysis requirements and thus were excluded for further analysis. Missing in the dependent/endogenous variables (i.e., missing data in DMDS-S, DWISS at the construct level) were less than 3.6% of the total sample, of which such missing can be addressed via the Full Information Maximum Likelihood approach (FIML; see Hirose et al., 2015) enabled by the MLR estimator in Mplus we used for model testing. As such, no participants were excluded due to missing in one or more dependent/endogenous variables. Skewness and kurtosis of all study variables were within ± .73 and ± .99, respectively, providing support to data normality. Composite reliability of study measures was .72-.86 for the UK sample, .82-.89 for the China sample, and .75-.93 for the US sample, suggesting satisfactory internal consistency (i.e., .70, .80, .90 as cut-off for good, very good, and excellent reliability).

Correlation analysis revealed consistent, moderate-to-large association between doping moral disengagement and doping willingness in all study countries. Resilient coping was negatively correlated to doping moral disengagement at small-to-moderate levels. Deflated reality in sport was correlated significantly and positively to doping moral disengagement and doping willingness in the UK and China at small to moderate levels, of which the correlations were not significant for the US. Sport fantasy proneness was significantly and negatively correlated with lowed doping moral disengagement in the UK but not China and US. Table 2.1 presents the descriptive statistics and the zero-order correlation of study variables.

Table 2.1
Descriptive statistics, composite reliability, and Pearson's correlation of study variables among UK, Chinese, and US samples.

	M	SD	1	2	3	4	5
UK (176 in total)							
1. DMDS-S	2.54	1.65	(.76)				
2. DWISS	2.53	.96	**.57**	(.86)			
3. SFPS	4.26	1.01	**-.21**	-.04	(.81)		
4. DRSS	3.91	1.02	**.27**	**.20**	-.12	(.76)	
5. BRCS	3.40	.79	**-.32**	**-.24**	**.31**	-.15	(.72)
China (164 in total)							
1. DMDS-S	2.09	1.18	(.87)				
2. DWISS	1.97	.93	**.46**	(.88)			
3. SFPS	3.98	1.30	.11	-.01	(.89)		
4. DRSS	3.77	1.02	**.18**	**.17**	.11	(.86)	
5. BRCS	3.50	.81	**-.13**	.02	**.37**	.07	(.82)
US (159 in total)							
1. DMDS-S	2.23	1.49	(.80)				
2. DWISS	1.52	.74	**.64**	(.93)			
3. SFPS	4.21	1.34	.05	.14	(.88)		
4. DRSS	3.99	1.12	-.07	.09	.10	(.89)	
5. BRCS	3.69	.70	**-.27**	-.13	.15	-.05	(.75)

Note. DMDS-S = *Doping Moral Disengagement Scale-Short*; DWISS = *Doping Willingness in Sport Scale*; HSNS = *Hypersensitive Narcissism Scale*; DRSS = *Deflated Reality in Sport Scale*; BRCS = *Brief Resilient Coping Scale*. Score range is 1-5 for DWISS, BRCS; 1-7 for DMDS-S, DRSS, SFPS, DRSS. Pairwise deletion was applied to retain any participants with partial missing for the correlation analysis. Significant correlation coefficients at .05 alpha level are presented in bold. Composite reliability scores are presented in parentheses.

Main Analyses

We compared a series of clustered multi-variate (i.e., doping moral disengagement, doping willingness) multi-group (i.e., UK, China, US) moderation analyses by introducing different combination of fixed (i.e., invariance across countries) and random (i.e., varying across countries) effects to model testing. Test and comparison of four baseline models (i.e., M2.1-M2.4) examining the interaction between sport fantasy proneness (SF) and deflated reality in sport (DR) suggested that M2.3 with constrains for random main effects of SF/DR and a fixed effect of their interaction across countries appeared to be the best-fit model (R$\mathcal{X}^2$= 3.32, *df* = 4; CFI = 1.00, RMSEA = .01, SRMR = .02). As such, results supported that the independent, main effects of SF and DR on doping moral disengagement and doping willingness varied across countries, but the way VN and GN interactively influence risks factors for doping was invariant in all study countries. We therefore further built and tested the 3-way interaction between sport fantasy proneness, deflated reality in sport, and resilient coping (RC) based on M2.3. Table 2.2 presents all model testing details.

Further testing and comparison of M2.5-M2.8 that were built based on different combination of fixed (i.e., invariant across study countries) and random (i.e., varying across study countries) effects involving resilient coping as a second moderator suggested M2.5 was the best-fit model (R$\mathcal{X}^2$= 35.2, *df* = 20; CFI = .95, RMSEA = .07, SRMR = .04), which provided support to fixed main effects of resilient coping and fixed SF × DR × RC interaction across study countries. We therefore interpret the M2.5 for understanding the relative risk of sport fantasy proneness and deflated reality in the context of doping moral disengagement and doping willingness, whilst examining the protection of resilient coping of such risks (*see Table 2.2 for model comparison details*).

Table 2.2
Fit indices and χ^2 difference tests of nested models for model confirmation and multi-country comparison using multi-group (UK, China, US) multivariant (doping moral disengagement, doping willingness) cluster-controlled (athletes nested in coaches) path analysis.

	Rχ^2	**df**	**CFI**	**RMSEA**	**SRMR**	**Comparison**	**ΔRχ^2**	**Δdf**
Baseline SFPS × DRSS models								
2.1. Fixed main effects, fixed 2-way effect (M1)	25.68	12	.92	.08	.07			
2.2. Fixed main effects, random 2 -way effect (M2)	27.98	8	.88	.13	.06	M2.2 vs M2.1	2.35	4
2.3. Random main effects, fixed 2-way effect **(M3†)**	3.32	4	1.00	.01	.02	**M2.3**† vs M2.1	22.93 *	8
2.4. Random main effects, random 2-way effect (M4, saturated)	0	0	1.00	.00	.00	M2.4 vs **M2.3**†	3.32	4
SFPS × DRSS × RC models								
2.5. M3 + fixed RC main effect, fixed RC 2-way effects, fixed 3-way effect **(M5†)**	35.20	20	.95	.07	.04			
2.6. M3 + random RC main effect, fixed RC 2-way effects, fixed 3-way effect (M6)	28.13	16	.95	.07	.03	M2.6 vs **M2.5**†	7.07	4
2.7. M3 + fixed RC main effect, fixed RC 2-way effects, random 3-way effect (M7)	35.62	16	.92	.09	.04	M2.7 vs **M2.5**†	3.12	4
2.8. M3 + fixed RC main effect, random RC 2-way effects, fixed3-way effect (M8)	26.17	12	.94	.09	.04	M2.8 vs **M2.5**†	10.18	8

Note. Fixed and random effect indicates invariant (no across-country difference) vs variant (potential across-country difference) regression coefficients across countries, respectively. SFPS, DRSS, RC indicates *Sport Fantasy Proneness*, *Deflated Reality, Resilient Coping*, respectively. Rχ^2=robust Chi-square; *df* = degrees of freedom; CFI=robust comparative fit index; RMSEA=root mean square error of approximation; SRMR = standardized root means square residual; ΔRχ^2 = robust scale adjusted Chi-square reduction; Δdf = reduction in degree of freedom in the nested model. * indicates significant Chi-square change at .05 alpha level (thus a better-fit model). † remarks the selected model based on Chi-square difference test and model simplicity (greater degree of freedom).

SF × DR × RC Interaction on Doping Moral Disengagement

The best-fit SF × DR × RC model (M2.5) explained 14.6%, 13.9%, and 9.3% variance in doping moral disengagement in UK, China, and US athletes, respectively. Resilient coping consistently appeared to mitigate risk of doping moral disengagement, which was invariant in all study countries (β = -.35, p = .00; 95% CI [-.48, -.22]). Sport fantasy proneness was related to increased doping moral disengagement in China (β = .30, p = .01; 95% CI [.08, .53]) and US (β = .17, p = .00; 95% CI [.07, .28]) but not UK (β = -.19, p = .21; 95% CI [-.48, .11]). Deflated reality in sport contributed to increased doping moral disengagement in the UK (β = .35, p = .01; 95% CI [.09, .61]) and China (β = .22, p = .00; 95% CI [.07, .37]) but not US (β = -.13, p = .06; 95% CI [-.25, .01]). The SF × DR × RC interaction was non-significant, which was invariant across all study countries (β = -.02, p = .61; 95% CI [-.09, .06]). However, the DR × RC interaction was significant and consistent in all study countries (β = .11, p = .03; 95% CI [.01, .22]). For UK athletes (*see Figure 2.1 top panel*), simple slope analysis suggested that, although deflated reality was related to greater doping moral disengagement when resilient coping was high (β = .46, p = .00; 95% CI [.18, .74]) compared to low (β = .23, p = .10; 95% CI [-.05, .51]), lowest level of doping moral disengagement was observed under low deflated reality but high resilient coping. Similar for China athletes (*see Figure 2.1 middle panel*), deflated reality was related to greater doping moral disengagement when resilient coping was high (β = .33, p = .00; 95% CI [.17, .50]) compared to low (β = .11, p = .30; 95% CI [-.09, .30]), but individuals with a combination of high resilient coping and low deflated reality appeared to be lowest in such risk. For the US athletes (*see Figure 2.1 bottom panel*), deflated reality was related to more decreased doping moral disengagement when resilient coping was low (β = -.24, p = .01; 95% CI [-.42, -.06]) compared to high (β = -.01, p = .88; 95% CI [-.16, .13]); regardless, the lowest levels of doping moral disengagement remained in those who were high in resilient coping.

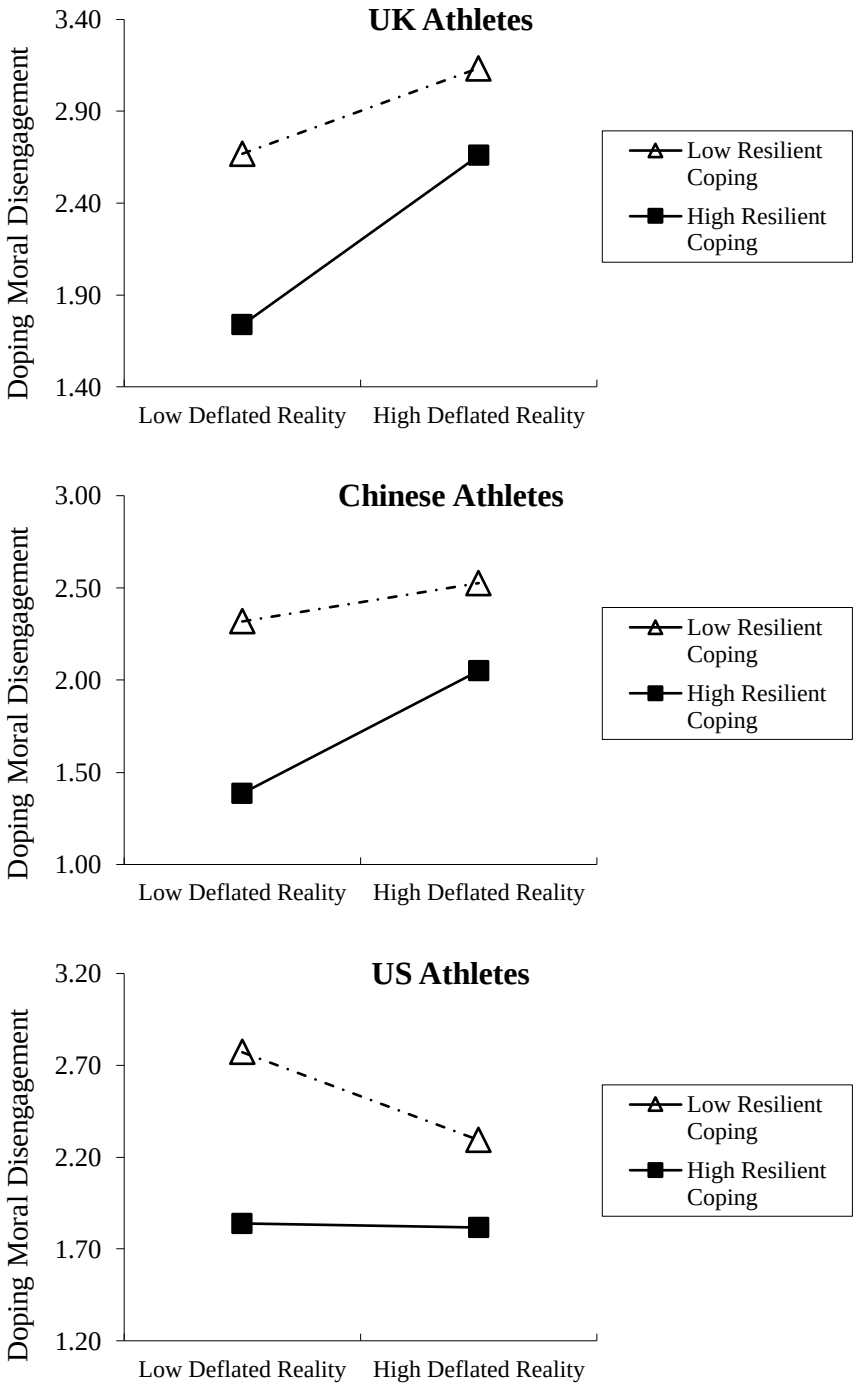

Figure 2.1

The *deflated reality in sport* × *resilient coping* interaction on *doping moral disengagement* among UK (top), Chinese (middle), and US (bottom) athletes. Coach of athletes controlled as the cluster variable (i.e., random intercept allowed across athletes nested within different coaches). High and low values are derived from mean plus and minus 1SD, respectively.

SF × DR × RC Interaction on Doping Willingness

The best-fit SF × DR × RC model (M2.5) explained 6.8%, 5.2%, and 7.1% variance in doping willingness in UK, China, and US athletes, respectively. Resilient coping consistently alleviated doping willingness, in all study countries (β = -.12, p = .01; 95% CI [-.20, -.04]). Sport fantasy proneness was related to increased doping willingness in the US (β = .10, p = .01; 95% CI [.03, .18]) but not in the UK (β = -.03, p = .76; 95% CI [-.20, .15]) nor China (β = .04, p = .63; 95% CI [-.12, .20]). Deflated reality in sport consistently predicted increased doping willingness despite different effect sizes observed in the UK (β = .24, p = .00; 95% CI [.11, .38]), China (β = .19, p = .04; 95% CI [.01, .37]), and US (β = .09, p = .01; 95% CI [.02, .16]).

Importantly, the SF × DR × RC interaction was significant and invariant across study countries (β = -.07, p = .04; 95% CI [-.10, -.03]). For the UK athletes (*see Figure 2.2 top panel for illustration*), simple slope analysis revealed that, when resilient coping was low, increase in sport fantasy proneness was related to decreased doping willingness when perceived deflated reality was low (β = -.13, p = .21; 95% CI [-.34, .08]) not high (β = -.00, p = .97; 95% CI [-.24, .23]). However, when resilient coping was high, sport fantasy proneness was related to a great reduction in doping willingness when deflated reality was high (β = -.06, p = .60; 95% CI [-.27, .16]) compared to low (β = .09, p = .39; 95% CI [-.11, .29]). For China (*see Figure 2.2 middle panel*), simple slope analysis revealed that, when resilient coping was low, contrasting relationships between sport fantasy proneness and doping willingness were observed comparing deflated reality at low (β = -.07, p = .53; 95% CI [-.27, .14]) and high levels (β = .06, p = .59; 95% CI [-.16, .28]). Meanwhile, when resilient coping was high, sport fantasy proneness predicted increased doping willingness when perceived deflated reality was low (β = .15, p = .12; 95% CI [-.04, .35]) not high (β = .01, p = .94; 95% CI [-.18, .20]). For the US athletes (*see Figure 2.2 bottom panel*), when resilient coping was low,

increase in sport fantasy proneness was related to greater doping willingness when athletes' sense of deflated reality was high (β = .12, p = .12; 95% CI [-.04, .28]) not low (β = .00, p = .97; 95% CI [-.17, .16]). In contrast, when resilient coping was high, sport fantasy proneness contributed to greater increase in doping willingness when deflated reality was low (β = .22, p = .00; 95% CI [.10, .33]) compared to high (β = .07, p = .35; 95% CI [-.08, .22]). Overall, a combination of low sport fantasy proneness, low perceived deflated reality in sport, together with a high level of resilient coping appeared to be the lowest-risk profile in doping willingness across all study countries.

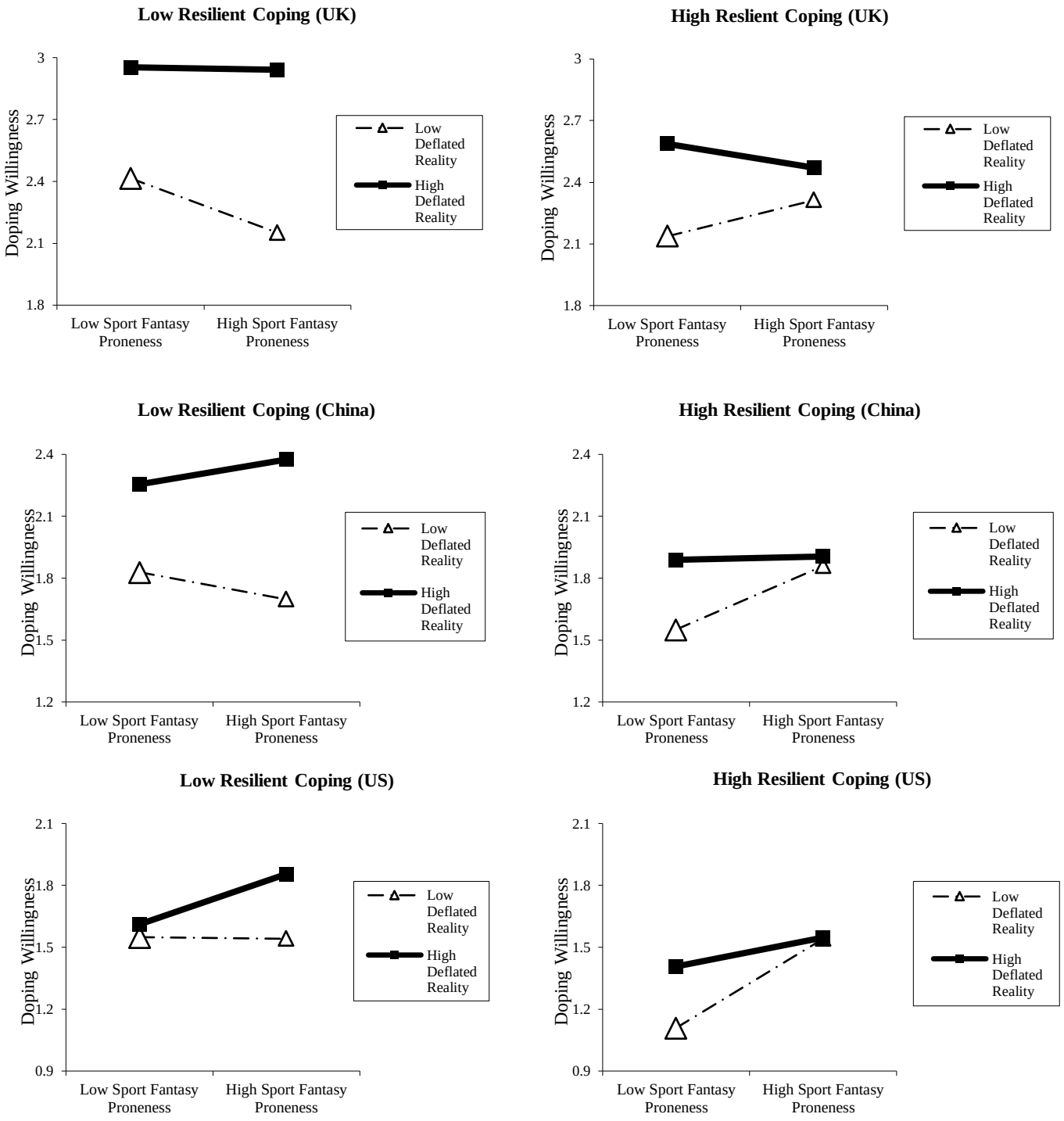

Figure 2.2

The *sport fantasy proneness* × *deflated reality in sport* × *resilient coping* interaction on *doping willingness* among UK (top panel), Chinese (middle panel), and US (bottom panel) athletes. Coach of athletes controlled as the cluster variable (i.e., random intercept allowed across athletes nested within different coaches). High and low values are derived from mean plus and minus 1SD, respectively.

Discussions of Findings

Examining psychological risk and protective factors in doping is one of the highlighted social science research agenda for anti-doping (Boardley et al., 2021). Tackling this social science research priority and embracing a multi-country perspective, the current research project primarily investigated narcissism-related risk, compassion-related protection, and the relevant underlying psycho-behavioural factors in the context of doping in the UK, China, and US (Work Package 1). To offer more insights into how athletes' selves or person-level characteristics related to narcissism and compassion interactively influence risks factors for doping, we further examined an alternative, related perspective that posits the fantasy-reality discrepancy in sport (related to narcissism) as a risk and the resilient coping (related to self-compassion) as a protection in risk factors for doping (Work Package 2). We examined our hypotheses in a multi-country sample of high-level athletes (80% competing at national or international levels) from UK (23 sports), China (16 sports), and US (16 sports).

In data analyses for the Work Package 1, we consistently found inflated risk in doping moral disengagement and doping willingness associated with vulnerable narcissism, whilst grandiose narcissism appeared to offer potential protection to such risks. In general, self-compassionate mind in athletes (i.e., high self-compassion, low fear of self-compassion, low fear of receiving compassion from others) offered protection against narcissism-related doping risks; however, such protections could vary in certain circumstances. Resilient coping appeared to be the most consistent mechanistic factor (compared to fear of failure and deflated reality in sport) that explained narcissism-related risk and compassion-related protection. In data analyses for the Work Package 2, we found a consistent interaction between sport fantasy proneness and deflated reality, supporting the fantasy-reality discrepancy in sport as a risk in doping. Importantly, resilient coping appeared to alleviate risk in doping associated with the fantasy-reality discrepancy, which was invariant for all

study countries. We also identified several critical cross-country differences, of which the key ones referred to the role of grandiose narcissism, the influences of fear of self-compassion, and the effect of fear of failure in the context of doping. We discuss the important findings as below.

Vulnerable vs Grandiose Narcissism in the Context of Doping

First, data from the current project provided new evidence to support Zhang and Boardley's (2022) preliminary finding that it is vulnerable (not grandiose) narcissism that requires attention as a critical risk factor in the context of doping. Specifically, vulnerable × grandiose narcissism interaction consistently predicted doping moral disengagement in the UK, China, and UK, after addressing the nested effect of coach (i.e., athletes nested in coach) thus controlling for between-coach differences or coach-level confounding on doping. Notably, vulnerable narcissism was related to increased doping when grandiose narcissism was low in all countries; however, when grandiose narcissism was high, vulnerable narcissism's positive link to doping moral disengagement was buffered in the China and US (similar to Zhang and Boardley's 2022 preliminary finding in UK-based athletes) but became negative (indicating reduced doping risk) in the UK (new to the literature). Regardless of the cross-country differences in grandiose narcissism's role in the context of doping, the findings are consistent in that grandiose narcissism is not a critical risk factor for doping despite previous conceptualisation (e.g., Nicholls et al., 2017, 2019) and could provide some benefits for clean sport (i.e., buffering the risk associated with vulnerable narcissism).

The adaptive role of grandiose narcissism also received support from wider literature in sport and performance, such as greater effort in pressured settings (Roberts et al., 2019), superior task and affect regulation under anxiety-provoking performance conditions (Zhang et al., 2020), and mental toughness (Manley et al., 2019). According to the psycho-behavioural mechanistic analyses in the current study, grandiose

narcissism was significantly associated with greater resilient coping (in China/US), reduced fear of failure (in China/US), and alleviated sense of deflated reality in sport (in UK/US). For comparison, vulnerable narcissism manifested counter effects as grandiose narcissism, linked to poorer resilient coping (in UK/US) and greater fear of failure and deflated reality in all countries. The divergent effects of grandiose and vulnerable narcissism on psycho-behavioural underpinnings (i.e., resilient coping, fear of failure, perceived deflated reality) could explain their distinct roles in the context of doping.

Compassion's Protection in Doping: Conditions matter

Second, findings from the current project offer support to the effectiveness of a self-compassionate approach in alleviating narcissism-related risk in the context of doping, especially that related to doping willingness. Specifically, high self-compassion and low fear of self-compassion both appeared to attenuate the relationship between vulnerable narcissism and doping willingness, of which such benefit is more prominent as grandiose narcissism was at a high level. This is in line with Zhang et al.'s (2024) findings that a high grandiose narcissism high self-compassion profile in a sample of UK-based (semi-)professional footballers reported the lowest levels of antisocial behaviours in sport thus higher morality. Given that individuals high in grandiose narcissism may benefit more from self-compassion, incorporating a self-compassionate approach to training, performance and talent development in sport is likely to be more beneficial to those competing at higher levels as they tend to report higher grandiose narcissism (Roberts et al., 2018).

However, we observed such a narcissism × self-compassion interaction only in doping willingness but not doping moral disengagement in the current multi-country sample. This might be due to the conceptual differences between doping moral disengagement (i.e., reflecting the psycho-social mechanisms that allow individuals to dope without

experiencing unpleasant affect such as guilt; see Boardley et al., 2018) and doping willingness (i.e., reflecting an individual's openness to use of banned substances in under difficult, risk conducive situations in training and performance; see Stanger et al., 2020). The effectiveness of self-compassion in modulating narcissism-related doping willingness (not doping moral disengagement) suggests that a self-compassionate approach offers an effective coping strategy to resist intention to dope (thus reduced doping willingness) but may not promote morality in sport (thus ineffective in doping moral disengagement). As such, incorporating self-compassion for clean sport education should not replace the existing value-based programmes (e.g., Kavussanu et al., 2021) but act as an extra layer of support that has yet to receive much attention (i.e., compassion-centred coping strategies to resist doping).

Different to self-compassion and fear of self-compassion that moderated narcissism-related risk in doping willingness but not doping moral disengagement, fear of receiving compassion from others modulated both aspects of risks in doping thus tackling not only the psycho-social mechanisms of doping (thus doping moral disengagement) but also the coping strategies and intentions in doping (thus doping willingness). The moderation effect of fear of receiving compassion from others on doping moral disengagement might be due to the social dynamics of how one views and receive compassion expressions from others (Gilbert, 2015; Gilbert & Mascaro, 2017). Specifically, if one tends to see compassion expressions by others more a warmth or care rather than a devaluing or ego threat and applies the same caring motives to themselves and others, these individuals may be more likely to connect themselves to others and less likely to apply advantageous comparison (e.g., rationalise doping via comparing it to other unhealthy lifestyle) or diffusion of responsibility (e.g., rationalise doping via lowering standards and expectations and diffusing responsibilities to others). Interestingly, the moderation of one's fearful feelings toward receiving compassion from others in risk factors for doping

was observed in relation to grandiose but not vulnerable narcissism. This might be due to grandiose not vulnerable narcissism playing a more vital and adaptive role in one's social and interpersonal relationship (Campbell et al., 2006; Dickinson & Pincus, 2003; Feng et al., 2012b; Grijalva et al., 2015). Future research should consider further examining which aspects of self-compassion or fears of compassion towards oneself and narcissism dovetail thus interactively influence doping and other health, social, or performance related outcomes in sport.

Psycho-Behavioural Mechanisms: Consistency and Differences Across Study Countries

Another novelty of the current research was the test of psycho-behavioural mechanisms of narcissism and compassion in the context of doping. We posited that psycho-behavioural factors that contribute to athletes' mental states and behaviours under difficult times should explain narcissism-related risk and compassion-related protection, and thus tested the extent to which resilient coping, fear of failure, and sense of deflated reality in sport underlined the narcissism-doping and compassion-doping relationship. The findings suggest that resilient coping is the strongest protective factor compared to fear of failure and deflated reality in sport, consistently predicting reduced doping moral disengagement and doping willingness in all study countries. More importantly, vulnerable narcissism manifested an amplifying indirect effect on doping moral disengagement and doping willingness via undermined resilient coping, whilst grandiose narcissism manifested an attenuating indirect effect on doping moral disengagement and doping willingness via enhanced resilient coping (significant in UK but marginal and in the same line in China/US). Similarly to grandiose narcissism, self-compassion also demonstrated a negative indirect effect on the doping moral disengagement and doping willingness via increased self-compassion despite marginal or non-significance for China and US. The findings in general support resilient coping being a

critical mechanistic factor that can explain narcissism and compassion's influences in risk factors for doping.

Different to the consistency in findings relating to resilient coping, the role of fear of failure appeared to be contrasting across countries, especially when comparing China and the UK. Fear of failure is commonly considered a negative psychological factor in sport (Conroy et al., 2002) and education (Rice et al., 2009) settings, associated with undesirable psycho-behavioural states such as aggression and antisocial behaviours (Sagar et al., 2011) and performance anxiety (Conroy & Coatsworth, 2004). We predicted fear of failure to account for narcissism-related risk and compassion-related protection in the context of doping, because athletes who are more fearful of failure may be more prone to use of banned substances in order to avoid performance failure. However, surprising findings emerged, that fear of failure contributed to increased doping moral disengagement and doping willingness in China (align to hypothesis) but a reduction in these doping risk factors in the UK (contradicting the hypothesis). This contrasting effect of fear of failure led to conflicting indirect effect of vulnerable narcissism on doping moral disengagement and doping willingness via increased fear of failure – such indirect effect attenuated doping risk in the UK (unexpected) but amplifying doping risk in China (expected). The results at least suggested fear of failure is not always a bad thing in sport and performance, and potential moderators may exist within the relationship between fear of failure and doping which should invite further research attention.

Another possible mechanistic factor tested in the current research was athletes' perceived deflated reality in sport. A sense of deflated reality in sport is related to increased psychological strain, distress, and pessimistic orientation in athletes (Zhang & Boardley, 2023). It can magnify the discomfort of incongruence between a (overly) positive self-image and the reality (McCain et al., 2015) but may be protected by self-compassionate mind (Neff, 2023). We, therefore, predicted it to be a more proximal influencer or risk factor within the narcissism-doping and

compassion-doping relationship. However, results from data analysis suggested that a greater sense of deflated indeed contributed to inflated risks in doping for UK and Chinese athletes (expected) but was related to reduced doping risks in the US athletes (unexpected). This also led to contradicting indirect effects of self-compassion on doping moral disengagement and doping willingness via deflated reality in sport for the UK versus US athletes. That is, self-compassion associated reduction in the sense of deflated reality accounted for an attenuating effect in risk factors for doping for the UK athletes but a magnifying effect in the same risk factors for the US athletes. These findings, again, suggested the existence of potential moderator(s) that can modulate the influence of deflated reality in sport. Data analysis for the work package 2 provided insights on this.

Fantasy-Reality Discrepancy and Resilient Coping

Up to this point, the discussion of findings is based on data analyses and results from the Work Package 1. We are to unfold the work package 2 results as follow. Specifically, the work package 2 examined risks associated with the interaction between sport fantasy proneness and deflated reality in sport (indicating fantasy-reality discrepancy) in doping and the moderation or protection of resilient coping on such risks. When assessing doping moral disengagement in relation to sport fantasy proneness, deflated reality, and resilient coping, despite the random or varying effects of sport fantasy proneness and deflated reality, the main effect of resilient coping and the interaction between deflated reality and resilient coping were significant and invariant across UK, China, and US. In general, resilient coping buffered the doping risks associated with increased sense of deflated reality in sport, with the lowest levels of doping moral disengagement observed in individuals high in resilient coping and low in perceived deflated reality. However, it is noteworthy that the attenuating effect of resilient coping on doping moral disengagement appeared to be more prominent for those who perceived less deflated reality in sport compared to their counterparts. According to this finding, one would argue

that when incorporating resilient coping training for clean sport, embedding an element of fostering growth mindset or optimism is particularly helpful.

When assessing doping willingness, sport fantasy proneness appeared to play a role and interacted with deflated reality and resilient coping, of which the effects were invariant or consistent across UK, China and US. To expand the findings, sport fantasy proneness was in general related to attenuated doping willingness when deflated reality in sport was low compared to high and when resilient coping was high compared to low. Resilient coping protected against sport fantasy related doping willingness, especially when an athlete suffered deflated reality or was overwhelmed with pessimistic feelings toward training and performance. Interestingly, such findings were only evident for doping willingness not doping moral disengagement. Given the conceptual differences between doping moral disengagement (i.e., reflecting psycho-social mechanisms of how an individual rationalise doping without guilt and other negative affects) and doping willingness (i.e., intention or openness to use prohibited substances under certain risk conducive circumstances in sport), it is possible that doping risk associated with sport fantasy proneness is rarely linked to morality but more to impulsivity or willingness with an internalised motive (e.g., to recover from injury quicker, to increase likelihood of gaining a professional contract, etc). As such, existing value-based psychological intervention for anti-doping (e.g., Kavussanu et al., 2021) is unlikely to address doping risk driven by sport fantasy proneness, and future clean sport intervention and education programme should consider tackling fantasy-reality discrepancy in athletes and incorporating a resilient coping training element.

Limitations

The current project is not without limitations. One major limitation is the cross-sectional nature of the research programme which does not provide insights into any causal interpretation. However, given its novelty

in conceptualisation, representative high-level athletes as participants, robust hypothesis testing, and the multi-country scope, the current project still offered a significant contribution to the clean sport or anti-doping literature, providing new knowledge of how different aspects of athletes' selves or person-level characteristics (e.g., narcissism, self-compassion) and dispositional tendency or state (e.g., sport fantasy proneness, deflated reality) play a risk or protective role in the context of doping. The current project is also the first of its kind taking a multi-country perspective examining differences and consistency in risk and protective factors in relating to athletes' selves and their mechanisms underlying doping. And the lack of causal interpretation does not undermine the assessment of relative risk and protective effects of the study variables. As such, cross-sectional nature may optimise the cost-effectiveness of the project despite its limitations. Future research should consider long-term evaluation or intervention programmes to tackle developmental issues related to selves and its associated risk and protective factors in doping.

Another limitation of the current project is lacking in statistical power for testing the mediation models or the hypothesised indirect effect. The multi-country sample we recruited enabled us to have sufficient power (.80) to detect small-to-moderate indirect effects (i.e., standardised beta coefficient of all paths = .25, or a completed standardised indirect effect of .0625 or above) in multi-group analyses for cross-country comparison. About half of the direct regressive paths and indirect effects tested did not achieve this anticipated effect size, and thus the non-significance in direct and indirect effects in the current study does not suggest a non-effect, but instead, a lack of power to detect such effect. Such a limitation or insufficiency in statistical power was difficult to foresee at planning stage due to lack of prior data, and we had taken a balance between cost-effectiveness and deciding an effect size that is meaningfully small (i.e., small to moderate level). Since we require data from three different countries, further increasing sample size to allow the detection of smaller

direct effects could create substantially increased burden. That is, recruiting extra 91 participants in each study countries or an addition of 273 in total only would only reduce the effect size of direct paths in the mediation model from .25 to .20), but the cost of data collection would be at least 55% higher (i.e., 277/499; the hypothetical number of extra participants divided by the current number of sample). In fact, the actual cost of data collection would be even greater due to the already demanding sample size requirements and the high-level athletes we targeted (80% competing at national or international levels). Regardless, the major analyses in the current study was to examine the interaction effect of narcissism and compassion which relied on the test of regressive coefficients, our priority was to ensure sufficiency of sample size in detecting a small-to-moderate regressive and moderation effect (i.e., Cohen's f^2 = .05), which was satisfied and sufficient to detect the hypothesised interaction effects.

Lastly, we only examined the extent to which resilient coping, fear of failure, and deflated reality in sport explained the influences of narcissism and compassion in the doping moral disengagement and doping willingness but were unable to consider other possible mechanistic factors neither examined other risk indicators for doping such as doping self-regulatory efficacy (Boardley et al., 2018) and doping susceptibility (Gucciardi et al., 2010). We chose to test resilient coping, fear of failure, and deflated reality based on our theorising of narcissism-related risk and compassion-related protection. And it is argued that doping self-regulatory efficacy is a close correlate and antecedent of doping moral disengagement (Boardley et al., 2018), whilst doping willingness captures proxies of doping indicated by doping susceptibility and assesses such a behavioural intention under varied relevant and risk conducive situations in sport (Stanger et al., 2020). Future study could examine other alternative mechanistic factors underlying narcissism-doping and/or compassion-doping relationship based on a sound theory.

Recommendations and Implications

The current project offered robust multi-country evidence that cultivating a self-compassionate mind in athletes (i.e., high self-compassion, low fears of compassion) protects against narcissism-related risk in doping, of which the effect is generally underlined by enhanced resilient coping in all study countries. Resilient coping also alleviated risk factors for doping driven by the fantasy-reality discrepancy, which appears invariant across the UK, China, and US. Therefore, future research should consider design, deliver, and evaluate new anti-doping education or intervention programmes that take a self-compassionate approach to foster resilient coping in athletes so as to enhance the resist to intentional doping under adversities or high fantasy-reality discrepancy.

Besides interventional studies, long-term research that embraces a longitudinal, cohort design to track the development of risk and protective factors in doping is also a critical area of attention. The developmental trajectory of person-level risk (e.g., narcissism, sport fantasy proneness) and protective (e.g., self-compassion, resilient coping) may vary as a function of age, sport experience, and social environments. Identifying the critical time of and influencers contributing to the development in psychological risk and protective factors for doping could inform when to implement what intervention.

Future policies should consider addressing the critical role person-level chrematistics play in doping. Our findings reveal that the intention proxies of doping behaviours are largely driven by low self-compassion and poor or inability in coping, thus using prohibited substances offers a shortcut to fulfil performance satisfaction and ease the discomfort of fantasy-reality discrepancy. As such, future policy should direct efforts and investments in clean sport to facilitate the cultivation of a self-compassionate mind and strengthening in athletes resilient coping capacity (thus resisting doping and maintaining routine training/performance).

Dissemination and Future Plans

We have secured a symposium titled "*Doping in Sport: How Research Can Inform and Influence Anti-Doping Efforts*" at the 2024 European Congress of Sport Psychology (the FEPSAC congress) in Innsbruck, Austria, 15-19 July, 2024. The convenor of this symposium is Professor Ian Boardley (the lead Co-I of the project), whilst the Dr Shuge Zhang (the PI of the project) is a co-convenor and speaker and will present the Work Package 1 at the symposium. The other co-convenors and speakers include Professor Nikos Ntoumanis, Professor Vassilis Barkoukis, and Professor Cornelia Blank. Besides the FEPSAC symposium, Shuge will present findings from the Work Package 2 at the WADA Global Education Conference in Cannes, France, 27-29 February, 2024, where two key Co-Is of the project (i.e., Professor Ian Boardley, Dr Jules Woolf) will both attend.

During 8th March – 5th April 2024, Dr Shuge Zhang will be visiting Hunan University of Technology (China) where Shuge is appointed an honorary/visiting Professor. During his visit, Shuge will deliver a research seminar about this project and call for future international collaborative social science research project. Shuge's research seminar in Hunan University of Technology (China) will not only serve a dissemination purpose but is also expected to open and initiate a new collaboration that is expected to contribute to an application for the 2025 WADA-SSR grant from Hunan University of Technology (China).

In addition, Shuge also disseminated the project findings and connected to Dr Amber Mosewich at University of Alberta (Canada) who is a leading compassion researcher in sport. Shuge will also discuss project findings with Laurence Halsted who is the head consultant and director at the True Athlete Project Ltd (https://www.thetrueathleteproject.org/). These activities precede the planning for a multi-country intervention programme based on the current project findings, aiming to submit to the 2025 WADA-SSR grant.

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Appendix – Study Measures

Section 1: Demographics

UK validation questions:	US validation questions:
Instruction: We would like to understand your engagement in competitive sport and would use this to determine if you are qualified for an incentive on completion of the survey. We will not use any of the information you provided below for any other purpose. **Are you currently playing on a university/regional/professional team that competes against other university/regional/professional teams?** (true or false) **What is your major sport?** (text entry) **What is the name of team you are currently competing for most of your time?** (text entry) **Who is the coach of your major sport team?** (text entry)	**Instruction:** We would like to understand your engagement in competitive sport and would use this to determine if you are qualified for an incentive on completion of the survey. We will not use any of the information you provided below for any other purpose. **Are you currently playing on a university/regional/professional team that competes against other university/regional/professional teams?** (true or false) **What is your major sport?** (text entry) **What is the name of team you are currently competing for most of your time?** (text entry) **Who is the coach of your major sport team?** (text entry)
UK demographic questions:	**US demographic questions:**
How long have you been competing in your major sport (in years)? (use a slider ranging 0-30) **The current level your are competing in your major sport:** (options are: Recreational, Regional, National, International) **The highest level of sporting event you have competed:** (options are: Recreational, Regional, National, International) **What is your age?** (use a slider ranging 18-60) **What is your sex?** (options: Female, Male, Prefer not to say) **Is the gender you identify with the same as your sex registered at birth?** (options: Yes, No, Prefer not to say) **What is your ethnic group?** (options are: White, Mixed/multiple ethnic groups, Asian or Asian British, Black/Africa/Caribbean or Black British, Other ethnic group, Prefer not to say)	**How long have you been competing in your major sport (in years)?** (use a slider ranging 0-30) **The current level your are competing in your major sport:** (options are: Recreational, Regional, National, International) **The highest level of sporting event you have competed:** (options are: Recreational, Regional, National, International) **What is your age?** (use a slider ranging 18-60) **What is your sex?** (options: Female, Male, Prefer not to say) **Is the gender you identify with the same as your sex registered at birth?** (options: Yes, No, Prefer not to say) **What is your ethnic group?** (options are: White, Mixed/multiple ethnic groups, Asian or Asian British, Black/Africa/Caribbean or Black British, Other ethnic group, Prefer not to say)

Section 2: SCSS

Please read each statement and ***indicate how often you behave in the stated manner,*** using the following scale:
请仔细阅读以下各题的陈述，根据自己最近与陈述相符的行为频度进行评分：

1 = Almost never 从不如此**;** **5 = Almost always** 总是如此

1.	When I fail at something important to me I become consumed by feelings of inadequacy. 当我在一些对自己来说重要的事情上失败后，我会不断地想自己的不足。	1 2 3 4 5
2.	I try to be understanding and patient towards those aspects of my personality I don't like. 我尽量去理解和包容自己性格中自己不喜欢的方面。	1 2 3 4 5
3.	When something painful happens I try to take a balanced view of the situation. 当一些令人痛苦的事情发生时，我尽量用平和的心一来面对。	1 2 3 4 5
4.	When I'm feeling down, I tend to feel like most other people are probably happier than I am. 当情绪低落时，我会觉得大多数人可能比我快乐。	1 2 3 4 5
5.	I try to see my failings as part of the human condition. 我尽量把自己的失败看成人生经历的一部分。	1 2 3 4 5
6.	When I'm going through a very hard time, I give myself the caring and tenderness I need. 当我经历艰难困苦时，我会关心自己、善待自己。	1 2 3 4 5
7.	When something upsets me I try to keep my emotions in balance. 遇到烦心事时，我会尽量让自己的情绪保持稳定。	1 2 3 4 5
8.	When I fail at something that's important to me, I tend to feel alone in my failure. 在一些对自己重要的事情上失败时，我容易觉得是自己一个人在承受失败，感到孤独。	1 2 3 4 5
9.	When I'm feeling down I tend to obsess and fixate on everything that's wrong. 当我情绪低落时，我容易纠结于不顺心的事情。	1 2 3 4 5
10.	When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people. 当我感到自己在某些方面不足时，我尽量提醒自己：大部分人和我一样，都不完美。	1 2 3 4 5
11.	I'm disapproving and judgmental about my own flaws and inadequacies. 对自己的缺点和不足，我持不满和批判的态度。	1 2 3 4 5
12.	I'm intolerant and impatient towards those aspects of my personality I don't like. 对于我性格中那些自己不喜欢的方面，我不能容忍。	1 2 3 4 5

Section 2: FCSS

Think about yourself when participating or competing in sport, rate below items:
想象自己在训练或比赛的场景，并对以下描述作答：

0 = Don't agree at all 完全不认同	**2 = Somewhat agree** 有一些认同	**4 = Completely agree** 完全认同

1.	I fear that if I start to develop compassion for myself, I will become dependent on it. 我担心如果我开始对自己产生同情，我会变得依赖它。	0	1	2	3	4
2.	I fear that if I become too compassionate to myself, I will lose my self-criticism and my flaws will show. 我担心如果我对自己太过同情，就会丧失自我批评的能力，缺点就会暴露出来。	0	1	2	3	4
3.	I fear that if I develop compassion for myself, I will become someone I do not want to be. 我害怕如果我对自己产生同情， 我会变成我不想成为的人。	0	1	2	3	4
4.	I fear that if I am more self-compassionate, I will become a weak person. 我害怕对自己同情会使自己成为一个软弱的人。	0	1	2	3	4

1.	I try to keep my distance from others even if I know they are kind. 即使我知道别人很善良，我也尽量与他们保持距离。	0	1	2	3	4
2.	Feelings of kindness from others are somehow frightening. 来自他人的善意不知何故令人恐惧。	0	1	2	3	4
3.	If I think someone is being kind and caring towards me, I 'put up a barrier'. 如果我觉得有人对我很好也很关心我，我也会适当保持距离。	0	1	2	3	4
4.	When people are kind and compassionate towards me, I feel anxious or embarrassed. 当人们对我友好和同情时，我感到焦虑或尴尬。	0	1	2	3	4
5.	If people are friendly and kind to me, I worry they will find out something bad about me that will change their mind. 当他人对我友好或友善，我会担心他们发现一些我的缺点并因此改变他们的想法。	0	1	2	3	4
6.	I worry that others are only compassionate to me if they want to take advantage from me. 我担心人们只有在想从我这里得到什么东西的时候才会对我善良且富有同情心。	0	1	2	3	4

Section 3: NPI

Please read each statement and ***indicate the extent to which you agree*** using the scale:

1 = Strongly disagree; 非常不同意 6 = Strongly agree 非常同意

1.	I know that I am good because everybody keeps telling me so. 我知道自己很好,因为别人一直这么跟我说。	1 2 3 4 5 6
2.	I like to be the centre of attention. 我喜欢成为注意的中心。	1 2 3 4 5 6
3.	I think I am a special person. 我觉得我是个特别的人。	1 2 3 4 5 6
4.	I like having authority over people. 我喜欢拥有支配他人的权力。	1 2 3 4 5 6
5.	I find it easy to manipulate people. 我发现操纵别人是容易的。	1 2 3 4 5 6
6.	I insist upon getting the respect that is due me. 在没有得到我想得到的东西之前, 我是永远不会满足的。	1 2 3 4 5 6
7.	I usually show off when I get the chance. 当我有机会时我就乐于表现自己。	1 2 3 4 5 6
8.	I always know what I am doing. 我总是知道我在做什么。	1 2 3 4 5 6
9.	Everybody likes to hear my stories. 每个人都喜欢听我的故事或轶事。	1 2 3 4 5 6
10.	I expect a great deal from other people. 我对别人有很高的期望。	1 2 3 4 5 6
11.	I really like to be the centre of attention. 我真的喜欢成为注意的焦点。	1 2 3 4 5 6
12.	People always seem to recognize my authority. 人们似乎总是认可我的权威。	1 2 3 4 5 6
13.	I am going to be a great person. 我将会成为一个伟大的人。	1 2 3 4 5 6
14.	I can make anybody believe anything I want them to. 我能让任何人相信我想让他 们相信的事。	1 2 3 4 5 6
15.	I am more capable than other people. 我比其他人更能干。	1 2 3 4 5 6
16.	I am an outstanding person. 我是一个非凡的人。	1 2 3 4 5 6

Section 3: HSNS

Please answer the following questions by ***deciding to what extent each item is characteristic of your feelings and behaviour.*** 请通过以下每个条目描述的情况在多大程度上反映了您的感受和行为来作答

1 = Very uncharacteristic or untrue, strongly disagree 非常不真实，非常不同意
2 = Uncharacteristic, disagree 不真实， 不同意
3 = Neutral 中性
4 = Characteristic, agree 真实，同意
5 = Very characteristic or true, strongly agree 非常真实，非常同意

1.	I can become entirely absorbed in thinking about my personal affairs, my health, my cares or my relations to others. 当我思考自己的事情、我的健康、我所关心的事， 或我与他人的关系时，我可以变得全神贯注。	1 2 3 4 5
2.	My feelings are easily hurt by ridicule or by the slighting remarks of others. 当我被别人轻视或嘲笑时，我容易有受伤的感觉。	1 2 3 4 5
3.	When I enter a room I other become self-conscious and feel that the eyes of others are upon me. 当我进入房间时，常常会觉得大家的眼睛都在看着我，因而显得难为情。	1 2 3 4 5
4.	I dislike sharing the credit of an achievement with others. 我不喜欢把成功带来的声望与别人共享。	1 2 3 4 5
5.	I feel that I have enough on my hands without worrying about other people's trouble. 我不喜欢加入某群人当中，除非我知道他们当中有人欣赏我。	1 2 3 4 5
6.	I feel that I am temperamentally different from most people. 我感觉我从气质上有别于大多数人。	1 2 3 4 5
7.	I often interpret the remarks of others in a personal way. 我经常用我自己的方法来评价他人。	1 2 3 4 5
8.	I easily become wrapped up in my own interests and forget the existence of others. 我常常会沉醉于自己所感兴趣的事物而忘却了旁人的存在。	1 2 3 4 5
9.	I dislike being with group unless I know that I am appreciated by at least one of those present. 当我已经够麻烦的时候，我往往顾不上为别人的麻烦而担心。	1 2 3 4 5
10.	I am secretly "put on" or annoyed when other people come to me with their troubles, asking me for my time and sympathy. 当别人带着他们的问题来向我求助，需要我付出时间与同情时，我会悄悄溜走。	1 2 3 4 5

Section 4: SFPS & DRSS

PART 1: *Please read each of the statements below and rate honestly to what extent it represents you. There is no right or wrong answer, and your responses will not be used to make any judgements.请阅读以下陈述，并诚实的评价它多大程度上能反应了你的情况。你的回答不会被用作评判是非对错。*	**1 = Not at all 一点也不 4 = Somewhat true 有时候是的 7 = Very much so 非常像我**
1. I have my own make-believe sporting abilities or skills. 我有自己假想的运动能力或技巧。	1 2 3 4 5 6 7
2. I sometimes think about being a sporting idol or the greatest athlete in my sport. 我有时会想象自己成为运动巨星或成为我的项目中最伟大的运动员。	1 2 3 4 5 6 7
3. I can spend a long time fantasising or daydreaming about being an exceptional player. 我可以花很长时间沉浸于幻想自己成为一个杰出的运动员。	1 2 3 4 5 6 7
4. At times, I imagine myself celebrating exceptional sporting achievements. 有时候，我会想象自己在庆祝非凡的运动成就。	1 2 3 4 5 6 7
5. Many of my sport fantasies have a realistic intensity. 我的很多运动幻想都是真实存在的。	1 2 3 4 5 6 7
6. My sport fantasies are often as lifelike as a good movie. 我的运动幻想像电影一样生动。	1 2 3 4 5 6 7
7. When I recall my exceptional performances, I have very vivid and lively memories. 当我回忆起自己曾经的出色竞技表现时，我的记忆非常生动且清晰。	1 2 3 4 5 6 7
8. I often engage in sport fantasies when I am alone or have nothing to do. 当我独自一人或无事可做时，常常沉浸在自己的运动幻想里。	1 2 3 4 5 6 7

PART 2: *Consider each below situations and rate how frequently it occurs to you: 请考虑以下每一种描述的情况，并评估它们在你身上发生的频率：*	**1 = Never 从不 4 = Sometimes 有时 7 = Very often 经常**
1. Not seeing the bright side of my training. 看不到我参加训练能有什么好处。	1 2 3 4 5 6 7
2. Failing to fulfil my goals or expectations. 未能达成我的目标或期望。	1 2 3 4 5 6 7
3. Performances not developing the way I want them to. 竞技水准没有像我希望的那样发展。	1 2 3 4 5 6 7
4. Sustained unsatisfactory training outcome(s). 训练成果总是不让人不满意。	1 2 3 4 5 6 7
5. Not realising in my potential. 没有充分挖掘、实现我的潜力。	1 2 3 4 5 6 7
6. Losing when I should win. 在本该获胜时输掉比赛。	1 2 3 4 5 6 7
7. My performances are frequently not going as I expected. 我的表现总是不能满足期望。	1 2 3 4 5 6 7
8. Feeling unlikely to get my desired achievements in sport. 感觉自己渴望的运动成就遥不可及。	1 2 3 4 5 6 7

Section 5: DMDS

A number of statement describing thoughts that athletes might have about doping are listed below. Please ***read carefully and indicate your level of agreement*** with each one.下面列出了一些描述运动员可能对兴奋剂的想法的陈述。请仔细阅读并说明您对每一项的同意程度。

1 = Strongly disagree 强烈反对； **4 = Neutral** 中性； **7 = Strongly agree** 强烈同意

1.	Doping is okay if it helps an athlete advice others on how to do it right. 如果运动员使用兴奋剂对指导他人正确使用有帮助，使用兴奋剂也没有关系。	1 2 3 4 5 6 7
2.	Using terms such as “gears” or “juice” makes doing sound less harmful. 使用“装备”或“营养品”等词语会让使用兴奋剂听起来危害小一些。	1 2 3 4 5 6 7
3.	Compared to most lifestyles in the general public, doping isn’t that bad. 与普罗大众的很多生活方式相比，使用兴奋剂并没有那么糟糕。	1 2 3 4 5 6 7
4.	Athletes shouldn’t be blamed for doping if training partners/teammates pressure them to do it. 如果运动是迫于同伴或队友压力而使用兴奋剂，他们不该受到指责。	1 2 3 4 5 6 7
5.	It’s not right to condemn individuals who dope when many in their sport are doping the same. 如果在某项运动中很多人都在使用兴奋剂，谴责某位使用兴奋剂的运动员是不对的。	1 2 3 4 5 6 7
6.	Risks associated with doping are exaggerated. 使用兴奋剂所带来的风险被夸大了。	1 2 3 4 5 6 7

Section 5: DWISS

Would you be more willing to use prohibited substances in the below circumstances:
针对如下情况，你会否愿用使用违禁药物?

1 = Not at all willing 完全没有意愿; **5 = Extremely willing** 有很强烈的意愿

1.	It increased your chances to gain a professional contract or funding. 为了增加自己获得职业合约或资金支持的机会。	1 2 3 4 5
2.	You suffered an injury and needed to recover quickly. 你受伤病困扰，并且亟需快速康复。	1 2 3 4 5
3.	You thought everyone you were competing against was using a banned substance and getting away with it. 你认为对手都使用违禁药物，并且未收到处罚。	1 2 3 4 5
4.	You were struggling to keep up in training/competition with those around you. 你很难在训练/比赛中跟上周围的人。	1 2 3 4 5
5.	You were told that you needed to bulk up because all the other players/athletes were much bigger and stronger than you. 你被告知需要强化体格，因为其他运动员比你块头更大、更加强壮。	1 2 3 4 5
6.	You were offered them by someone you trusted (e.g., coach, friend, teammate, family member). 你信任的人（如：教练、朋友、队友、亲人）为你提供违禁药物。	1 2 3 4 5
7.	It increased your chances of getting selected (for the team). 服用违禁药物能够增加你入选的机会（为了队伍）。	1 2 3 4 5
8.	You became more attractive to others. 服用违禁药物让你变得更受关注。	1 2 3 4 5

Section 6: BRCS & FOF

Consider how well the following statements describe your behavior and actions

1 = Does not describe me at all; 3 = Neutral; 5 = Describes me very well

1.	I look for creative ways to alter difficult situations. 我寻找创造性的方法来克服困难的情况。	1 2 3 4 5
2.	Regardless of what happens to me, I believe I can control my reaction to it. 不管在我身上发生什么，我相信我可以控制自己对它的反应。	1 2 3 4 5
3.	I believe I can grow in positive ways by dealing with difficult situations. 我相信通过处理困难的情况我可以以积极的方式成长。	1 2 3 4 5
4.	I actively look for ways to replace the losses I encounter in life. 我积极寻找方法来弥补我在生活中遭遇的损失。	1 2 3 4 5

Think about your sport performance and rate to what extent you believe in the below:

-2 = do not believe at all; 0 = neutral; 2 = believe 100% all the time

1.	When I am failing, I am afraid that I might not have enough talent. 当我失败时，我害怕是自己不够有天赋。	-2 -1 0 1 2
2.	When I am failing, it upsets my "plan" for the future. 当我失败时，它打乱了我对未来的"规划"。	-2 -1 0 1 2
3.	When I am not succeeding, people are less interested in me. 当我无法成功时，人们就不再对我感兴趣了。	-2 -1 0 1 2
4.	When I am failing, important others are disappointed. 当我失败时，我在意的人会失望。	-2 -1 0 1 2
5.	When I am failing, I worry about what others think about me. 当我失败时，我担心别人怎么看我。	-2 -1 0 1 2