GRIST, PAULINE. Ph.D. The Relationship between the World Anti-Doping Agency's Spirit of Sport Values and Anti-Doping Beliefs Among Elite Athletes: Direct-Based Measures Using the Theory of Planned Behavior. (2023)
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The prevalent use of steroids is alarming given the increased use and abuse over the years, and the ready availability of steroids and steroid-related products. Planning, designing, and implementing anti-doping efforts in elite sports have evolved over the years. Doping research has expanded beyond medical and physiological investigation focused on improving detection methods to social science research which aims to better understand the psychosocial factors that can impact doping behavior. The overall purpose of the present study is to investigate the *spirit of sport* values of elite athletes, and psychosocial factors that predict anti-doping beliefs. This study addresses two aims: (1) Utilize exploratory factor analysis with 13 previously validated scales measuring *spirit of sport* values to assess their reliability and appropriateness in future modeling with an elite athlete sample; and (2) to examine the relationship between the *Spirit of Sport* values and constructs from the Theory of Planned Behavior (TPB) among elite athletes in predicting anti-doping beliefs. Data for this study were collected from an online survey distributed to 221 USA Swimming athletes. Existing instruments were used to measure the following 13 *spirit of sport* values: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health and assess their reliability among elite athletes. Additionally, (1) Attitudes, (2) Subjective Norms, and (3) Perceived Behavioral Control were measured to assess the association between the *spirit of sport* values and psychosocial factors of anti-doping beliefs. An exploratory factor analysis was conducted and found 11 of the 13 scales demonstrated good reliability ($\alpha > .70$), 4

full scales were reduced to single factors based on (1) factor loadings and cross-loading of items and (2) the appropriateness of the factor to measure a construct of interest related to the broad spirit of sport value and its relationship of that value to antidoping. In our second study we utilized the adjusted scales from study 1 to determine if any of the spirit of sport values are predictive of constructs from TPB. Results from Study 2 found anti-doping attitudes were predicted by respect for rules and fun. Perceived behavioral control over anti-doping was predicted by task orientation and moral identity, and anti-doping subjective norms was predicted by fun.

THE RELATIONSHIP BETWEEN THE WORLD ANTI-DOPING AGENCY'S SPIRIT OF SPORT VALUES & ANTI-DOPING BELIEFS AMONG ELITE U.S. ATHLETES: DIRECT-BASED MEASURES USING THE THEORY OF PLANNED BEHAVIOR

by

Pauline Grist

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Dr. Jeffery Milroy
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DEDICATION

With a heart full of gratitude and love, I dedicate this dissertation to my husband Mark. From the countless late nights and early mornings to the moments of self-doubt and frustration, you have been there, providing me with unwavering support and a shoulder to lean on. Your belief in my abilities and your unwavering faith in me have been my constant motivators, pushing me to reach new heights in my academic pursuits.

You've been more than a partner; you've been my cheerleader, my confidant, and my source of strength. Your patience, understanding, and willingness to sacrifice your time to accommodate my studies have made all the difference. As I stand at this milestone, I want to express my deepest gratitude for your support, which has been my guiding light throughout this journey.

APPROVAL PAGE

This dissertation written by Pauline Grist has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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TABLE OF CONTENTS

LIST OF TERMS

Anti-Doping Organization: WADA or a Signatory that is responsible for adopting rules for initiating, implementing, or enforcing any part of the Doping Control process. This includes, for example, the International Olympic Committee, the International Paralympic Committee, other Major Event Organizations that conduct Testing at their Events, International Federations, and National Anti-Doping Organizations

Anti-Doping Education: Delivering training on anti-doping topics to build competencies in clean sport behaviors and make informed decisions.

Awareness Raising: Highlighting topics and issues related to clean sport.

Code: The World Anti-Doping Code

Code Compliance: Compliance with all the requirements in the Code and/or the International Standards that apply to the Signatory in question, as well as with any special requirements imposed by the WADA Executive Committee in accordance with Article A.3(r)

Competition: A single race, match, game or singular sport contest. For example, a basketball game or the finals of the Olympic 100-meter race in athletics. For stage races and other sport contests where prizes are awarded on a daily or other interim basis the distinction between a competition and an event will be as provided in the rules of the applicable International Federation.

Education: The process of learning to instill values and develop behaviors that foster and protect the spirit of sport, and to prevent intentional and unintentional doping

Education Plan: A document that includes: a situation assessment; identification of objectives; education activities and monitoring procedures as required by Article 4.

Guidelines for Education: A non-mandatory document in the World Anti-Doping Program that provides guidance on Education and is made available to Signatories by WADA

International Standard: A standard adopted by WADA in support of the Code. Compliance with an International Standard (as opposed to another alternative standard, practice or procedure) shall be sufficient to conclude that the procedures addressed by the International Standard were performed properly. International Standards shall include any Technical Documents issued pursuant to the International Standard.

Prevention: Refers to interventions undertaken to stop doping from occurring. There are four key interrelated strategies to Prevention: Education; deterrence; detection; and enforcement.

National Anti-Doping Organization: The entity(ies) designated by each country as possessing the primary authority and responsibility to adopt and implement anti-doping rules, direct the collection of Samples, manage test results, and conduct Results Management at the national level. If this designation has not been made by the competent public authority(ies), the entity shall be the country's National Olympic Committee or its designee.

National-Level Athlete: Athletes who compete in sport at the national level, as defined by each National Anti-Doping Organization, consistent with the International Standard for Testing and Investigations.

Signatories: Those entities accepting the Code and agreeing to implement the Code, as provided in Article 23.

Spirit of Sport: The essence of Olympism, the pursuit of human excellence through the dedicated perfection of each person's natural talents. It is how we play true. The spirit of sport is the celebration of the human spirit, body and mind, and is reflected in values we find in and through sport, including Ethics, fair play and honesty; Health; Excellence in performance;

Character and education; Fun and joy; Teamwork; Dedication and commitment; Respect for rules and laws; Respect for self and other Participants; Courage; Community and solidarity (WADA 2015)

Values-Based Education Delivering activities that emphasize the development of an individual's personal values and principles. It builds the learner's capacity to make decisions to behave ethically

LIST OF TABLES

LIST OF FIGURES

CHAPTER I: INTRODUCTION

Anti-doping deterrence measures in competitive sports are promoted for reasons of fair play and concern for the athlete's health. With the inception of the World Anti-Doping Agency (WADA), anti-doping efforts have been intensified considerably. Resources invested in anti-doping measures continue to rise with most of the effort focusing on elite athletes and much less impacting those in amateur sports or the public.

Apart from the unethical aspect of doping, it is important to consider the broader public health implications and the hazards doping presents to the health and well-being of athletes and non-athletes. In 2012, an international symposium entitled *Doping as a Public Health Issue* took place in Stockholm, Sweden. Some of the world's key stakeholders included INTERPOL, the International Olympic Committee (IOC), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Anti-Doping Organization (WADA), and the World Health Organization (WHO). The Symposium highlighted how the use of doping substances has become a significant public health problem (Ljungqvist, 2016). Doping exists beyond the realm of professional sports and public health officials are concerned about how it has permeated into other parts of society putting individuals outside elite sports at risk for physical, mental, and social well-being (Mazzeo, Santamaria et al., 2016). Performance-enhancing drug (PED) use can now be found in schools and universities, local gyms, the armed forces, amateur sports competitions, and in individuals who are seeking to improve their physical appearance. Previous studies suggest the prevalence of androgen misuse among male fitness center visitors in Western Europe and the US is in the range of 5–10% (Simon et al., 2006). PED use has numerous negative health effects on athletes and non-athletes, and it is extremely important to consider the side effects of PED use on the human body and the potential risks to health. There are societal

concerns regarding the health-related and social consequences associated with PED use. WADAs president John Fahey has described doping as a problem not limited to elite-level athletes and characterized doping as a serious health threat to the greater public. WADA has argued that this is particularly true for impressionable youths influenced by the conduct of their sporting role models (WADA, 2007). Furthermore, WADA has recognized that the World Anti-Doping Code is a tool to address a growing problem [drug use in sport] that threatens public health (WADA, 2012).

The prevalent use of steroids is alarming given the increased use and abuse over the years, and the ready availability of steroids and steroid-related products. The Substance Abuse and Mental Health Services Administration's National Household Survey on Drug Abuse determined 1,084,000 Americans reported that they had used anabolic steroids (U.S. Department of Justice, 2004). Pope et al. (2014) conducted a study on the lifetime prevalence of anabolic androgenic steroids (AAS) use and dependence in Americans and estimated that among Americans currently aged 13–50 years, 2.9–4.0 million have used AAS. Roughly 1 million within this group may have experienced AAS dependence. Pope et al. (2014) highlighted the importance of monitoring possible public health consequences in the steadily aging population of current and former AAS users.

The extensive use of dietary supplements today is a further cause of concern. The production and sales of such supplements are not subjected to the same regulations and supervision as genuine medications and it is not unusual for them to contain proscribed substances, including AAS (Geyer et al., 2004; Abbate et al., 2014). Furthermore, there is aggressive and misleading marketing of the supplements, and they are easily available on the internet, as are AAS (Cordaro et al., 2011). This creates an obvious risk of athletes testing

positive inadvertently (Geyer et al., 2004) and opens the door for expanded steroid misuse in society. Some individuals are taking dietary supplements without any knowledge of the dangers associated with their abuse. Dietary supplements are sold in health food stores, over the internet, and through mail orders. Individuals may believe that these supplements will produce the same desired effects as steroids, but at the same time avoid the medical consequences associated with using steroids. This belief is dangerous. Supplements may also have the same medical consequences as steroids.

The trickle-down effect seen in PED use among elite athletes down to the general population is a public health concern, especially considering the mental and physical health consequences. PED use is no longer a problem solely impacting those competing at the highest levels, it is a public health issue affecting individuals of all ages in various realms of society. As such, prevention efforts should not be limited to the narrow population of elite athletes, they should be expanded to the broader population susceptible to doping and the negative health consequences associated with use.

There is increasing pressure on governments and sporting organizations to prevent doping. By 2014, $500 million U.S. had been spent on anti-doping efforts, with $35 million U.S. being spent by WADA (Grohmann, 2019). Planning, designing, and implementing anti-doping efforts in sports have evolved over the years. In recent years, doping research has expanded beyond medical and physiological investigation focused on improving detection methods to social science research which aims to better understand the psychosocial factors (beliefs, attitudes, environments) that can impact doping behavior (Gucciardi et al., 2011, Morente-Sánchez & Zabala, 2013). Ntoumanis et al. (2014) state that preventative programs require an understanding of the psychosocial predictors of doping intentions and behavior. A greater

understanding of such factors can provide anti-doping education programs with essential information to guide curriculum development, design, and evaluation.

With the emergence of psychological research in the field of doping, researchers have begun to use the Theory of Planned Behavior (TPB) to explain key issues relating to doping behavior (Lucidi et al, 2008; Barkoukis et al, 2013) and it is one of the most influential psychological theories in doping research (Kirby et al., 2016). Researchers applying TPB have demonstrated the capability of perceived behavioral control, doping attitudes, and subjective norms to predict doping intention and doping behavior (e.g., Goulet et al. 2010; Lazuras et al., 2010; Lucidi et al., 2010). Numerous other studies have also measured attitudes towards doping from various athlete populations to better understand doping behaviors (Blank et al., 2016; García-Grimau et al., 2011; Sas-Nowosiellski & Swiatkowska, 2008; Ntoumanis et al., 2014).

Researchers have also examined factors outside of TPB when examining doping behaviors to improve the predictability of the TPB model (Fishbein, 2009; Fishbein & Cappella, 2006). Fishbein (2000,2009) developed the Integrative Model (IM) of behavioral prediction to account for distal predictors (e.g., personality traits, demographic…etc.) on intentions and behavior. The IM was developed to consider the effects of other variables outside the original TPB constructs. The effects of the variables should be mediated by proximal predictors of TPB (attitudes, perceived behavioral control, social norms, and intentions). The IM also considers the role of skills and environment (physical or social circumstances) in moderating the intention-behavior relationship. IM acknowledges background influences that can shape attitudes and norms, and self-efficacy, thus influencing intention and behavior. Some suggest using integrative approaches in doping research that incorporate other distal predictors of behavior, such as moral disengagement, achievement goals, or sportsmanship (Barkoukis et al., 2013; Lucidi et al., 2008)

The most significant development to address PED use in sports was the creation of the World Anti-Doping Agency (WADA), and the Word Anti-Doping Code (Code) in 1999. The Code is the document on which WADA is based and aims to harmonize core anti-doping elements and achieve congruence on issues requiring alignment from Code signatories. Part 1 of The WADA Code focuses on *Doping Control* (anti-doping rule violations, proof of doping, the prohibited list, testing, analysis of samples, and result management). Part 2 of the Code focuses on *Education and Research*, and part 3 focuses on *Roles & Responsibilities* (roles of signatories and athletes, sports personnel, and regional anti-doping organizations).

Within part 2 of the Code on *Education and Research* signatories are referred to the International Standards for Education (ISO) for additional guidance on the development, implementation, and evaluation of anti-doping education programs. According to WADA (2021), the purpose of educational programs is to preserve *the Spirit of Sport* and to protect athletes' health and right to compete on a level playing field. All signatories are to plan, implement, monitor, evaluate, and promote education programs in line with the ISE, a mandatory international standard developed as part of the World Anti-Doping Program. According to the ISE, value-based education (VBE) should be a focus, particularly in children and youth, through school and/or sports club programs and with the relevant public authorities. The ISE defines VBE as "delivering activities that emphasize the development of an individual's personal values and principles. It builds the learner's capacity to make decisions to behave ethically" (WADA, 2021b, para.1). The ISE states that signatories should include principles and values associated with clean sport in their education programs. The ISE also states that educators should be competent in VBE on all topics.

The *spirit of sport* includes 12 values representing the heart of Olympism. It is the celebration of the human spirit, body, and mind, and is reflected by the following values: Dedication and commitment; respect for rules and laws; respect for self and other participants; courage; community and solidarity; ethics, fair play, and honesty; health; excellence in performance; character and education; fun and joy; teamwork (WADA, 2017)

According to the Code:

> The "spirit of sport" is the essence of Olympism, the pursuit of human excellence through the dedicated perfection of each person's natural talents. It is how we play true. The spirit of sport is the celebration of the human spirit, body and mind, and is reflected in values we find in and through sport, including Ethics, fair play and honesty; Health; Excellence in performance; Character and education; Fun and joy; Teamwork; Dedication and commitment; Respect for rules and laws; Respect for self and other Participants; Courage; Community and solidarity (WADA, 2015, p.1).

Statement of the Problem

The Code states that "anti-doping programs seek to preserve what is intrinsically valuable about sport. This intrinsic value is often referred to as the *Spirit of Sport*." (WADA, 2017, p.1). The Code includes the following values in it the Spirit Statement: "ethics; fair play and honesty; health; excellence in performance; character and education; fun and joy; teamwork; dedication and commitment; respect for rules and laws; respect for self and other participants; courage; community and solidarity" (WADA, 2017, p.1).

There is little research on doping concerning *spirit of sport* values (Mortimer et al. 2020). Yet, values-based education remains a focus for education in the International Standards for Education (ISE), and the *spirit of sport* values are encouraged by the ISE to remain the principal

components of anti-doping educational programming among WADA signatories. There is no empirical evidence suggesting that the values in the *Spirit of Sport* are important for anti-doping and predictive of doping behavior (Geeraets, 2017; Mazanov et al., 2019; Obasa & Borry, 2019; Ritchie, 2013). The ISE serves as a guide for the development and evaluation of educational programs and focuses on VBE. However, to date, we have yet to understand the relationship between the *spirit of sport* values and important theoretical constructs used in anti-doping research.

Even though rules and responsibilities for education are specified in the Code, Gatterer et al. (2019) note that implementing anti-doping education is left to the individual signatories. Studies have shown that this freedom can result in large variations in the implementation of anti-doping education among National Anti-Doping Agencies (NADOs), which can impact harmonization (WADA, 2015, Efverström et al. 2016, Hanstad et al. 2010, Overbye, 2015).

Given WADA's focus on VBE in anti-doping prevention programs, it is important to examine which existing scales could be used to measure these values in athlete populations. Furthermore, it is important to test if the *spirit of sport* values promoted by WADA are predictive of constructs from the theory of planned behavior. This information could help National Anti-Doping Organizations (NADOs) understand the *spirit of sport* values their athletes possess and understand which values are predictive of important TPB constructs aiding in the future development and evaluation of anti-doping prevention programming.

Purpose of the Study

The purpose of this study is twofold. In Study 1, we investigate 13 existing scales that measure the values within the *spirit of sport* and assess if they are reliable among an elite athlete population. In Study 2, we will examine the relationship between 13 of the *spirit of sport* values

and constructs from the Theory of Planned Behavior (TPB). Survey data from USA Swimming athletes will provide insight into whether any of the eight *Spirit of Sport* values promoted by WADA: ethics, honesty, excellence in performance, fun/joy, teamwork, dedication/commitment; respect for rules/laws, respect for self, respect for other participants, community, courage, character, and health are predictive of the constructs from the TPB which is one of the most influential psychological theories in doping research (Kirby et al., 2016).

The theory that will be used to guide this study is the Theory of Planned Behavior (TPB). TPB was developed by Ajzen (1991) and has been used to explain key issues relating to doping behavior (Lucidi et al, 2008; Barkoukis et al, 2013). TPB is one of the most influential psychological theories in doping research (Kirby et al., 2016). Researchers applying TPB have demonstrated the capability of perceived behavioral control, doping attitudes, and subjective norms to predict doping intention and behavior (e.g., Goulet et al. 2010; Lazuras et al., 2010; Lucidi et al., 2010). This theory indicates that the most important determinant of one's behaviors is their behavioral intention. TPB assumes a link between behavioral beliefs, normative beliefs, and control beliefs to behavioral intentions and behaviors via attitudes, subjective norms, and perceived control.

This study will test if the thirteen independent variables (*spirit of Sport values*) : (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health influence or explain the dependent three dependent variables (*Theory of Planned Behavior constructs*): (1) Attitudes; (2) Subjective Norms; (3) Perceived Behavioral Control.

Research Questions

Study 1

Aim: Utilize exploratory factor analysis with the 13 previously validated scales measuring spirit of sport values to assess their reliability and appropriateness in future modeling with an elite athlete sample.

Research Question 1: What are the resulting, reliable constructs to measure the *spirit of sport* values in elite U.S. athletes?

Study 2

Aim: To examine the association between the 13 *spirit of sport* values and attitudes, subjective norms, and perceived behavioral control from the Theory of Planned Behavior (TPB)?

Research Question 2: Is there a relationship between athletes' values (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health and anti-doping (1) Attitudes?

Research Question 3: Is there a relationship between athletes' values (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health and anti-doping (1) Subjective Norms

Research Question 3: Is there a relationship between athletes' values: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10)

Community, (11) Courage, (12) Character, and (13) Health and (3) Perceived Behavioral Control over anti-doping?

Organization of the Dissertation

Chapter II presents a review of the recent literature exploring performance-enhancing drug (PED) use in sport and values-based educational requirements from the International Standards of Education (Study 1), as well as a literature review of psychosocial factors that influence PED use in sport (Study 2). Chapter III discusses the study's design, data collection, sample, and proposed analyses. Chapter IV and V present two papers representing the two studies discussed in literature review. Chapter VI concludes by noting the overall findings, discusses the implications about utilizing measures of values to inform anti-doping education and prevention initiatives.

CHAPTER II: REVIEW OF LITERATURE

Doping in Sport: A Brief History

The term doping refers to the misuse of drugs by athletes and the use of other methods for improving performance. WADA defines doping as "the occurrence of one or more of the anti-doping rule violations set forth in Article 2.1 through Article 2.11 of the code" (WADA Code, 2021, p.19). These articles refer to the presence of a prohibited substance or its metabolites or markers in an athlete's sample. Though doping in sport may appear to be a relatively new phenomenon, it has a long history. Performance enhancement has always been viewed as a core element in elite sport, and the use of substances to enhance athletic performance has existed since 776 BC when the Greeks started the Olympics. Galen, a Greek physician, first reported the use of stimulants by Greek athletes for athletic performance enhancement (Mottram, 2011). During Roman times, gladiators consumed betel nuts or ephedra (stimulants) for endurance (Inaba et al., 2011). In 1875, endurance athletes competing in swimming and cycling used opium, morphine, cocaine, caffeine, and nitroglycerin. In 1875, race walkers from England chewed on coca leaves for additional energy (Mottram, 2011). Between rounds, boxers consumed water with cocaine. Until the middle of the nineteenth century, there was a lack of evidence to validate the notion that athletes had been using performance enhancing drugs in sport.

The use of amphetamine-like substances increased during World War II when stimulants were given by governments to troops to enhance mental awareness and increase endurance on battlefields (Mottram, 2011). Amphetamines surfaced as a performance-enhancing drug (PED) during the 1936 Berlin Olympics and increased athletes' alertness and energy levels. The use of anabolic steroids in sports was seen at the 1952 Olympics. During the cold war era, the Soviet

weightlifting team used steroids to enhance their performance and when the U.S weightlifting coach was made aware of the Soviet's use, it was argued that the only way for the U.S. to maintain a competitive edge was by using performance-enhancing drugs (as cited in Inaba et al., 2011). Though steroids were initially used by bodybuilders to increase strength, by 1958 these drugs were widespread among athletes in other sports to aid in training, development, and athletic performance (Inaba et al., 2011). The widespread use of performance-enhancing drugs in sports increased in the 1950s and 1960s along with the growth of the pharmaceutical industry.

The World Anti-Doping Agency (WADA)

The most significant development to address PED use in sport was the creation of the WADA, and the Word Anti-Doping Code (Code) in 1999. Following a cycling doping scandal in the 1999 Tour de France, the International Olympic Committee (IOC) held a World Conference on Doping in Sport, this conference produced a document titled *The Lausanne Declaration on Doping in Sport* which initiated the creation of an independent international anti-doping agency. WADA, under the IOC, is a foundation with the support and participation of international government organizations, public agencies, and public and private bodies all committed to battling doping in sport. The mission of WADA is to "to lead a collaborative worldwide movement for doping-free sport by developing, harmonizing, coordinating and monitoring anti-doping rules and policies across all sports and countries" (WADA, 2022, para 1). WADAs initiatives include scientific research; development of anti-doping capacities; education; and monitoring of the Word Anti-Doping Code- a document that brings together anti-doping policies within all sports and countries (WADA, 2022).

The Code

The Code is the document on which WADA is based and aims to harmonize core anti-doping elements and achieve congruence on issues where alignment is required from Code signatories. Signatories are entities accepting the Code and agreeing to implement the Code (WADA, 2022). The Code is a living document subject to review and change. Organizations in the following categories have accepted the code: International Federations (IFs), Major Event Organizations (MEOs), National Olympic Committees (NOCs), National Paralympic Committees (NPCs), National Anti-Doping Organizations (NADOs), and other organizations having significant relevance in sport (i.e.: International Olympic Academy (IOA), World Triathlon Corporation). Since 1999, there have been revisions to the Code, a growing sanctions regime, strides in scientific research, the accreditation of drug testing laboratories, and the launch of biological passports for athletes (Play the Game, 2017). The WADA Code initiated a move towards the standardization of sample collection procedures, laboratory analysis and the foisting of sanctions on athletes who test positive for performance-enhancing drugs. Since the inception of WADA, the number of doping control tests has increased, particularly out of competition (Waddington & Møller, 2019).

Each year WADA goes through a consulting process for the prohibited list involving qualified experts in science and medicine from around the world. WADA reviews scientific research for new or existing performance-enhancing methods/substances that meet the criteria to be added to the list to protect athlete health and promote fair competition. The prohibited list defines which substances/methods are banned in and out of competition and within specific sports. For a substance or method to be included on the prohibited list, two of the following three criteria must be met: (1) it enhances or has the potential to enhance performance; (2) it

represents an actual or potential health risk to the athlete; and (3) it violates the *Spirit of Sport* described in the introduction to the code (WADA, 2022).

Harmonization of Anti-Doping Efforts

Challenges exist in the harmonization of anti-doping efforts. Since the first version of the Code was adopted in 2003, and an updated copy in 2015, evidence still suggests a lack of harmonization. Hanstad & Sigmund-Loland (2010) note that this may be a result of differences in personnel, resources, infrastructure, economy, politics, and socio-cultural differences. They suggest that future research should involve in-depth case studies of NADOs to generate more nuanced review of power relations between WADA and NADOs, as well as between NADOs. WADA's 2021 compliance report found a descending trend in non-conformities related to testing and results management, and in education. WADA notes that this could be a result of education and program development initiatives started in 2021. Therapeutic use (TUE) non-conformities also increased in 2021. According to WADA (2021), the increase in education non-conformities could be a result of the introduction of the new International Standard for Education (ISE) while TUE non-conformities can be explained by the revision of the International Standard for Therapeutic Use Exemptions to the previous version.

Spirit of Sport Values

According to WADA (2015), doping is fundamentally contrary to the spirit of sport. Following numerous doping scandals including the Perth Swimming Championship and the 1998 Ture de France, a five member WADA team was composed to consult with international sports organizations to develop a statement. The Canadian Center for Drug Free Sport introduced the *Spirit of Sport Campaign* in 1993 and this evolved into the basis for the Spirit Statement. The Spirit Statement was included in the first version of the WADA Code and has remained

unchanged through the 2015 Code. The *spirit of sport* includes 12 values representing heart of Olympism. It is the celebration of the human spirit, body and mind, and is reflected by the following values: Dedication and commitment; Respect for rules and laws; Respect for self and other participants; Courage; Community and solidarity; Ethics, fair play and honesty; Health, Excellence in performance; Character and education; Fun and joy; Teamwork (WADA, 2017).

There has been some debate around the Spirit statement. Some suggest that the spirit statement is vague and unclear (Henne et al., 2013), while others state the vague nature of the statement can be operationalized (Loland & Hoppeler, 2012). The debate over the Spirit Statement has had some call to maintain the statement (McNamee 2013; Kornbeck 2013), some to modify (Loland and Hoppeler 2012), and some to abandon it (Henne et al., 2013; Savulescu et al., 2004).

Values-Based Education (VBE) in Anti-Doping Prevention

Values based education (VBE) is defined by the ISE as "delivering activities that emphasize the development of an individual's personal values and principles. It builds the learner's capacity to make decisions to behave ethically" (WADA, 2021b, para.1). In accordance with the ISE, values-based education (VBE) should remain a focus, particularly in children and youth through school and/or sports club programs, and with the relevant public authorities. The ISE also states that anti-doping educators should be competent in VBE on all topics. The Code states that "anti-doping programs seek to preserve what is intrinsically valuable about sport. This intrinsic value is often referred to as the "*Spirit of Sport*". (WADA, 2017, p.1). The following values are included in WADAs *Spirit Statement* listed in the Code: "ethics; fair-play and honesty; health; excellence in performance; character and education; fun

and joy; teamwork; dedication and commitment; respect for rules and laws; respect for self and other participants; courage; community and solidarity" (WADA, 2017, p.1).

There is little research on doping in relation to values (Mortimer et al. 2020), yet values are encouraged by WADA to be principal components of anti-doping educational programing. Even though WADA's the *Spirit of Sport* statement holds the status of being the universal ethical basis for global sporting practice, to date, no empirical evidence exists that the *Spirit of Sport* values are the universal ethical basis for sport, nor is there evidence suggesting that they are important for anti-doping and predictive of doping behavior (Geeraets, 2017; Mazanov et al., 2019; Obasa & Borry, 2019; Ritchie, 2013). WADA signatories are prevented from funding sports deemed non-compliant to the Code. Signatories must be Code compliant, thus adopting the *spirit statement* as the ethical basis for practice or be deemed an illegitimate and unethical sporting organization that is unable to receive public funding. As a result, the *Spirit Statement,* and the values it includes have become the universal ethical basis for sport among WADA signatories (Mazanov, 2017).

Mazanov and Huybers (2016) conducted a study in Australia asking participants to prioritize the values in the *spirit statement* in relation to sport in general, an elite sport frame, and a non-elite sport frame. Results indicated that some values in the *Spirit Statement* were irrelevant to sport. Additionally, there was variation across demographic status and frames in what were important values. These findings raise two important questions: (1) Is the *Spirit Statement* truly the universal ethical statement for sport, and (2) are the *Spirit Statement* values culturally bound, as opposed to being a universal set of values? As a result of these findings, Mazanov and Huybers (2016) suggest a replication of this study across cultural contexts to confirm and extend the initial findings.

Mortimer et al. (2020) further examined the importance of *spirit of sport* values (WADA, 2015) and sport values (Lee et al., 2000, 2008) among university athletes in the UK. Clean sport likelihood was positively predicted by the five *spirit of sport* values: ethics/fair play/honesty, respect for rules/laws, dedication/commitment, teamwork, community/solidarity; two sport value domains: morality and competence; and 11 sport values: contract maintenance, being fair, conscientiousness, sportsmanship, show skills, health/fitness, caring/compassion, team cohesion, achievement, tolerance, and obedience. Results suggested that clean sport likelihood was best predicted by moral values. The study found that half of WADAs *Spirit of Sport* values did not relate to clean sport likelihood, but medium-sized relationships with clean sport likelihood were found for values with moral content. Mortimer et al. (2020) suggest anti-doping educational programs that seek to promote clean sport should identify and focus more on moral values content.

The ISE states that signatories shall include the following topics in their education program: (1) principles and values associated with clean sport; (2) athlete support personnel's and other groups' rights and responsibilities under the Code; (3) the principle of strict liability; (4) consequences of doping (i.e. physical and mental health, social and economic effects, and sanction); (5) anti-doping rule violations; (6) substances and methods on the prohibited list; (7) risks of supplement use; (8) use of medications and therapeutic use exemptions; (9) testing procedures, including urine, blood and the athlete biological passport; (10) requirements of the registered testing pool, including whereabouts and the use of the Anti-Doping Administration and Management System (ADAMS); and (11) speaking up to share concerns about doping. ADAMS is a web-based database management tool that has four primary functions: (1) athlete

whereabouts, (2) information clearinghouse, (3) doping control platform, and (4) therapeutic use exemptions (TUE) management (WADA, 2015, 2017).

The International Standards for Education (ISE)

Part two of WADAs Code focuses on education and research. Surprisingly, of the 181-page document, only three pages are devoted to education and two pages devoted to research. The remaining document consists of information on doping control; antidoping rule violations; proof of doping; the prohibited list; testing and investigations; analysis of samples; results management; sanctions; team consequences; appeals; reporting/responsibilities, and definitions. However, the Code refers all signatory bodies to the International Standards for Education (ISO) for additional guidance on the development, implementation and evaluation of anti-doping education programs. The ISE is a more comprehensive document that can be utilized for educational purposes.

According to WADA (2021), the purpose of educational programs is to preserve the *Spirit of Sport* and to protect athletes' health and right to compete on a level playing field. All signatories are to plan, implement, monitor, evaluate, and promote education programs in line with the ISE, which is a mandatory international standard developed as part of the World Anti-Doping Program. Prevention programs are intended to prevent doping by educating athletes about banned substances. The guiding purpose of the ISE is to support the preservation of the *spirit of sport* as outlined in the Code and to foster clean sport.

Pursuant to the ISE, signatories' education plans should state the overall aims of the education program as well as list measurable and specific learning objectives and timelines related to activities for participants in the education pool. The Center for Disease Control & Prevention (CDC, 2022) identifies the elements of a good objective as: specific, measurable,

attainable/achievable, relevant, and time-bound (SMART). The ISEs statement regarding anti-doping program objectives meets two of the five elements suggested by the CDC: specific and time bound. As stated in the ISE, monitoring procedures need to be included for the activities in the education program when implementing the programs. This would incorporate process evaluation into the overall evaluation. The purpose of process evaluation is to monitor, describe, and document program-related elements to improve the quality and effectiveness of the program; provide support for the program; help explain why goals and objectives may or may not have been met; and help make decisions about components of the program (Hodges & Videto, 2011). According to the ISE, appropriate educational activities should be selected to achieve the objectives of the education plan. Delivery methods may include face-to-face sessions, eLearning, brochures, outreach booths, websites, etc. Additionally, athletes should be included in the planning and development of the education plan to ensure activities are appropriate for the stage of development of the target athletes.

Planning, Designing, Implementing, Monitoring & Evaluation of Anti-Doping Prevention in Sport

There is increasing pressure on governments and sporting organizations to prevent doping. By 2014, $500 million U.S. had been spent on anti-doping efforts with $35 million U.S. being spent by WADA (Grohmann, 2019). Understanding doping prevalence in different categories and levels of sport could provide important insights into doping behavior and better inform doping prevention efforts. Gleaves et al. (2019) conducted a systematic review of evidence on doping prevalence and found the studies did not present any consistent manner to divide athletes by levels. Some studies focused on elite international athletes while others examined university competitors. Some examined youth athletes (ages under 18), and some

looked at amateur competitive athletes (e.g., non-professional triathletes). Gleaves et al. (2019) suggest that to achieve better estimates of doping prevalence, researchers determining doping prevalence in competitive sport should standardize best practices and reporting guidelines.

Evolution of Anti-Doping Research

Planning, designing, and implementing anti-doping efforts in sport has evolved over the years. Initially, research focused on detection and ethical standards, and there was limited use of behavioral science frameworks in guiding research methodology or identifying implications for anti-doping interventions (Donovan et al., 2002). In recent years, doping research has expanded beyond medical and physiological investigation focused on improving detection methods to social science research which aims to better understand the psychosocial factors (beliefs, attitudes, environments) that can impact doping behavior (Gucciardi et al., 2011, Morente-Sánchez & Zabala, 2013). Ntoumanis et al. (2014) state that preventative programs require an understanding of the psychosocial predictors of doping intentions and behavior. A greater understanding of such factors can provide anti-doping education programs with essential information needed to guide curriculum development, program design, and program evaluation. Fahey (2013) highlighted the need for anti-doping education is greater than ever, and anti-doping prevention and educational programs/resources need greater attention to reduce doping behaviors.

Evaluating Anti-Doping Education

As documented in the ISE, signatories should evaluate their education program each year and the evaluation should be used to inform the following year's education plan. Additionally, the evaluation report should be provided to WADA upon request, reflect data related to the specific objectives in the education plan, and determine how/if the stated objectives have been

met. ISE also suggests that, when possible, signatories should seek partnerships with those in the academic field or with other research institutions to provide support for evaluation and research purposes. Social science research can also be used to inform evaluation procedures.

Even though rules and responsibilities for education are specified in the Code, Gatterer et al. (2019) notes that the implementation of anti-doping education is left to the individual signatories. Studies have shown that this freedom can result in large variations in the implementation of anti-doping education among National Anti-Doping Agencies (NADOs) which can impact harmonization (WADA, 2015, Efverström et al. 2016, Hanstad et al. 2010, Overbye, 2015). Gatterer et al (2019) conducted an evaluation of prevention initiatives by 53 national anti-doping organizations. This evaluation looked at information and educational activities of doping prevention approaches of NADOs and assessed the extent to which a multifaceted doping prevention approach has been achieved. Anti-doping prevention activities were categorized into the following areas: (1) knowledge focused; (2) affective focused; (3) social skills; (4) life skills; and (5) ethic- and value-based. Findings found 58% of the NADOs offered prevention activities that included elements of all five approaches. Knowledge-focused approaches were best implemented; the implementation of the other four approaches was largely unsatisfactory. Lack of resources and difficulties in collaborating with sports organizations were documented as the common barriers faced by NADOs in anti-doping prevention implementation. Gatterer et al. (2019) suggests the need for concrete guidelines which define multifaceted, values-based education, as well as the development of best practice examples on how to include all five approaches in anti-doping prevention programs.

To achieve objectives for improved public health, it has been recommended that there be a greater adoption of evidence-based strategies (Brownson et al. 2003, 2009; Fielding & Briss,

2008; Glassier & Longbottom, 1999; McMichael et al. 2005; Muir-Gray, 1997). Focusing on evidence-based public health allows for access to higher-quality research on what works, a greater likelihood of program success, better use of public and private resources, and a higher likelihood of policies being implemented (Brownson et al. 2003, 2009; Hausman, 2002, Kohatsu & Melton, 2000). Public health initiatives should always apply scientific evidence when selecting and implementing programs, evaluating progress, and developing policies (Brownson et al, 1999, 2009; McGinnis, 2001). According to the 2021 Code "relevant anti-doping research may include, for example, sociological, behavioral, juridical and ethical studies in addition to scientific, medical, analytical, statistical, and physiological investigation" (WADA, 2021, p.114).

Donavan et al. (2015) developed the *Research Package for Anti-Doping Organizations* as resource for WADA and NADOs to assist with anti-doping research and evaluation efforts. They used the Sport Drug Control Model to translate knowledge of doping influences into a standardized guideline for NADOs to conduct research, evaluate the impact of their programs, and to identify risks. The Sport Drug Control Model developed by Donovan & Egger in the 1990s incorporates: (1) personal morality and legitimacy from the legal compliance models; (2) potentially relevant personality factors; (3) threat appraisal; (4) non-compliance benefit appraisal; and (5) reference group influences, from cognitive decision models such as Protection Motivation Theory, the Health Belief Model, the TRA, and Ajzen's TPB. Donavan et al. (2015) noted that the relative importance of the various domains may vary by athlete demographics, level and type of sport, situational circumstances, and national culture. In 2009, the Sport Drug Control Model was expanded to include a wider range of sporting and societal forces that impact an individuals' beliefs, attitudes, and values within a doping context. The 2009 expanded model extends beyond the focus of the individual athlete and identifies the importance of factors within

the sport socio-economic context (i.e., increasing commercialization of sport) and within a broader socio-cultural context (i.e., cultural differences between countries and sub populations within countries such as individualism vs collectivism) (Donavan et al., 2015).

The research package developed by Donavan et al. (2015) provides NADOs with the following tools: (1) a standard questionnaire that can be used to measure athletes' responses in the areas that influence anti-doping attitudes and behaviors as outlined in the Sport Drug Control Model; (2) guidelines on methodological issues for collecting data (sampling methods and interviewing modes); and (3) guidelines for survey data analysis and interpretation. Given the surveys in the research package consists of sensitive items, Donavan et al. (2015) strongly suggest that NADOs use a third party to deliver, receive and analyze the data to reduce non-response bias.

Doping Behavior: Theoretical Concepts

There are various reasons athletes choose to use drugs, four main reasons were identified by Mottram (2011) as: (1) legitimate therapeutic use such as prescription drugs or self-medication; (2) performance continuation to treat sports injuries; (3) recreational/social use of both licit and illicit drugs; and (4) performance enhancement to gain a competitive advantage. The IOC has a list of banned substances in each of the four categories. In addition to these four reasons, research has also examined doping psychology (Barkoukis et al. 2013; Barkoukis et al. 2016; Hodge et al., 2013).

Sport Drug Control Model

Donovan et al. (2002) developed a model for sport drug control and placed athletes' attitudes or intentions of PED use at the center of their model. In the model, six factors were listed as inputs to an athlete's attitudes and intentions for PED use: (1) threat appraisal; (2)

benefit appraisal; (3) personal morality; (4) perceived legitimacy; (5) reference group opinion; and (6) personality/self-esteem. Attitudes, in turn, are thought to influence drug use behaviors, subject to the affordability and availability of substances.

Personal and Psychosocial Predictors of Doping

Numerous additional studies have measured attitudes towards doping from a variety of athlete populations to better understand doping behaviors (Blank et al., 2016; García-Grimau et al., 2011; Sas-Nowosiellski & Swiatkowska, 2008; Ntoumanis et al., 2014). Blank et al. (2016) conducted a metareview to examine predictors of doping susceptibility, doping intentions, and behaviors of elite athletes and found attitudes to be a significant predictor for both doping susceptibility and behavior. Nowosiellski & Swiatkowska (2008) examined personal and psychosocial predictors of doping use and found athletes who were in high ego orientation and low in task orientation had significantly more positive attitudes toward doping than those athletes with low ego and high task orientation. Task-oriented individuals are not so concerned with how others perform at the same tasks as they experience feelings of competence when they do their best or improve their performance. Ego-oriented individuals feel competent when they perform better than others and are occupied with demonstrating superior performance to themselves and/or to others in their social surroundings. According to Nowosiellski & Swiatkowska (2008), task orientation was significantly positively related to attitudes toward doping, and ego orientation was significantly negatively related to attitudes toward doping. With the increase in task orientation, attitudes toward doping became more favorable. The opposite can be said about the increase in ego orientation. Nowosiellski & Swiatkowska (2008) argue that creating a motivational climate that promotes task orientation (mastery climate) may assist future anti-doping efforts.

Some researchers suggest that the decision to use performance-enhancing drugs/methods depends on cost-benefit analysis and on the micro-culture of the given sport (Strulik, 2008). According to Strulik (2008), athletes are more likely to avoid doping if fellow athletes disapprove of such behavior, and conversely, doping use is more likely if this is the perceived prevailing norm among their peers and competitors. An individual's subjective norms are determined by their normative beliefs, which are whether important significant individuals approve or disapprove of this behavior weighted by the person's motivation to comply with those significant others (Glanz, 2015). Subjective norms are one construct within the Theory of Planned Behavior (TPB), which is an expanded version of the Theory of Reason Action (TRA) (Glanz, 2015). TPB extended beyond the original TRA by adding the additional construct of perceived control. Perceived control was added by Ajzen (1991) because the success of TRA depended on whether a behavior is under volitional control or not (individuals have a large degree of control over the behavior).

Theory of Planned Behavior (TPB)

TPB is among the most used theories to investigate health behaviors (Barkoukis et al., 2016) and was first developed to understand the complex relationship between attitudes, intentions, and behaviors. The central assumption of TPB is that the most important determinant of one's behaviors is their behavioral intention. TPB assumes a link between behavioral beliefs, normative beliefs, and control beliefs to behavioral intentions and behaviors via attitudes, subjective norms, and perceived control (Ajzen (1991). External factors such as demographic and environmental variables, and personality traits are thought to operate through the constructs that exist in the model and do not independently explain the likelihood of the behavior.

With the emergence of psychological research in the field of doping, researchers have begun to use TPB to explain key issues relating to doping behavior (Lucidi et al, 2008; Barkoukis et al, 2013) and it is one of the most influential psychological theories in doping research (Kirby et al., 2016). Researchers applying TPB have demonstrated the capability of perceived behavioral control, doping attitudes, and subjective norms to predict doping intention and doping behavior (e.g., Goulet et al. 2010; Lazuras et al., 2010; Lucidi et al., 2010). In support of this notion, Ntoumanis et al. (2014) conducted a meta-analysis to determine effect sizes of psychological variables such as attitudes, social-contextual variables (i.e., social norms), and demographic variables (i.e., age, gender) on PED intentions and use. They examined moderating effect sizes of variables and tested a path analysis model based on constructs from TPB. Results indicated that perceived social norms, positive attitudes towards doping, and legal supplement use were the strongest positive correlates of doping intentions and behaviors. Contrastingly, results showed morality and self-efficacy to abstain from doping had the strongest negative association with intentions to dope and doping behaviors. Path analysis suggested that attitudes, perceived norms, and self-efficacy to refrain from PED use predicted intentions to dope and doping behaviors.

Integrative Model (IM)

Researchers have also examined factors outside of TPB when examining doping behaviors to improve the predictability of the TPB model (Fishbein, 2009; Fishbein & Cappella, 2006). Fishbein (2000,2009) developed the Integrative Model (IM) of behavioral prediction to account for distal predictors (e.g., personality traits, demographic…etc.) on intentions and behavior. The IM was developed by Fishbein (2009) to consider the effects of other variables outside the original TPB constructs whereby the effects of the variables should be mediated by

proximal predictors of TPB (attitudes, perceived behavioral control, social norms, and intentions). The IM also considers the role of skills and environment (physical or social circumstances) in moderating the intention-behavior relationship. IM acknowledges background influences that can shape attitudes and norms and self-efficacy, thus influencing intention and behavior. These background influences can include demographics, past behavior, personality, moods, emotions, demographics, cultural knowledge, intervention exposure, and media exposure (Glanz et al., 2015). Some suggest the use of integrative approaches in doping research that incorporate other distal predictors of behavior such as moral disengagement, achievement goals, or sportsmanship. For example, Barkoukis et al. (2013) found that athletes with autonomous motivation, high sportsmanship, and mastery-oriented achievement goals reported lower doping intentions compared with those with low sportsmanship, controlled motivation (i.e., motivation resulting from social approval, pressure, or feelings of guilt), and performance-oriented achievement goals (i.e., emphasis on displaying normative superiority). Another example of an integrative approach can be seen in the Lucidi et al. (2008) study on athletes' moral disengagement (i.e., disassociating oneself from the moral implications of one's unethical actions). Lucidi et al. (2008) found that moral disengagement predicted doping intentions and behaviors.

Trans-Contextual Model

Chan et al (2015) utilized the Trans-Contextual Model (TCM) to examine if motivations in sport are predictive of social cognitive factors and motivations in doping avoidance. TCM weaves three theoretical perspectives together: (1) the hierarchical model of motivation, (2) self-determination theory (SDT), and (3) TPB. TCM looks at the contrast between autonomous (self-driven) and controlled (externally driven) motivation. Chan et al (2015) defined three types of

motivations: (1) autonomous motivation; (2) controlled motivation; and (3) amotivation (i.e., lack of intrinsic and extrinsic motives for an action). Chan et al (2015) found athletes who were autonomously motivated (self-driven motivation) in sport, compared to athletes who demonstrated controlled motivation or amotivation, are more likely to be autonomously motivated to avoid doping. Additionally, autonomous motivation to avoid doping predicted increased positive attitudes, perceived behavioral control (PBC), and social norms for doping avoidance, which predicted doping avoidance intentions. This study provides a research-based explanation as to why an athlete's self-determined motivation in sport could be related to their behavior responses of doping avoidance.

Moral Disengagement

The use of PEDs has also been viewed as antisocial and unethical, given: (1) its illegal status and (2) the moral intent to gain an unfair advantage over other athletes (Barkoukis et al. 2011; Donahue et al, 2006; WADA, 2011). Bandura (2002) posits the use of eight psychosocial maneuvers, known as moral disengagement, which allows individuals to transgress moral standards (such as with the use of PEDs) without experiencing negative affect (e.g., guilt), thereby decreasing constraints on future immoral behavior. The eight mechanisms of moral disengagement are: (1) moral justification; (2) euphemistic labeling; (3) advantageous comparison; (4) displacement of responsibility; (5) dehumanization; (6) attribution of blame; (7) distortion of consequences; and (8) diffusion of responsibility. According to the SDT, motivation exists in two forms: (1) autonomous motivation (intrinsic motivation and self-determined forms of extrinsic motivation) and (2) controlled motivation (non-self-determined or controlled forms of extrinsic motivation) (Ryan & Deci, 2000). According to Donahue et al. (2006) an autonomously motivated athlete would experience enjoyment as "the process of trying

to improve and do well through appropriate means" (Donahue et al., 2006, p. 512), acting in line with her/his goals and values and by connecting with others in his/her sport, not by winning at all costs (e.g., the use of PEDs). The behavior of PED use for the autonomously motivated athletes would run counter to these psychological needs as they would be engaging in behavior that conflicts with their goals and values, be achieving competence artificially, and be disconnected from other athletes by cheating and taking an unfair advantage over opponents (Donahue et al., 2006).

Hodge et al. (2013) further examined the autonomy-supportive and controlling motivational climates and autonomous and controlled motivation constructs from SDT (Deci & Ryan, 2002) and found them to be related to attitudes toward PEDs in sport and drug-taking susceptibility. They also investigated moral disengagement as a potential mediator and found moral disengagement to be a strong predictor of positive attitudes toward PEDs, which, in turn, was a strong predictor of PEDs susceptibility.

CHAPTER III: METHODOLOGY

Study Design

This proposal is divided into two analyses. The first study uses an exploratory factor with 13 existing scales measuring *spirit of sport* values to assess their reliability and appropriateness in future modeling with an elite athlete sample. Based on our conceptual understanding of the TPB, the second study uses a cross-sectional quantitative design to examine the associations of anti-doping attitudes, subjective norms, and perceived behavioral control and 13 Spirit of Sport values.

Though Mortimer et al. (2020) found moral values to be related to clean sport likelihood, their study was conducted by examining sport values from university athletes in the UK. They did not examine many of the values that have been adopted by WADA sport organizations. It is important to understand how clean sport values identified by NADOs relate to important TPB constructs that help explain and predict behavior. This information could help NADOs understand the *spirit of sport* values their athletes possess, and which values are predictive of important TPB constructs aiding in anti-doping program development, implementation, and evaluation.

Analysis

Study 1

Study 1 will utilize exploratory factor analysis with 13 previously validated scales measuring *spirit of sport* values to assess their reliability and appropriateness in future modeling with an elite athlete sample.

Study 2

Study 2 will utilize three multilinear regressions, regressing each dependent variable onto all the predictors (the 13 *spirit of sport* values). Three separate research questions will be assessed. Normally running a multivariate would refer to running a simultaneous test on all the dependent variables, and there is little value to doing that in this study. This study aims to isolate which one of these outcome variables (TPB constructs) is best predicted and which set of predictors (13 *spirit of sport* values), therefore three separate multilinear regressions will be conducted. Running a multivariate regression instead of multiple regression would occur if the researcher wanted to determine if the dependent variables were related. This study does not seek to determine if the dependent variables are correlated.

Multiple regression analysis is the statistical methodology for predicting values of one response (dependent) variable from a collection of predictors (independent) variables. One of the objectives of regression analysis is to develop an equation that allows us to predict the response for given values of the predictor variable (Johnson & Wichern, 2013). We can assess the effects of one or more predictor variables on the response variable. This study seeks to understand: (1) what is the extent of the overall effect? (2) what are the relative magnitudes of the effects associated with each IV? (3) which predictors are or are not significant?

The test statistic for multilinear regression is the F statistic. If the p-value is smaller than $\alpha=.05$ when conducting the overall test, the null hypothesis would be rejected at $\alpha=.05$ and the researcher could conclude at least one of the thirteen predictor variables (*spirit of sport values*) has a significant linear relationship with the response variable. If it comes out significant, the next step is to examine what were the best predictors by looking at the significance of those

predictors with a T-test. Three forward regressions will be conducted for each of the three response variables: (1) Attitude; (2) Subjective Norms; (3) Perceived Behavioral Control. Each regression is going to produce an F test for the overall analysis.

The multilinear regression will be used to test the overall significance of the model. The null hypothesis will state there will be no regression relation between the set of predictor variables: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health, and the Response Variables: (1) Attitude, (2) Subjective Norms, and (3) Perceived Behavioral Control.

Theory of Planned Behavior

The TPB (Figure 1) started as the TRA in 1980 to predict an individual's intention to engage in a behavior at a specific time and place (Ajzen, 1991). The theory was intended to explain all behaviors over which people can exert self-control (Ajzen, 1991). The key component to this model is behavioral intent. Behavioral intentions are influenced by the attitude about the likelihood that a behavior will have the expected outcome and the evaluation of the risks and benefits of that outcome (Ajzen, 1991).

The TPB has been used successfully to predict and explain a wide range of health behaviors and intentions including smoking, drinking, health services utilization, breastfeeding, substance use, and doping, among others. The TPB states that behavioral achievement depends on both motivation (intention) and ability (behavioral control). It distinguishes between three types of beliefs - behavioral, normative, and control (Ajzen, 1991). Attitudes refer to the degree to which a person has a favorable or unfavorable evaluation of the behavior of interest. Subjective norms refer to the belief about whether most people approve or disapprove of the

behavior. Perceived behavioral control is a person's perception of the ease or difficulty of performing the behavior of interest and behavioral intention is the motivational factor that influences a given behavior. The stronger the intention to perform the behavior, the more likely the behavior will be performed.

Figure 1. Theory of Planned Behavior

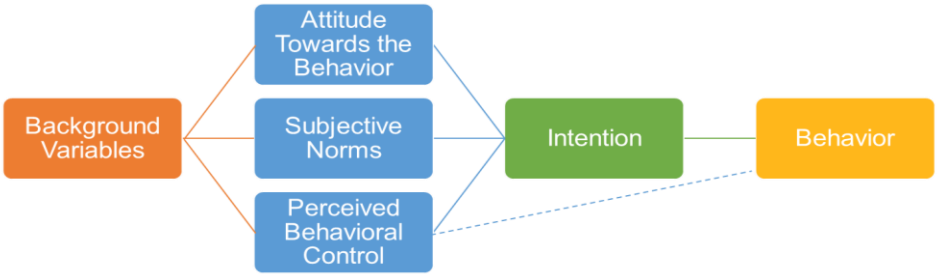
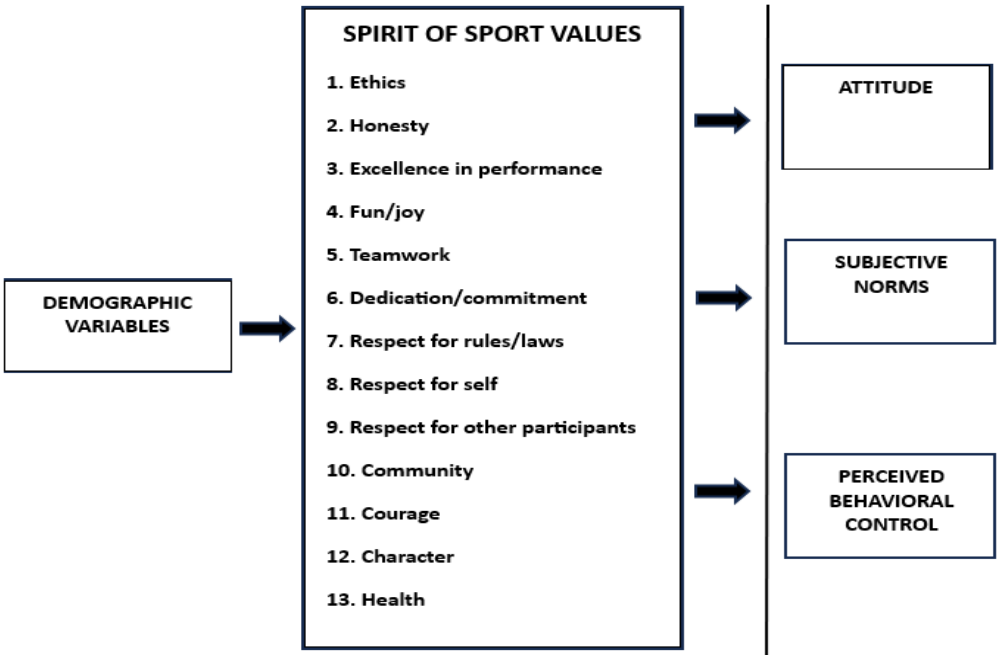


Figure 2 below is the conceptual model for Study 2. Demographic variables such as age, gender, sport, level of competition, etc. and 13 *spirit of sport* values: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health will be tested as external variables to see if they are predictive of any of the following TPB constructs: (1) Attitudes; (2) Subjective Norms, and (3) Perceived Behavioral Control.

Figure 2. Conceptual Model: Integrative Model of the Theory of Planned Behavior



Research Questions

Study 1

Aim: *Utilize exploratory factor analysis with the 13 previously validated scales measuring spirit of sport values to assess their reliability and appropriateness in future modeling with an elite athlete sample.*

Research Question 1: What are the resulting, reliable constructs to measure the *spirit of sport* values in elite U.S. athletes?

Study 2

Aim: To examine the association between the 13 *spirit of sport* values and attitudes, subjective norms, and perceived behavioral control from the Theory of Planned Behavior (TPB).

Research Question 1: Is there a relationship between athletes' values: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health and anti-doping (1) Attitudes?

Research Question 2: Is there a relationship between athletes' values: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health and (2) Subjective Norms related to anti-doping?

Research Question 3: Is there a relationship between athletes' values: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health and (3) Perceived Behavioral Control over anti-doping?

Participants

Study 1 and Study 2 consisted of data from elite USA Swimming athletes who competed at the national level within the past year. Recruitment of USA Swimming athletes ran from June 2023 until July 2023. Athletes were contacted via email and informed about the optional survey. All athletes who were over the age of 18, and who were members of national level teams were eligible to participate in the survey.

Sampling & Recruitment

Recruitment of participants was initiated through a joint email from the researcher and a representative from USA Swimming. Participants were informed about the study and told that

participation is voluntary, honesty in responses is vital, and data will be confidential. A $10 amazon gift card was provided as an incentive to all participants who completed the survey. The email was distributed to 221 individuals in the target population. It was estimated that 141 measurements/surveys will need to be completed to have a confidence of 95%. A confidence level of 90% would require 122 participants (Raosoft.com).

Survey Design

This study aims to assess the importance of the *spirit of sport* values and examine which *spirit of sport* values are predictive of constructs of the TPB. First a literature review was conducted to examine existing scales that could be used to measure the *Spirit of Sport* values. For a value to be included in the study analysis the scale must have: (1) assessed the specific Spirit of Sport value; (2) has been identified as a validated scale with Cronbach's alpha being .70 or higher; (3) been used with adults 18 years of age and older; (4) and the scale had to be accessible to the researcher. 12 of the *spirit of sport* values met the criteria, however, the 12 values were broken up into 13 values with the value of respect for others & respect for self being divided up into 2 separate values.

Data collected from the athlete surveys will include data on the following 13 *spirit of sport* values: (1) Ethics, (2) Honesty, (3) Excellence in performance, (4) Fun/joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health and data on the following three constructs from TPB: (1) Attitudes; (2) Subjective Norms; (3) Perceived Behavioral Control. Demographic data will also be collected: year of birth, number of years competing, competing gender, and sport. Athlete data was collected through a web-based survey

delivered through Qualtrics, and all participants who completed the survey were de-identified and provided a link to receive a $10 amazon gift card for their participation in the survey.

Cognitive Interviews

Prior to data collection, three cognitive interviews were conducted with the target population. The survey was revised based on feedback collected during the cognitive interviews and input into the Qualtrics electronic survey program. The priority of the cognitive interview process is to find out how respondents understand questions and perform the response tasks (Willis, 2005). There is no effort to replicate the data collection procedures to be used in the full-scale survey. The basic protocol involves reading questions to respondents and having them answer questions to gain a better understanding the respondents' thought process during the question-and-answer process (Willis, 2005). There are common procedures for trying to monitor the cognitive process of the respondent and "Think-aloud" interviews will be used in the cognitive interviews. In these types of interviews respondents are asked to think aloud. Respondents are asked to try to articulate their thoughts and cognitive processes as they absorb a question, search their memories for information required by the question, and turn the information they have into an answer. When this is done well, it provides a good window into how questions are being understood and how answers are being generated (Fowler, 1995).

Usability Tests

Usability tests were conducted with three members from our populations of interest. The purpose for performing usability tests is to better understand performance metrics and to assure the survey experience is both efficient and effective. Usability tests provide insight into the following questions: (1) did the survey experience allow all participants the opportunity to provide their accurate answers? (2) did participants enjoy the experience? (3) did it require too

much time to complete? (4) did participants find the instrument easy to use? (5) did participants find it easy to use? Furthermore, ease of use or learnability, attention and or confusion, and accessibility can be assessed. The usability testing was conducted will real users (targets of the survey). During testing, participants were asked to complete real tasks. Feedback from the usability tests will be analyzed to diagnose problems and recommend changes to revise the survey. The usability model used for this survey will cover three areas: 1) Interpreting the design a) What meaning do respondents assign to the visual design and layout? b) How do respondents believe the survey works? 2) Completing actions and navigating: a) How well does the survey instrument support respondents ability to complete tasks and goals? b) How well do respondents follow cues and instructions? 3) Processing Feedback: a) How do respondents interpret and react to the survey feedback in response to their actions? b) How well does the survey help respondents identify, interpret, and resolve errors? The goal of cognitive interviews and usability testing is to improve data quality and reduce respondent burden.

Study 1 Measures: *Spirit of Sport* Values

Honesty

HEXCO 60 is a personality inventory that assesses the 6 dimensions of the HEXACO model of personality structure. Factors of the HEXACO model of personality structure include Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness versus Anger (A), Conscientiousness (C), and Openness to Experience (O). Ashton and Lee (2009) selected 10 items from each of the 6 scales from the longer 100-item HEXACO Personality Inventory–Revised (HEXICO-PI-R) and aimed to construct an instrument that would show strong psychometric properties when administered to samples of participants drawn from college student or community adult populations. The internal consistency reliabilities of the reduced

scale ranged from .77 to .80 in the college sample and from .73 to .80 in the community sample. This survey will utilize 10- items from the Honesty-Humility subscale which was shown to have an internal consistency of .79 among the college sample and .74 in the community sample.

Excellence in Performance

The Task and Ego Orientation Questionnaire was used to measure excellence in performance. Goal orientations are individual differences in the ways by which people define success or achievement (Nicholls, 1989). Within the context of achievement goal theory, there are two broad types of goals: (1) task-oriented or learning goals (Task) are self-referenced and therefore pertain to personal improvement and mastery of the behavior, task, or skill, whereas ego-oriented or (2) performance goals (Ego) are normatively referenced and therefore based on comparisons with the performance of others (e.g., peers, competitors). Research indicates that task-oriented goals are related to lower susceptibility to doping (Ntoumanis et al., 2014).

Dedication/Commitment, Respect for Others, and Respect for Rules

The Multidimensional Sportsperson Orientations Scale (MSOS) developed by Vallerand et al. 1997 was based on the definition of sportspersonship by Vallerand et al. 1996 which states that sportspersonship is reflective towards a tendency towards respect for the rules, respect for participants (teammates, coaches, referees, and the opponent), respect and concern for the sports environment, and a commitment avoidance of winning at all costs. The MSOS measures athlete's sportsperson dimensions (commitment, social conventions, rules and officials, opponent, and negative approach). The subscales of commitment, respect for others, and respect for laws will be utilized in this survey. The MSOS was shown to have adequate levels of validity and reliability. In a confirmatory factor analysis conducted by Vallerand et al. 1996 all

items were significant (t statistics >3.17, p=<.05). Internal consistency (Cronbach's alpha) ranged from .71 (the commitment subscale) to .86 (the social conventions subscale).

Health

Health was assessed using the Health Consciousness Scale. According to Hong (2009), "health consciousness refers to an individual's comprehensive mental orientation toward his or her health, being comprised of self-health awareness, personal responsibility, and health motivation" (p.2019). Hong posits that health consciousness is a composite of the following 3 subscales: (1) health awareness, (2) personal health responsibility and (3) health motivation. When tested with university students, the Health Consciousness Scale showed highly reliable internal consistency with high levels of reliability. The score of Cronbach's Alpha for the scale was .85.

Fun

Motivations for Physical Activity Measure-Revised (MPAM-R) is a revision of MPAM (Frederick & Ryan, 1993). MPAM-R consists of 5 categories of reasoning for engaging in physical activity (enjoyment, fitness, appearance, competence, and social) with a total of 30 items. MPAM-R was tested with new members of a university fitness center (89 females and 66 males). Subscale alphas for MPAM-R were .92, .91., .83, .78, and .88. This study will only utilize the enjoyment subscale (7 items) to assess the Spirit of Sport value of fun.

Ethics

Ethics was measured using The Self-Importance Moral Identity Scale. Morality (i.e., being a moral person) is commonly assessed using Aquino and Reed's (2002). Moral identity is "the extent to which morality and being amoral person are important to one's identity" (Hardy, 2018, p. 89). Psychometric analyses of the Self-Importance Moral Identity scale resulted in a 10-

item scale consisting of two 5-item subscales, named Internalization and Symbolization, reflecting the private and public aspects of moral identity. Cronbach alpha reliability values ranged from .70 to .83 for Internalization and from .69 to .82 for Symbolization. Test-retest correlations, over four-to-six-week spans, were .49 for Internalization and .71 for Symbolization.

Self-Respect

The Appraisal Self-Respect Scale (ASR) is a 7-item scale that measures a disposition to perceive or appraise oneself as being a respect worthy honorable person. The ASR scale was found to be unidimensional and showed good internal and acceptable test-retest reliability. Trait ASR was correlated with (yet distinct from) theoretically related measures of global self-esteem, moral self and principledness, and was distinct from other self-esteem facets not based on honorable character traits (Clucas et al., 2022).

Teamwork

Teamwork Scale for Youth was developed by Lower et al. (2019) to measure youths' perceptions of their teamwork competency. This scale has also been tested with adults 15-58 in a vocational training context and has been found to have an internal consistency of the overall scale with Cronbach Alpha (α=.81) (Guardia at al., 2022).

Community

The Sense of Community Index 2 (SCI-2) was used to measure the Spirit of Sport value community. SCI is the most frequently used measure of sense of community in the social sciences and has been used in numerous studies around the world. It was developed on a theory of sense of community (McMillan and Chavis, 1986) stating that a sense of community was a perception with the following subscales: membership, influence, meeting needs, and a shared emotional connection. The SCI-2 is a revised version SCI-2 shown to be a very reliable measure

(coefficient alpha= .94). The subscales have also proved to be reliable with coefficient alpha scores of .79 to .86. This study will only be utilizing the subscale of Membership.

Courage

The Courage Measure (6 item short scale) was used to assess the Spirit of Sport value courage. The courage scale was originally developed by Norton and Weiss, 2009 and adapted by Ginevra et al. (2020). Norton and Weiss (2009) considered courage persistence or perseverance despite being afraid. Ginevra et al. (2018) tested the reduced 6-iem scale with a sample of Italian adults and carried out a multiple-group confirmatory factor analysis to investigate the factorial invariance of the reduced scale. Results suggested that the reduced scale measures the same latent dimension in men and women and in young adults and middle-aged adults.

Character

Character was assessed with the Values in Action Inventory of Strengths (VIA-IS-V3). VIA-IS-V3 consists of 24 items (8 items per virtue), positively and negatively keyed, resulting in scores for the 3 virtues developed subsequently for the VIA Classification. Subscales of VIA-IS-V3 include Caring, Inquisitiveness, and Self-Control. Mean reliability is .82 (VIA-IS; Peterson, Park, & Seligman, 2005a)

Additional Study 2 Measures

Demographics

The following demographics will be collected in this survey: year of birth, gender; race/ethnicity; sport; years in sport; highest level of competition; titles won (i.e., National, International, State).

Attitudes, Subjective Norms, Perceived Behavioral Control

Chan et al. (2015) developed a social cognitive scale measuring the following TPB constructs in the context of doping: attitudes, subjective norms, PBC, and intention. Items were developed according to Fishbein and Ajzen's guidelines.

Threats to Internal & External Validity

Threats internal validity can exist when there are threats associated with participants (selection, maturation, attrition, and history) and threats associated with measurement (regression, instrumentation, and testing effect). Instrument validity refers to how well a survey instrument measures what it says it is going to measure. The two most elementary techniques to establish validity are face validity and content validity. Content validity implies that experts have concluded that all possible items have been included in the assessment of the construct. Face validity implies that items have been judged by experts as capturing the intended construct.

Instrument reliability is the ability of the instrument to produce stable, consistent results. Reliability essentially means *consistent* or *dependable* results. Assessment instruments must be both reliable and valid for study results to be credible. The purpose of establishing reliability and validity for an instrument is to achieve rigor in measurement. Without adequate, reliable, and valid measurement, we cannot know for certain what to target with an intervention or whether the intervention efforts are effective. If we are not working with instruments that are reliable and valid, particularly when we are measuring constructs, we may as well not invest our time and energy in using a particular instrument because the results we obtain by using the scale will not be accurate or may not be measuring what we want to measure.

To establish the instrument's reliability, the researcher will attempt to determine inter-correlations between items on a scale by employing a satirical procedure that yields the statistic

Cronbach' alpha (a statistical measure of internal reliability). Though there are not hard rules, an alpha of .70 or higher is considered sufficient evidence of reliability. However, extremely high alphas (.95) suggest that there may be redundancy among some of the indicators. To establish content validity (which implies that experts have concluded that all possible items have been included in the assessment of the construct) existing instrument will be used that have measured the construct of interest with established validity and reliability and that is appropriate for the target audience.

External validity involves the generalizability of findings to a larger population. Threats to external validity are the participants selected, and the survey itself. Given the narrow characteristics of the participants in the study, findings would not be generalizable to individuals who do not have the characteristics of the participants. Future studies could include groups of different characteristics (i.e., youth athletes; athletes from other countries).

Doping is a sensitive issue and a behavior that individuals might be highly motivated to intentionally minimize or deny due to fear of sanctions or punishments. Social desirability response (SDR) is described as a conscious or unconscious attempt to distort responses by overestimating positive or underestimating negative qualities or behaviors. Social cognitive variables, such as attitudes, norms, and beliefs can help us to better understand doping behavior, but findings may be confounded by the tendency to respond in socially desirable ways, especially in studies using self-report measures. Social desirability may act as a potential confounder by inflating the associations of self-reported use, attitudes, normative, and behavioral control beliefs with doping intentions. This may happen because respondents might be reluctant to disclose their true attitudes toward doping, past use, or doping intentions, in fear of sanctions or punishments (Barkoukis et al., 2016).

Doping is viewed as an undesirable behavior. Without estimating and controlling for SDR, questions will remain regarding the individual's true level of this behavior, and/or their tendency to distort their responses toward the desirable pole. SDR can compromise a source of artificial variance (i.e., systematic bias or error variance) and possess a threat to the validity of findings when individuals are asked to self-report key variables such as attitudes towards doping, beliefs towards doping, and doping behavior). This highlights the need to include SDR measures and examine for potential confounding effects in studies of broader social cognition mechanisms underlying doping use.

Fowler (1995) discusses tactics that can be used when developing sensitive questions. One technique is to provide introductions that state both answers and all possible answers. For example, instead of asking a direct question such as*: Did you vote in the last presential election?* You could word the question as: *Sometimes we know that people are not able to vote, because they are not interested in the election, because they can't get off work, because they have family pressures, or for many other reasons. Thinking about the last presential election, did you actually vote in the election or not?* The purpose of this type of introduction would be to let the respondent know that there are many reasons why people do not vote, other than not being a good citizen. Ideally, respondents would feel more comfortable giving a "no" response knowing the researcher understands there are sometimes good reasons as to why people don't vote.

Limitations

One limitation of this study would be social desirability. Some attributes or behaviors are inherently undesirable (i.e., doping). It is important to consider that it might be extremely difficult to minimize social desirability responding through the scale development process. Researchers in cross-sectional doping studies often rely on post hoc approaches to control SDR

with the use of SDR scales. However, this approach is not ideal (Li and Bagger 2006; Ones et al. 1996) because there is an assumption that they validly capture the SDR construct. Another way to reduce SDR would be to remove the highly sensitive survey items that represent 1) doping intention and 2) doping behavior. This would still allow the researcher to examine if any of the *spirit of sport* values are predictive of behavioral beliefs, normative beliefs, motivation to comply, or control beliefs, which are all constructs that have been previously shown to impact intentions and thus behavior.

A second limitation is that this study will only include samples from the United States. There is a need to evaluate the study in world regions not previously studied to examine cross-cultural differences in the *spirit of sport* values.

Summary

Doping in sport is a complex, multifaceted problem that continues to be a subject of psychosocial research. Study 1 will examine previously validated scales measuring *spirit of sport* values to assess their reliability and appropriateness in future modeling with an elite adult athlete sample. Identifying items to measure these values in elite athlete populations is an integral piece in supporting values-based anti-doping prevention initiatives offered by sporting organizations. Results will identify scales and items that can be used to assess the values that elite athletes hold allowing for pre and post-test evaluations of values-based education (VBE).

Study 2 will investigate the relationship between 13 *Spirit of Sport* values and constructs from TPB. The survey data from elite USA Swimming athletes will provide insight into whether any of the 13 *Spirit of Sport* values promoted by WADA are predictive of the constructs from the TPB. Results from this study will provide data that can be used to inform future development, implementation, and evaluation of anti-doping education programs for USA Swimming athletes.

Data from this study will allow USA Swimming to see if the *Spirit of Sport* values they prioritize in their anti-doping programs are values that are predictive of attitudes towards doping, normative beliefs, and perceived behavioral control. Given cultural differences between nations, this study could create a pathway for other NADOs to conduct similar studies within their organization and assist in their understanding of *Spirit of Sport* values that may be predictive of attitudes towards doping, normative beliefs, and perceived behavioral control. Additional research could include conducting a path analysis to provide estimates of the magnitude and significance of hypothesized causal connections between the sets of variables (*Spirit of Sport* values & TPB constructs).

A similar study could be conducted with youth/adolescent/teen athletes to examine which of the *Spirit of Sport* values predict anti-doping attitudes, normative beliefs and perceived behavioral control. This would assist in further development of youth anti-doping programs. Finally, additional studies could be expanded beyond the realm of sport to examine how personal values impact drug use in other populations.

CHAPTER IV: STUDY 1- EXPLORATORY FACTOR ANALYSIS ASSESSING EXISTING SCALES MEASURING WADAS SPIRIT OF SPORT VALUES AMONG AN ELITE U.S. ATHLETE POPULATION

Abstract

The values within the *spirit of sport* are central to the World Anti-Doping Agencies (WADAs) doping prevention strategy, and values-based education (VBE) is a core element of WADA's (2019b) International Standard for Education (ISE). This study utilizes exploratory factor analysis with 13 existing scales measuring *spirit of sport* values to assess their reliability and appropriateness in future modeling with an adult elite athlete sample. Identifying scales to measure these values in athlete populations is an integral piece in supporting values-based anti-doping prevention initiatives offered by sporting organizations. Identifying items that can be utilized for measuring these values in elite athletes will support pre and post-test evaluations of values-based education (VBE). Our study utilized primary data collected in 2023 from USA Swimming athletes who have competed at the national level in the past year (N = 77). Exploratory factor analysis was conducted to examine factors in 13 existing scales measuring spirit of sport values to assess if they were reliable among an athlete population. Results found 11 of the 13 scales to be reliable when tested with the elite athlete adult sample. Two scales did not demonstrate reliability. The scale measuring honesty (HEXICO-60) was eliminated due to lack of reliability with the sample, and the full 28-item scale measuring character (VIA-IS-V3) was reduced to measure the single subconstruct self-control. Of the 11 scales demonstrating reliability, five full scales measuring the values of Courage, Health, Character, Ethics and

Community were reduced in factors, and/items based on (1) factor loadings and cross-loading of items and (2) the appropriateness of a factor to measure a construct of interest related to antidoping.

Introduction

Anti-doping deterrence measures in competitive sports are promoted for reasons of fair play and concern for the athlete's health. With the inception of the World Anti-Doping Agency (WADA), anti-doping efforts have been intensified considerably. Resources invested in anti-doping measures continue to rise, with most of the effort focusing on elite athletes. In recent years, doping research has expanded beyond medical and physiological investigation, focused on improving detection methods, and shifted towards social science research which aims to better understand the psychosocial factors (beliefs, attitudes, environments) that can impact doping behavior (Gucciardi et al., 2011, Morente-Sánchez & Zabala, 2013). Preventative programs require an understanding of the psychosocial predictors of doping intentions and behavior (Ntoumanis et al., 2014). A greater understanding of such factors can provide anti-doping education programs with essential information to guide curriculum development and program evaluation.

The most significant development to address PED use in sport was the creation of the WADA, and the Word Anti-Doping Code (Code) in 1999. The mission of WADA is "to lead a collaborative worldwide movement for doping-free sport by developing, harmonizing, coordinating and monitoring anti-doping rules and policies across all sports and countries" (WADA, 2022, para 1). WADAs initiatives include scientific research; development of anti-doping capacities; education; and monitoring of the Word Anti-Doping Code- a document that brings together anti-doping policies within all sports and countries (WADA, 2022).

Spirit of Sport Values

According to WADA (2015), doping is fundamentally contrary to the *spirit of sport*. Following numerous doping scandals, including the Perth Swimming Championship and the 1998 Ture de France, a WADA team was composed to consult with international sports organizations to develop a statement. The Canadian Center for Drug Free Sport introduced the *spirit of sport campaign* in 1993, and this evolved into the basis for the *spirit statement*. The *spirit statement* was included in the first version of the WADA Code and remained unchanged through the 2015 Code. The *spirit of sport* includes 12 values representing the heart of Olympism. It is the celebration of the human spirit, body, and mind, and is reflected by the following values: Dedication and Commitment; Respect for Rules and Laws; Respect for Self and Other Participants; Courage; Community and Solidarity; Ethics; Fair Play and Honesty; Health, Excellence in Performance; Character and Education; Fun and Joy; and Teamwork (WADA, 2017).

The International Standards for Education (ISE)

According to WADA (2021), the purpose of educational programs is to preserve the *spirit of sport* and to protect athletes' health and right to compete on a level playing field. All signatories are to plan, implement, monitor, evaluate, and promote education programs in line with the ISE, which is a mandatory international standard developed as part of the World Anti-Doping Program. The guiding purpose of the ISE is to support the preservation of the *spirit of sport* as outlined in the Code and to foster clean sport. Pursuant to the ISE, signatories' education plans should state the overall aims of the education program as well as list measurable and specific learning objectives and timelines related to activities for participants in the

education pool. Appropriate educational activities should be selected to achieve the objectives of the education plan.

Values based education (VBE) is defined by the ISE as "delivering activities that emphasize the development of an individual's personal values and principles. It builds the learner's capacity to make decisions to behave ethically" (WADA, 2021b, para.1). In accordance with the ISE, VBE should remain a focus, particularly in children and youth through school and/or sports club programs, and with the relevant public authorities. The ISE also states that signatories shall include principles and values associated with clean sport as a topic in their education programs.

There is little research on doping in relation to values (Mortimer et al. 2020), yet values are encouraged by WADA to be principal components of anti-doping educational programing. WADA signatories are prevented from funding sports deemed non-compliant to the Code. Signatories must be Code compliant, thus adopting values-based anti-doping education components as outlined in the Code and the ISE (WADA, 2021)

Mazanov and Huybers (2016) examined values in the s*pirit statement* in relation to sport in general, an elite sport frame, and a non-elite sport frame. Best-Worst Scaling (BWS) was used, and athletes were asked to rate the importance of each value on a 9-point scale. Results indicated that some values in the *spirit statement* were irrelevant to sport. Additionally, there was variation across demographic status and frames in what were important values. Mortimer et al. (2020) further examined the importance of *spirit of sport* values (WADA, 2015) among university athletes in the UK. Clean sport likelihood was positively predicted by five *spirit of sport* values: ethics/fair play/honesty, respect for rules/laws, dedication/commitment, teamwork, community/solidarity; two sport value domains: morality and competence. The Youth Sport

Values Questionnaire (YSVQ, Lee et al., 2000) and Youth Sport Values Questionnaire-2 (YSVQ-2; Lee et al., 2008) were used to measure 18 individual sport values in college athletes. This study found that half of WADAs *spirit of sport* values did not relate to clean sport likelihood, but medium-sized relationships with clean sport likelihood were found for values with moral content suggesting anti-doping educational programs identify and focus more on moral values content. YSVQ and YSVQ-2 scales utilized in this study were originally developed and tested with youth sport club participants aged between 12-16 years of age and not with an adult population. Additionally, the YSVQ measured items on a ranking scale to identify value priorities.

Limitations with Current Approaches in Assessing Spirit of Sport Values in Elite Athletes

One concern with the *spirit of sport* is the absence of value(s) definitions. McNamee (2012) argues that value definitions are unnecessary, as values will be viewed differently among athletes cross-culturally and/or globally. To date, operationalizing the *spirit statement* and its values remains problematic. As previously mentioned, there is little research on doping in relation to values (Mortimer et al. 2020). The lack of existing assessment tools is potentially one key reason for the limited research. Instrumentation exists across different research fields, and it is used to measure each of the values. However, such instruments are rarely tested with an adult elite athlete population to assess their reliability. Previous studies have examined the importance of the *spirit of sport* values in the elite and non-elite population (Mazanov & Huybers 2016; Mortimer et al., 2020). These studies provide meaningful insight into the importance of these values among athletes and how values may relate to clean sport. However, the YSVQ is a scale that has not been utilized with an adult elite athlete population, and the Best Worst Scale assesses the importance of the value to the athlete but does not measure the value within the athlete.

Mazanov & Huybers (2016) argue that psychological research needs to further investigate the construct *of spirit of sport* given its role in the Code. To better guide anti-doping education and prevention, *spirit of sport* values needs to be better understood in the elite athlete population. Efforts to examine the psychometric properties of existing scales measuring these values is needed to assess their appropriateness with elite athletes.

Present Study

Accordingly, the aim of this paper is to utilize exploratory factor analysis with the 13 existing scales measuring *spirit of sport* values to assess their reliability and appropriateness in future modeling with an elite athlete sample. We will conduct a normality test on each of the 13 values to determine the type of extraction to utilize for the scales. After the EFA is conducted we will analyze the results to determine which items from each instrument are reliable and appropriate for future modeling with an elite athlete sample.

Method

Data Description

Data for this study were collected from an online survey distributed to 221 USA Swimming athletes. Existing instruments were used to measure the following 13 *spirit of sport* values: (1) Ethics, (2) Honesty, (3) Excellence in Performance, (4) Fun/Joy, (5) Teamwork, (6) Dedication; (7) Respect for Rules/Laws, (8) Respect for Self, (9) Respect for Other Participants, (10) Community, (11) Courage, (12) Character, and (13) Health.

Procedure & Setting

All data collection occurred via an online survey. Participants completed a short demographics questionnaire, followed by questionnaires which separately measured 13 *spirit of sport* values. These measures are described below; self-report scales were chosen on the

following criteria: (a) demonstrated good validity, (b) used with athletes, or (c) used individuals 18+ years of age. Each measure is described in the measures section below.

Participants

The study consists of data from elite USA Swimming athletes who participated at the national level within the past year. Recruitment of USA Swimming athletes ran from June 2023 until July 2023. Athletes were contacted via email and informed about the optional survey. All athletes who were over the age of 18, and who were members of national level teams, were eligible to participate in the survey. Once participants logged into the survey, they were asked to complete an electronic informed consent. At the completion of the survey, all data collected was disconnected from the participant. 90 athletes from USA Swimming (41.6%) agreed to the informed consent and completed some aspects of the online survey. Respondents were eliminated from analyses if they did not answer any additional questions past the informed consent (N=9) or if they had taken the survey multiple times (N=4). A final sample (N=77) was used to analyze the survey results. Participants were male (N=36; 46.8%), female (N=41; 53.2%). Most participants were between the ages of 18-23 (N=50; 64.9%). The second largest age group was 24-30 (N=22; 28.6%). When examining participants' highest level of competition, 24.7% (N=19) indicated competing in the Olympic games, 53.2% (N=41) competed in world championship events or international events, and 20.8% competed at a national competition. 40.3% (N=31) of participants had/held a national title, 29.9 (N=23) had/held an international title, and 23.4% had/held a state title.

Measures

Honesty

HEXCO 60 is a personality inventory that assesses the 6 dimensions of the HEXACO model of personality structure. Factors of the HEXACO model of personality structure include Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness versus Anger (A), Conscientiousness (C), and Openness to Experience (O). Ashton and Lee (2009) selected 10 items from each of the 6 scales from the longer 100-item HEXACO Personality Inventory–Revised (HEXICO-PI-R) and aimed to construct an instrument that would show strong psychometric properties when administered to samples of participants drawn from college student or community adult populations. The internal consistency reliabilities of the reduced scale ranged from .77 to .80 in the college sample and from .73 to .80 in the community sample. This survey will utilize 10- items from the Honesty-Humility subscale with was shown to have an internal consistency of .79 among the college sample and .74 in the community sample.

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Fun

Motivations for Physical Activity Measure-Revised (MPAM-R) is a revision of MPAM (Frederick & Ryan, 1993). MPAM-R consists of 5 categories of reasoning for engaging in

physical activity (enjoyment, fitness, appearance, competence, and social) with a total of 30 items. MPAM-R was tested with new members of a university fitness center (89 females and 66 males). Subscale alphas for MPAM-R were .92, .91., .83, .78, and .88. This study will only utilize the enjoyment subscale (7 items) to assess the *spirit of sport* value of fun.

Ethics

Ethics was measured using the Self-Importance Moral Identity Scale. Morality (i.e., being a moral person) is commonly assessed using Aquino and Reed's (2002) Self-Importance Moral Identity Scale. Moral identity is "the extent to which morality and being amoral person are important to one's identity" (Hardy, 2018, p. 89). Psychometric analyses of the Self-Importance Moral Identity scale resulted in a 10-item scale consisting of two 5-item subscales, named Internalization and Symbolization, reflecting the private and public aspects of moral identity. Cronbach alpha reliability values ranged from .70 to .83 for Internalization and from .69 to .82 for Symbolization. Test-retest correlations, over four-to-six-week spans, were .49 for Internalization and .71 for Symbolization.

Self-Respect

The Appraisal Self-Respect Scale (ASR) is a 7-item scale that measures a disposition to perceive or appraise oneself as being a respect worthy honorable person. The ASR scale was found to be unidimensional and showed good internal and acceptable test-retest reliability. Trait ASR was correlated with (yet distinct from) theoretically related measures of global self-esteem, moral self and principledness, and was distinct from other self-esteem facets not based on honorable character traits (Clucas et al., 2022).

Teamwork

Teamwork Scale for Youth was developed by Lower et al. (2019) to measure youths' perceptions of their teamwork competency. This scale has also been tested with adults 15-58 years old in a vocational training context and has been found to have an internal consistency of the overall scale with Cronbach Alpha (α=.81) (Guardia at al., 2022).

Community

The Sense of Community Index 2 (SCI-2) was used to measure the *spirit of sport* value community. SCI is the most frequently used measure of sense of community in the social sciences and has been used in numerous studies around the world. It was developed on a theory of sense of community (McMillan and Chavis, 1986) stating that a sense of community was a perception with the following subscales: membership, influence, meeting needs, and a shared emotional connection. The SCI-2 is a revised version shown to be a very reliable measure (coefficient alpha= .94). The subscales have also proved to be reliable with coefficient alpha scores of .79 to .86. This study will only be utilizing the subscale of Membership.

Courage

The Courage Measure (6 item short scale) was used to assess the *spirit of sport* value courage. The courage scale was originally developed by Norton and Weiss (2009) and adapted by Ginevra et al. (2020). Norton and Weiss (2009) considered courage persistence or perseverance despite being afraid. Ginevra et al. (2018) tested the reduced 6-iem scale with a sample of Italian adults and carried out a multiple-group confirmatory factor analysis to investigate the factorial invariance of the reduced scale. Results suggested that the reduced scale measures the same latent dimension in men and women and in young adults and middle-aged adults.

Character

Character was assessed with the Values in Action Inventory of Strengths (VIA-IS-V3). VIA-IS-V3 consists of 24 items (8 items per virtue), positively and negatively keyed, resulting in scores for the 3 virtues developed subsequently for the VIA Classification. Subscales of VIA-IS-V3 include Caring, Inquisitiveness, and Self-Control. Mean reliability is .8 (VIA-IS; Peterson, Park, & Seligman, 2005a).

Analysis

A Shapiro-Wilk test of normality was conducted first to assess if the data were normally distributed to make informed decisions on the type of extraction to use in the EFA. It is important to have a theory guide the dimension reduction. The Shapiro-Wilk test was selected because is appropriate for sample sizes less than 100 (Curtain University, 2023). If the test is non-significant ($p > .05$), the distribution of the sample is not significantly different from the normal distribution. If that data were normally distributed ($p > .05$), maximum likelihood (ML) was selected as a factor reduction method because "it allows for the computation of a wide range of indexes of the goodness of fit of the model [and] permits statistical significance testing of factor loadings and correlations among factors and the computation of confidence intervals" (Fabrigar et al., 1999, p.277).

If the normality test is significant ($p < .05$) then the distribution is significantly different from a normal distribution. If normality is severely violated Fabrigar et al. (1999) recommend that principal axis factoring (PAF) be used as the extraction method. Costello & Osborne (2005) further suggest that when selecting an extraction method, ML and PAF would provide optimal results depending on if the data is normally distributed or significantly non-normal. Costello & Osborne (2005) posit that human behavior "is rarely partitioned into packaged units that function

independently of each other" and using orthogonal rotation will result in a loss information if the factors are correlated (p.3). The rotation method used for all scales in this study will be direct oblimin because we expect some correlation among factors. The number of factors to extract was determined using the eigenvalue method (i.e., eigenvalues greater than 1) along with scree plot analysis (Yong & Pearce, 2013).

Results

Table 1. Tests of Normality for Spirit of Sport Values (N=77)

	Kolmogorov-Smirnova			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
Honesty	.077	52	.200*	.986	52	**.806**
Ethics	.123	52	.048	.953	52	.037
Excellence: Task	.296	52	<.001	.533	52	<.001
Excellence: Ego	.129	52	.030	.912	52	<.001
Dedication	.216	52	<.001	.868	52	<.001
Self-respect	.157	52	.003	.851	52	<.001
Respect for rules	.188	52	<.001	.867	52	<.001
Health	.152	52	.004	.958	52	**.062**
Respect for others	.093	52	.200*	.966	52	**.149**
Community	.129	52	.031	.953	52	.038
Teamwork	.109	52	.177	.916	52	.001
Courage	.115	52	.082	.975	52	**.330**
Fun	.118	52	.068	.952	52	.034
Character	.088	52	.200*	.992	52	**.980**

NOTE: * This is a lower bound of true significance.

The results from normality test (Table 1) show that the distribution for ethics, excellence-task, excellence-ego, dedication, self-respect, respect for rules, community, teamwork, and fun have a $p < .05$. The exploratory factor analysis of scales measuring these values will be conducted using PAF method of extraction with the oblique rotation. The reasoning for this is that the items would likely be related conceptually. Table 1 also illustrates that the values of honesty,

health, respect for others, courage, and character are not normally distributed with a p value >.05. Therefore, an ML with a direct oblimin rotation will be used for these values.

Table 2. KMO and Bartlett's Test: Task and Ego Orientation Questionnaire

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.847
Bartlett's Test of Sphericity	Approx. Chi-Square	602.986
	df	66
	Sig.	<.001

Figure 3. Scree Plot Task and Ego Orientation Questionnaire

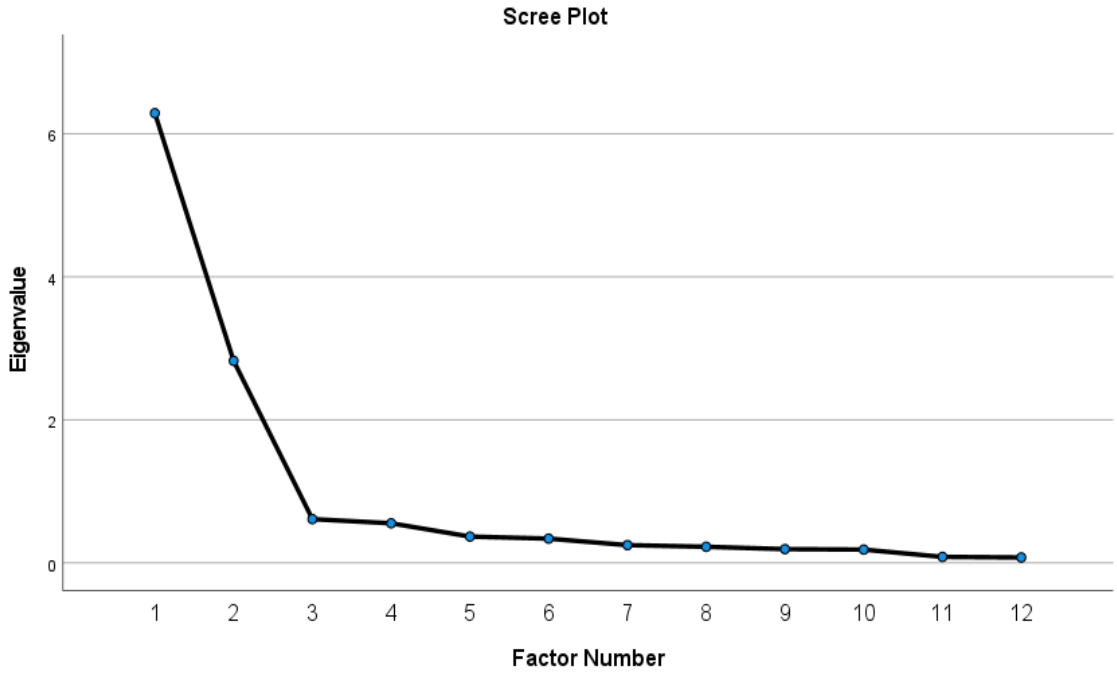

Table 3. Pattern Matrix a: Task and Ego Orientation Questionnaire

	Item	Factor 1 Task	2 Ego	Communality
1.	In sport I feel most successful when I ...I perform to the best of my abilities	**.882**		.74
2.	In sport I feel most successful when I …I reach personal goals	**.845**		.85
3.	In sport, I feel most successful when I... I reach a goal	**.844**		.81
4.	In sport I feel most successful when I ...I show clear personal improvement	**.822**		.72
5.	In sport I feel most successful when I ...I overcome difficulties	**.812**		.72
6.	In sport, I feel most successful when I... I work hard	**.762**		.57
7.	In sport, I feel most successful when I... I am clearly superior		**.899**	.76
8.	In sport, I feel most successful when I... I am the best		**.854**	.76
9.	In sport, I feel most successful when I... I win		**.827**	.76
10.	In sport, I feel most successful when I... I outperform my opponents		**.827**	.76
11.	In sport, I feel most successful when I... I beat other people		**.823**	.86
12.	In sport, I feel most successful when I... I show other people I am the best		**.660**	.67
	Eigenvalues	6.0	2.5	
	% of variance	51	21	

NOTE: Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.
[a] Rotation converged in 6 iterations.

Loading Patterns: Task and Ego Orientation Questionnaire

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 12 items of the Task and Ego Orientation Questionnaire (Nicholls, 1989). The Kaiser-Meyer-Olkin (KMO) measure of sampling is >.70 indicating sufficient items for each factor (Table 2). Bartlett's Test of Sphericity is significant <.05 (Table 2), indicating the correlation matrix is not significantly different from the identity matrix, in which correlations between all variables are zero. The Barlett Test should be significant (<.05) which means that the variables are correlated highly enough to provide a reasonable basis for factor analysis. The initial communalities represent the relation between the variable and other variables before rotation. Two factors were requested, since the items were designed to index two constructs: task-oriented goals, and ego-oriented goals. After rotation, the first factor (task) accounted for 51% of the variance, and the second factor (ego) accounted for 21% of the variance (Table 3). The scree plot (Figure 3) also illustrates that there are two factors. Table 3 displays item pattern loadings and communalities. Loadings of |40| or greater are typically considered high (Leech et al., 2015). As seen in Table 4, all items in factors one and two are above .66. Both task and ego items demonstrated reliability. Cronbach's alpha reliability values were .929 for the six task items and .928 for the six ego items.

Ethics: Self-Importance Moral Identity Scale

Table 4. KMO and Bartlett's Test: Self-Importance Moral Identity Scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.730
Bartlett's Test of Sphericity	Approx. Chi-Square	235.420
	df.	45
	Sig.	<.001

Figure 4. Scree Plot: Self-Importance Moral Identity Scale

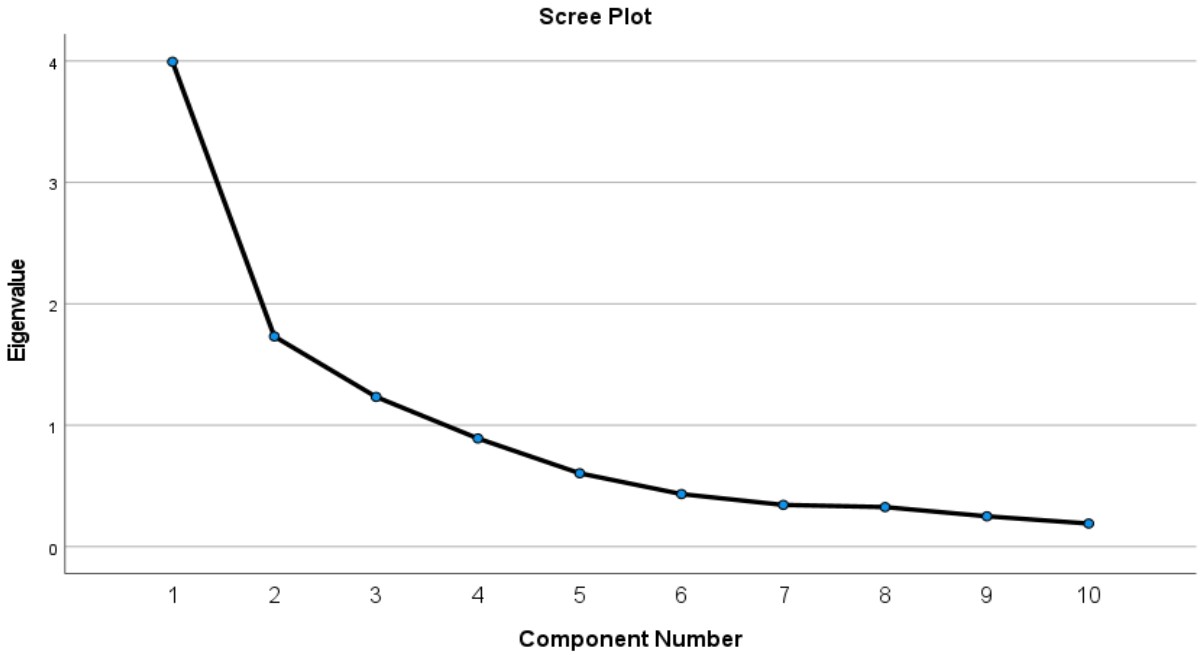

Table 5. Pattern Matrix: Self-Importance Moral Identity Scale

Item	Factor 1 External	2 Internal	Communality
1. The kinds of books and magazines that I read identify me as having these characteristics.	**.861**		.64
2. The types of things that I do in my spare time (e.g., hobbies) clearly identify me as having these characteristics.	**.771**		.62
3. I am actively involved in activities that communicate to others that I have these characteristics.	**.720**		.62
4. I often buy products that communicate the fact that I have these characteristics .	**.693**		.52
5. The fact that I have these characteristics is communicated to others by my membership in certain organizations.	**.578**		.50
6. Being someone who has these characteristics is an important part of who I am..		**.722**	.57
7. It would make me feel good to be a person who has these characteristics.		**.662**	.57
8. I strongly desire to have these characteristics.	.323	**.572**	.50
9. Having these characteristics is not really important to me.		.457	.40
10. I would be ashamed to be a person who has these characteristics.	-	-	.39
Eigenvalues	3.6	1.2	
% of variance	35.6	11.7	

NOTE: Extraction Method: Principal Axis Factoring. Rotation Method.
Oblimin with Kaiser Normalization [a] Rotation converged in 5 iterations. Loadings <.40 are omitted

Loading Patterns: Self-Importance Moral Identity Scale

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 10 items from the Self-Importance Moral Identity Scale (Aquino & Reed, 2002). The Kaiser-Meyer-Olkin (KMO) measure of sampling is >.70 indicating sufficient items for each factor (Table 4). Bartlett's Test of Sphericity is significant <.05 (Table 4), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities are all above .30. Two factors were requested since the items were designed to index two constructs: external view and internal view of oneself. After rotation, the first factor (external) accounted for 35.6% of the variance, and the second factor (internal) accounted for 11.7% of the variance (Table 5). Table 5 displays item pattern loadings and communalities, which reflect items on external motivation (items 1-5) and explain the most variance among the 2 factors. Cronbach's alpha reliability value for the full 10 item scale was .773. Three items for internal view had a factor loading above .50 (*Being someone who has these characteristics is an important part of who I am; It would make me feel good to be a person who has these characteristics;* and *I strongly desire to have these characteristics*). These three items reflect the desire to have personal characteristics (caring, compassionate, fair, friendly, generous, helpful, hardworking, honest, and kind) and were selected for future use to measure internal view of moral identity. The reliability for the reduced 3-items measuring internal motivation is .751.

Community: The Sense of Community Index 2 (SCI-2)

Table 6. KMO and Bartlett's Test: SCI-2

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.617
Bartlett's Test of Sphericity	Approx. Chi-Square	73.045
	df	15
	Sig.	<.001

Figure 5. Scree Plot: SCI-2

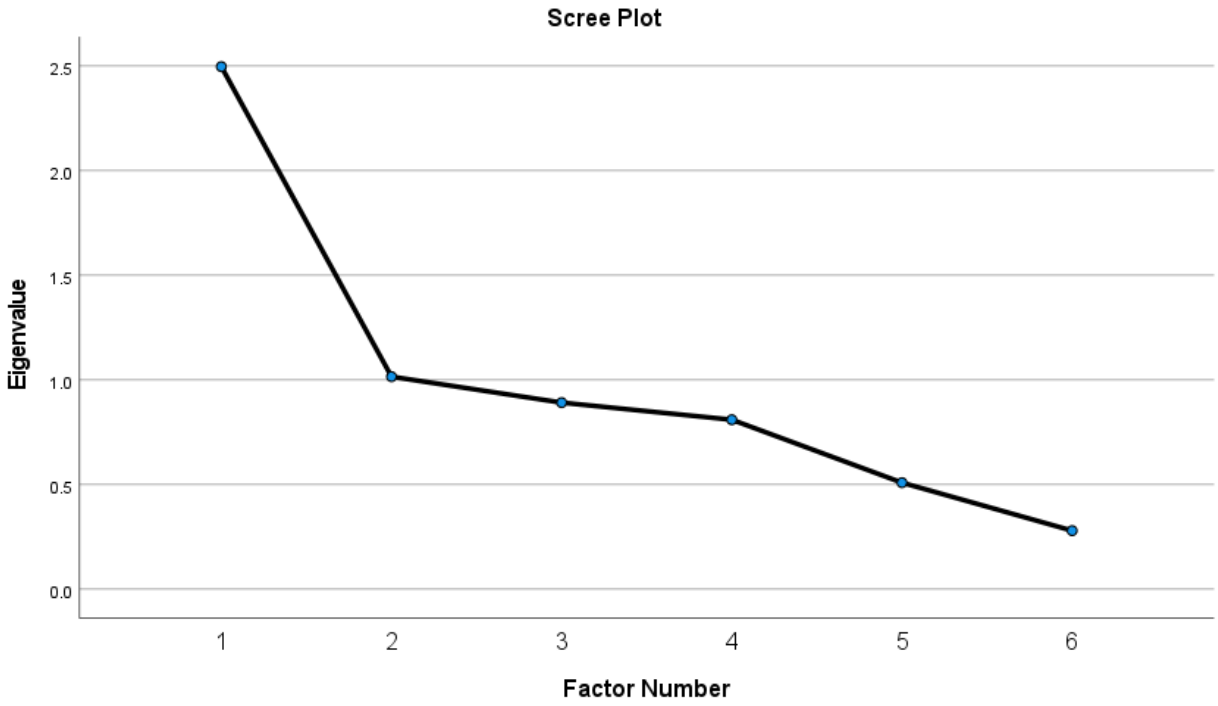

Table 7. Factor Matrix a: SCI-2

	Factor 1	
Item	Community Membership	Communality
1. Being a member of this swimming community is a part of my identity	**.764**	50
2. I put a lot of time and effort into being part of this swimming community	**.700**	.47
3. I can recognize most of the members of this swimming community	**.666**	.43
4. Most swimming community members know me	.395	.24
5. This swimming community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize	.364	.16
6. I can trust people in this swimming community	.331	.14
Eigenvalues	2.5	
% of variance	36	

Note: Extraction Method: Principal Axis Factoring.
[a] 1 factor extracted. 7 iterations required.

Loading Patterns: SCI-2

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 10 items from the Sense of Community Index 2 (SCI-2). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .617 (Table 6), indicating sufficient items for each factor (less than .50 is inadequate). Bartlett's Test of Sphericity is significant <.05 (Table 6), indicating the correlation matrix is not significantly different from the identity matrix. The initial communalities represent the relation between the variable and other variables before rotation. Initial communalities are above .30 for all items. After rotation, the single factor (community membership) accounted for 36% of the variance (Table 7). Table 7 displays item factor loadings and communalities. Items will not be selected for future use if they have factor loadings less than .50. Items selected for further use with an elite athlete population can be found in factor 1 (items 1-3) which were above .50. Cronbach's alpha reliability value for the full 5 item scale was .841. and .739 for the reduced 3-item scale (items 1-3).

Dedication: The Multidimensional Sportsperson Orientations Scale (MSOS) Commitment Subscale

Table 8. KMO and Bartlett's Test: MSOS (Commitment Subscale)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.785
Bartlett's Test of Sphericity	Approx. Chi-Square	135.72
	df	10
	Sig.	<.001

Figure 6. Scree Plot: MSOS (Commitment Subscale)

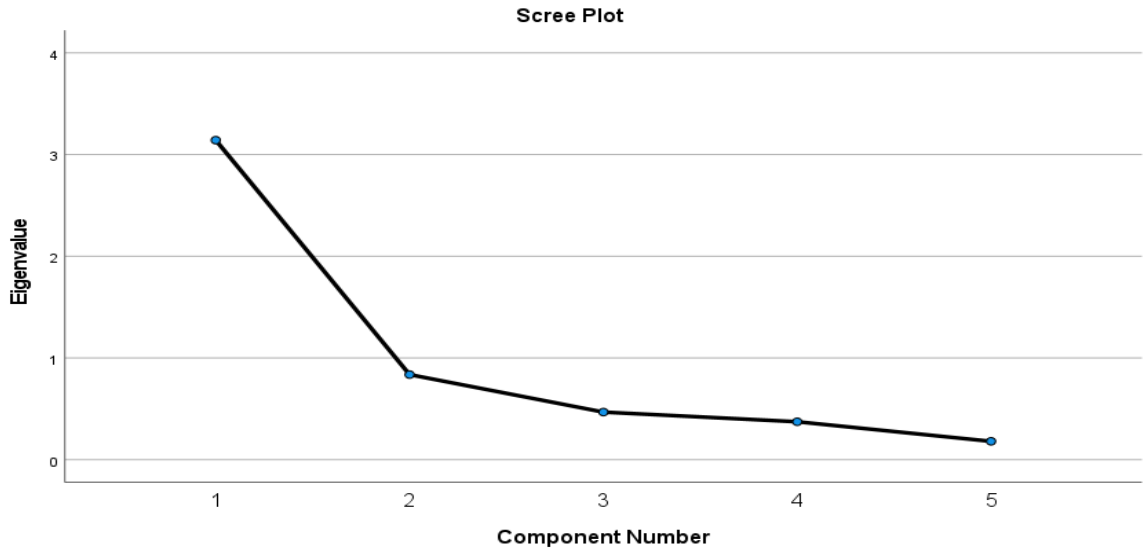

Table 9. Factor Matrix a: MSOS (Commitment Subscale)

Item	Factor 1 Commitment	Communality
1. I don't give up even after making many mistakes	**.971**	.75
2. It is important to me to be present at all practices	**.744**	.53
3. I think about ways to improve my weaknesses	**.720**	.52
4. During practices, I go all out	**.677**	.52
5. In competition, I go all out even if I'm almost sure to lose	**.535**	.31
Eigenvalues	3.1	
% of variance	55.2	

NOTE: Extraction Method: Principal Axis Factoring. [a] 1 factor extracted. 10 iterations required.

Loading Patterns: MSOS (Commitment Subscale)

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 5 items from the Multidimensional Sportsperson Orientations Scale (MSOS) (Vallerand et al. 1997), measuring the subconstruct of commitment. The Kaiser-Meyer-Olkin (KMO) measure of sampling is .79 (Table 8), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 8), indicating the correlation matrix is not significantly different from the identity matrix. The initial communalities represent the relation between the variable and other variables before rotation. Initial communalities are above .30 for all three items. Figure 6 (scree plot) indicates that there is 1 factor. After rotation, the single factor (commitment) accounted for 55.2% of the variance (Table 9). Table 9 also displays item factor loadings and communalities. We suggest that all items be used with an elite athlete population. Cronbach's alpha reliability value for the full 5-item subscale measuring commitment is .841.

Self-Respect: The Appraisal Self-Respect Scale (ASR)

Table 10. KMO and Bartlett's Test: ASR

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.856
Bartlett's Test of Sphericity	Approx. Chi-Square	179.149
	df	21
	Sig.	<.001

Figure 7. Scree Plot: ASR

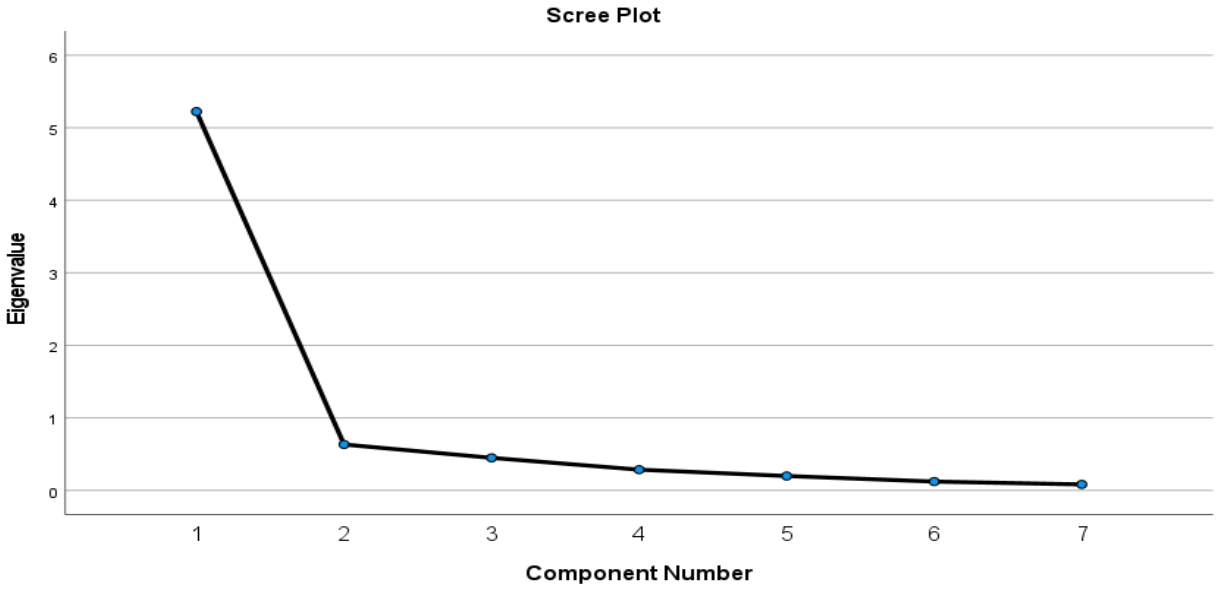

Table 11. Factor Matrix a: ASR

	Item	Factor 1	Communality
1.	I take pride living according to my moral code	**.916**	.83
2.	I see myself as an honorable person	**.899**	.86
3.	I feel I have a high strength of character	**.870**	.74
4.	I feel I have moral courage	**.838**	.76
5.	I have a lot of respect for myself	**.824**	.81
6.	I see my behavior as dignified	**.767**	.66
7.	I will always stick to my principals even if asked to do otherwise.	**.754**	.68
	Eigenvalue	5.2	
	% of variance	70.6	

NOTE: Extraction Method: Principal Axis Factoring.
[a] 1 factor extracted. 5 iterations required.

Loading Patterns: ASR

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 7 items from the Appraisal Self-Respect Scale (ASR) (Clucas et al., 2022). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .86 (Table 10), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 10), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities are all above .30. Figure 7 (scree plot) illustrates one factor. After rotation, a single factor for appraisal self-respect accounted for 70.6% of the variance (Table 11). Table 11 displays item factor loadings and communalities. Cronbach's alpha reliability value for the full 7-item scale was .943.

Respect for Rules: The Multidimensional Sportsperson Orientations Scale (MSOS) (Respect for Rules Subscale)

Table 12. KMO and Bartlett's Test: MSOS (Respect for Rules Subscale)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.765
Bartlett's Test of Sphericity	Approx. Chi-Square	163.944
	df	10
	Sig.	<.001

Figure 8. Scree Plot: MSOS (Respect for Rules Subscale)

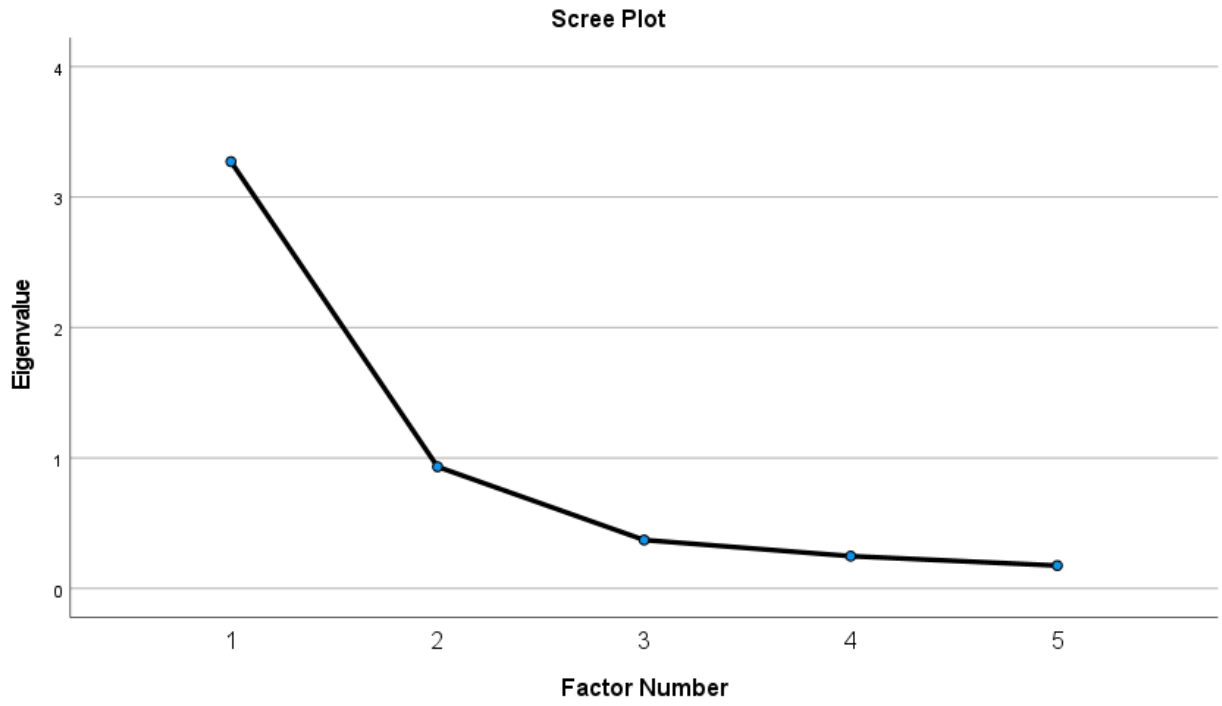

Table 13. Factor Matrix a: MSOS (Respect for Rules Subscale)

	Factor 1 Respect for Rules	Communality
1. I respect an official's decision even if he or she is not the referee	**.817**	.72
2. I obey the referee	**.804**	.55
3. I respect the referee even when he or she is not good	**.764**	.69
4. I respect the rules	**.751**	.63
5. I really obey all rules of my sport	**.628**	.55
Eigenvalue	3.3	
% of variance	57.1	

NOTE. Extraction Method: Principal Axis Factoring. [a] 1 factor extracted. 7 iterations required.

Loading Patterns: MSOS (Respect for Rules Subscale)

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 5 items from the Multidimensional Sportsperson Orientations Scale (MSOS) (Vallerand et al. 1996), measuring the subscale of respect for rules. The Kaiser-Meyer-Olkin (KMO) measure of sampling is .77 (Table 12), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 12), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities are all above .30. After rotation, a single factor accounted (respect for rules) for 57.1% of the variance (Table 13). Table 13 displays item factor loadings and communalities. Cronbach's alpha reliability value for the 5-item subscale scale is .849.

Fun: Motivations for Physical Activity Measure-Revised (MPAM-R) (Enjoyment Subscale)

Table 14. KMO and Bartlett's Test: MPAM-R (Enjoyment Subscale)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	261.490
	df	21
	Sig.	<.001

Figure 9. Scree Plot: MPAM-R (Enjoyment Subscale)

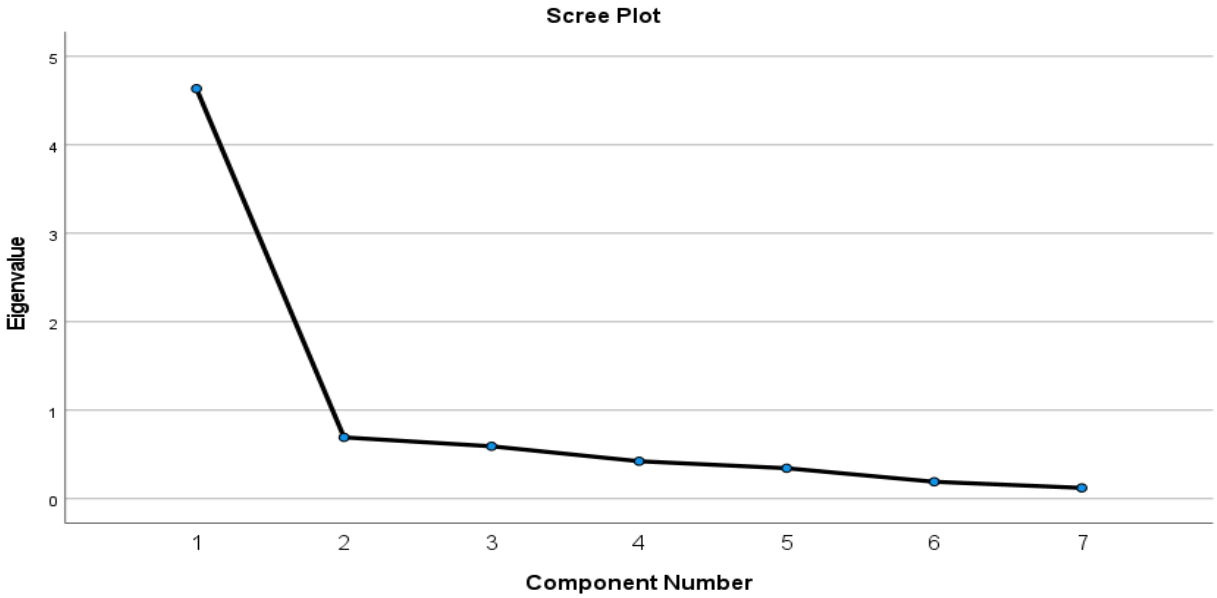

Table 15. Factor Matrix a: MPAM-R (Enjoyment Subscale)

	Item	Factor 1 Fun/Enjoyment	Communality
1.	Because I enjoy this activity	**.901**	.78
2.	Because I like to do this activity	**.866**	.77
3.	Because it makes me happy	**.858**	.79
4.	Because it's fun	**737**	.54
5.	Because I like the excitement of participation	**.711**	.58
6.	Because I think it's interesting	**.689**	.48
7.	Because I find this activity stimulating	**.672**	.49
	Eigenvalue	4.6	
	% of variance	66.2	

NOTE: Extraction Method: Principal Axis Factoring.
[a] 1 factor extracted. 5 iterations required.

Loading Patterns: MPAM-R (Enjoyment Subscale)

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 7 items from the Motivations for Physical Activity Measure-Revised (MPAM-R) (Frederick & Ryan, 1993). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .86 (Table 14), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 14), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities are all above .30. The scree plot (Figure 9) shows one factor present. After rotation, a single factor (enjoyment) accounted for 66.2% of the variance. Table 15 displays item factor loadings and communalities. Cronbach's alpha reliability value for the 7-item subscale scale is .91.

Teamwork: Teamwork Scale for Youth

Table 16. KMO and Bartlett's Test: Teamwork Scale for Youth

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.883
Bartlett's Test of Sphericity	Approx. Chi-Square	210.469
	df	28
	Sig.	<.001

Figure 10. Scree Plot: Teamwork Scale for Youth

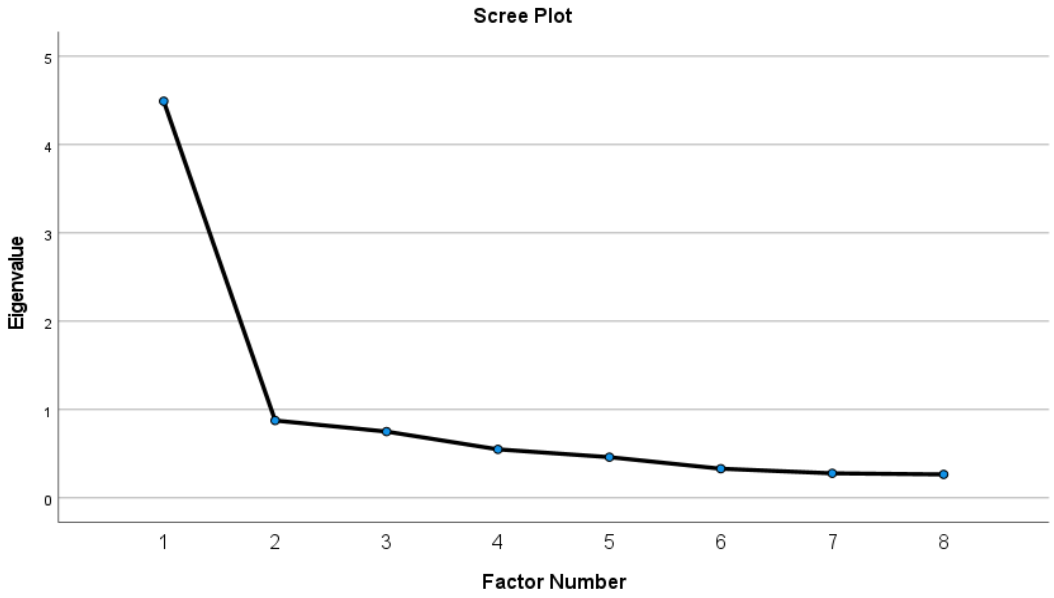

Table 17. Factor Matrix a: Teamwork Scale for Youth

Item	Factor 1 Teamwork	Communality
1. People who work as part of a team can learn more than if they worked alone	.383	.17
2. I trust in my ability to work as part of a team	**.787**	.59
3. I know how to give my opinion to members of my team without hurting their feelings	**.781**	.59
4. I ask for the opinion of others	**.662**	.47
5. I make the effort to include other members of my group	**.775**	.57
6. I value the contributions made by the members of my team	**.794**	.60
7. I communicate well with team members	**.770**	.59
8. I think I can be a good leader	**.635**	.46
Eigenvalue	4.5	
% of variance	50.5	

NOTE: Extraction Method: Principal Axis Factoring.
[a] 1 factor extracted. 4 iterations required.

Loading Patterns: Teamwork Scale for Youth

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 8 items from the Teamwork Scale for Youth (Lower et al., 2019). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .88 (Table 16), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 16), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities are all above .30. Figure 10 (scree plot) and Table 17 (factor matrix) indicate that there is one factor on to which items were loading (enjoyment/fun), explaining 50.5% of the variance. Table 17 displays item factor loadings and communalities. Generally, factor loadings of |.40| or greater are considered high. As can be seen in Table 17, seven of the eight items have high factor loadings, and one item *(People who work as part of a team can learn more than if they worked alone)* has a low factor loading of .383. Cronbach's alpha reliability value for the full 8-item scale is .860. After removing the single item with a low factor loading *(People who work as part of a team can learn more than if they worked alone)*, the reliability for the reduced 7-item scale increased to .892.

Character: Values in Action Inventory of Strengths (VIA-IS-V3)

Table 18. KMO and Bartlett's Test: VIA-IS-V3

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.558
Bartlett's Test of Sphericity	Approx. Chi-Square	687.164
	df	276
	Sig.	<.001

The KMO test is a measure of whether the distribution of values based on the sample is adequate for conducting a factor analysis. This test indicates the amount of overlap or shared variance between pairs of variables. The KMO results are <.60 (Table 18) indicating that there are not sufficient items for the sample. Given the KMO results, only one of the three-character subconstructs (self-control) was selected for further analysis. A normality test was conducted on the self-control subscale. The subscale self-control was non-normal p=.047, so a PFA with a direct oblimin rotation was conducted on the items.

Table 19. KMO and Bartlett's Test: VIA-IS-V3 (Self-Control Subscale)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.718
Bartlett's Test of Sphericity	Approx. Chi-Square	233.255
	df	28
	Sig.	<.001

Figure 11. Scree Plot: VIA-IS-V3 (Self-Control Subscale)

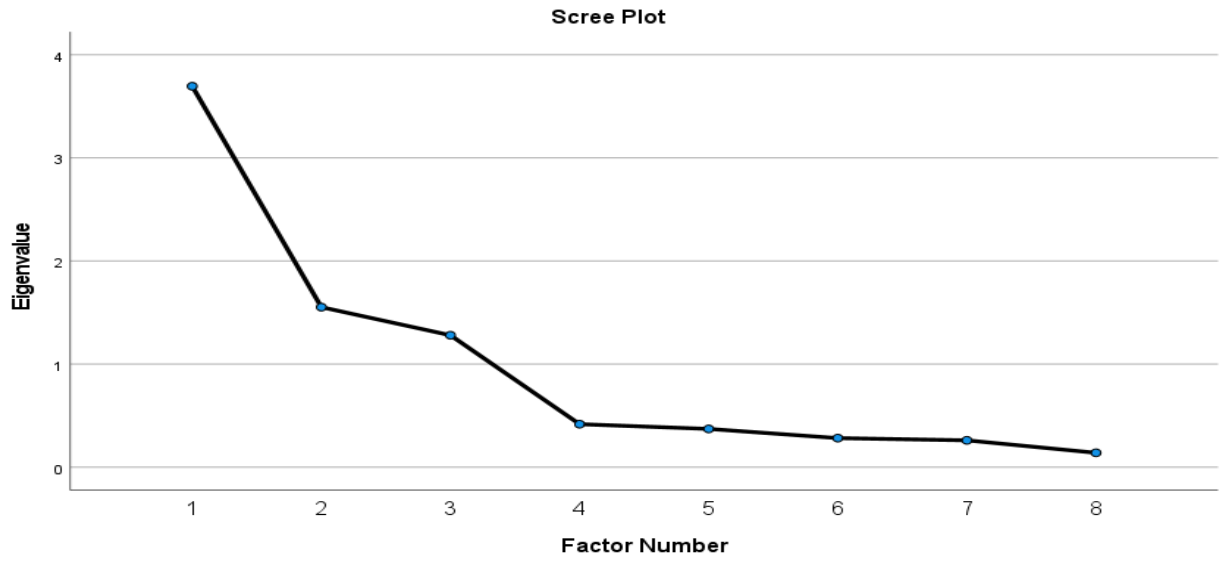

Table 20. Factor Matrix a: VIA-IS-V3 (Self-Control Subscale)

		Factor			
		1	2	3	Communality
1.	I am a highly disciplined person	**.903**	**-.504**	-.109	.76
2.	I always finish what I start	**.697**	.406	-.131	.60
3.	I lack self-discipline	**.675**	-.475	-.197	.69
4.	I have a hard time finishing what I start	**.631**	**.520**	-.231	.57
5.	It is easy for me to stay disciplined	**.625**	-.332	-.255	.53
6.	I leave a lot of tasks incomplete	**.604**	.488	-.178	.56
7.	I think through the consequences every time before I act	**.582**	-.013	**.654**	.57
8.	I always think about the consequences before I act	**.581**	.060	**.591**	.58
	Eigenvalue	3.7	1.5	1.2	
	% of variance	46	19	16	

NOTE: Extraction Method: Principal Axis Factoring.
[a] Attempted to extract 3 factors. More than 25 iterations required. (Convergence=.002). Extraction was terminated.

Loading Patterns: Character

Principal axis factor analysis with oblimin rotation was conducted to assess the underling structure of the 8 items subscale of self-control from the VIA-IS-V3 (McGrath, 2017). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .718 (Table 19), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 19), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities are all above .30, with communalities ranging from

.53 to .76 (Table 20). After rotation, three factors accounted for 70.9% of the variance. The scree plot (Figure 11) also indicates that there are three factors. Table 20 displays item factor loadings and communalities. Items 1-6 are cross-loading on factor 1 and 2, with items loading above .32 on each factor. Items 7-8 are cross-loading on factor one and three. Factor two and three both have two items above .50; however, a factor with less than three items is usually unstable (Costello & Osborne, 2005). Since all items in factor one are above .50 and reflect self-discipline, they will be selected for future analysis with an elite adult athlete sample. Cronbach's alpha reliability values for the 8-item subscale scale is .825.

Health: Health Consciousness Scale

Table 21. KMO and Bartlett's Test: Health Consciousness Scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.820
Bartlett's Test of Sphericity	Approx. Chi-Square	348.652
	df	55
	Sig.	<.001

Figure 12. Scree Plot: Health Consciousness Scale

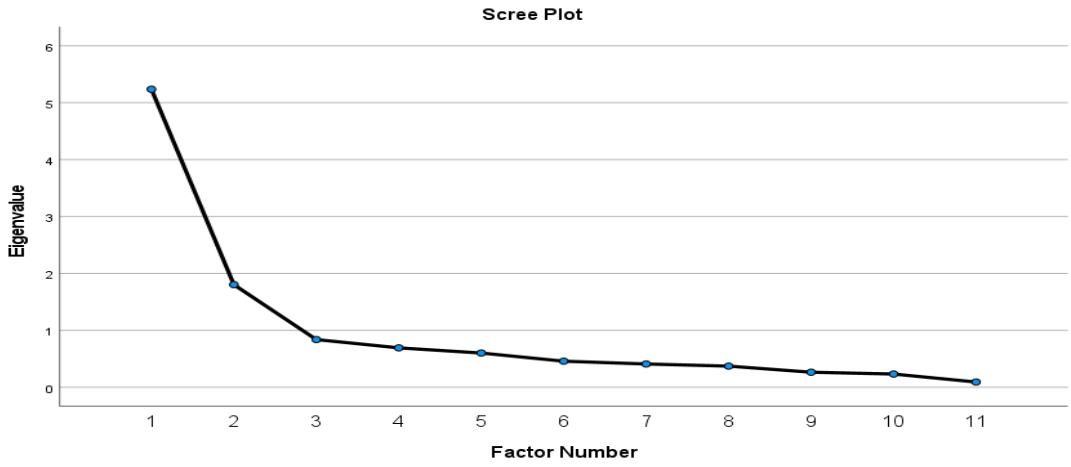

Table 22. Pattern Matrix a: Health Consciousness Scale

	Factor 1	2	Communality
1. I reflect about my health a lot.	**.948**	-.201	.833
2. I'm very self-conscious about my health.	**.605**	-.285	.487
3. I'm concerned about my health all the time	**.504**	-.363	.405
4. I'm generally attentive to my inner feelings about my health	**.883**	.047	.805
5. I notice how I feel physically as I go through the day.	**.758**	.009	.650
6. Living life in the best possible health is very important to me.	**.651**	.539	.679
7. Living life without disease and illness is very important to me	**.578**	.494	.611
8. Good health takes active participation on my part.	**.663**	.395	.637
9. I take responsibility for the state of my health.	**.596**	.431	.540
10. My health depends on how well I take care of myself.	.461	.465	.441
11. I only worry about my health when I get sick.	-.018	.390	.189
Eigenvalue	4.6	1.8	
% of variance	42.1	13.6	

NOTE: Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization [a] Rotation converged in 15 iterations.

Loading Patterns: Health Consciousness Scale

Maximum likelihood factor analysis with oblimin rotation was conducted to assess the underling structure of the 11 items from the Health Consciousness scale (Hong, 2009). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .820 (Table 21), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 21), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities were above .30 for all but one item (*I only worry about my health when I get sick*) (see Table 22). After rotation, two factors accounted for 55.8% of the variance. The scree plot (Figure 12) and the pattern matrix (Table 28) show that there are two factors on to which items were loading. Table 22 displays item factor loadings and communalities. There are three items that reflect the subscale of health motivation (*Living life in the best possible health is very important to me; Living life without disease and illness is very important to me; and My health depends on how well I take care of myself)*. Since all three items reflecting health motivation are loading highly on factor two, they will be selected for future utilization with an elite adult athlete sample. Cronbach's alpha reliability value was .833 for the full 11 item scale and .803 for the proposed reduced 3 item scale.

Respect for Others: The Multidimensional Sportsperson Orientations Scale (MSOS) (Respect for Opponent Subscale)

Table 23. KMO and Bartlett's Test: MSOS (Respect for Opponent Subscale)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.801
Bartlett's Test of Sphericity	Approx. Chi-Square	165.047
	df	10
	Sig.	<.001

Figure 13. Scree Plot: MSOS (Respect for Opponent Subscale)

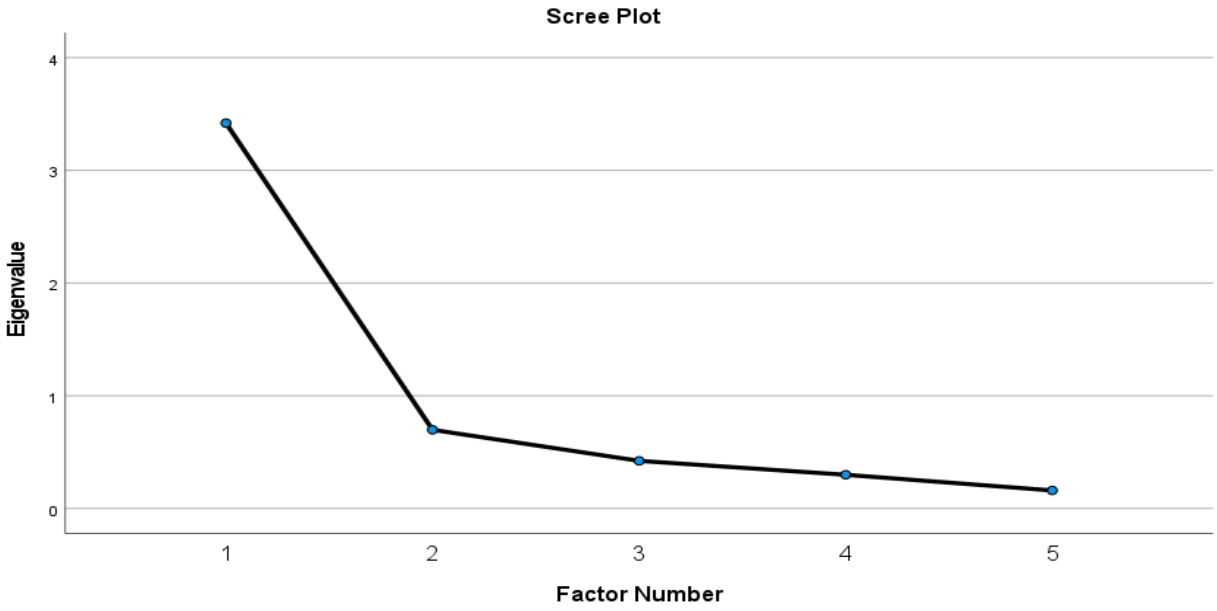

Table 24. Factor Matrix a: MSOS (Respect for Opponent Subscale)

		Factor 1	
		Respect for Other Participants	Communality
1.	I help the opponent get up after a fall.	**.793**	.620
2.	If I can, I ask the referee to allow the opponent who has been unjustly disqualified to keep on playing.	**.804**	.645
3.	When an opponent gets hurt, I ask the referee to stop the game so that he or she can get help.	**.765**	.595
4.	If I see that the opponent is unjustly penalized, I try to rectify the situation.	**.921**	.757
5.	If by misfortune, an opponent forgets his or her equipment, I lend him my spare one.	**.576**	.392
	Eigenvalue	3.4	
	% of variance	60.8	

NOTE: Extraction Method: Maximum Likelihood.
a 1 factor extracted. 5 iterations required.

Loading Patterns: MSOS (Respect for Opponent Subscale)

Maximum likelihood factor analysis with oblimin rotation was conducted to assess the underling structure of the 5-item subscale of respect for rules from the Multidimensional Sportsperson Orientations Scale (MSOS) (Vallerand et al. 1997). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .801 (Table 23), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05 (Table 23), indicating the correlation matrix is not significantly different from the identity matrix. Initial communalities were above .30 for all items (see Table 24). After rotation, one factor accounted for 60.8% of the variance (Table 24). The

scree plot (Figure 13) and the factor matrix (Table 24) show one factor on which items were loading reflecting respect for others. Table 24 displays item factor loadings and communalities.

Honesty: HEXCO 60 (Honesty-Humility Subscale)

Table 25. KMO and Bartlett's Test: HEXCO 60 (Honesty-Humility Subscale)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.541
Bartlett's Test of Sphericity	Approx. Chi-Square	112.981
	df	45
	Sig.	<.001

The KMO test is a measure of whether the distribution of values based on the sample is adequate for conducting a factor analysis. This test indicates the amount of overlap or shared variance between pairs of variables. The KMO results are <.60 (.54), as seen in Table 25, indicating that there are not sufficient items for the sample. No items from this scale will be selected for future analysis with an elite adult athlete sample.

Courage: The Courage Measure (6 item short scale)

Table 26. KMO and Bartlett's Test: The Courage Measure (6-Item Short Scale)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.760
Bartlett's Test of Sphericity	Approx. Chi-Square	90.033
	df	15
	Sig.	<.001

Figure 14. Scree Plot: The Courage Measure (6-Item Short Scale)

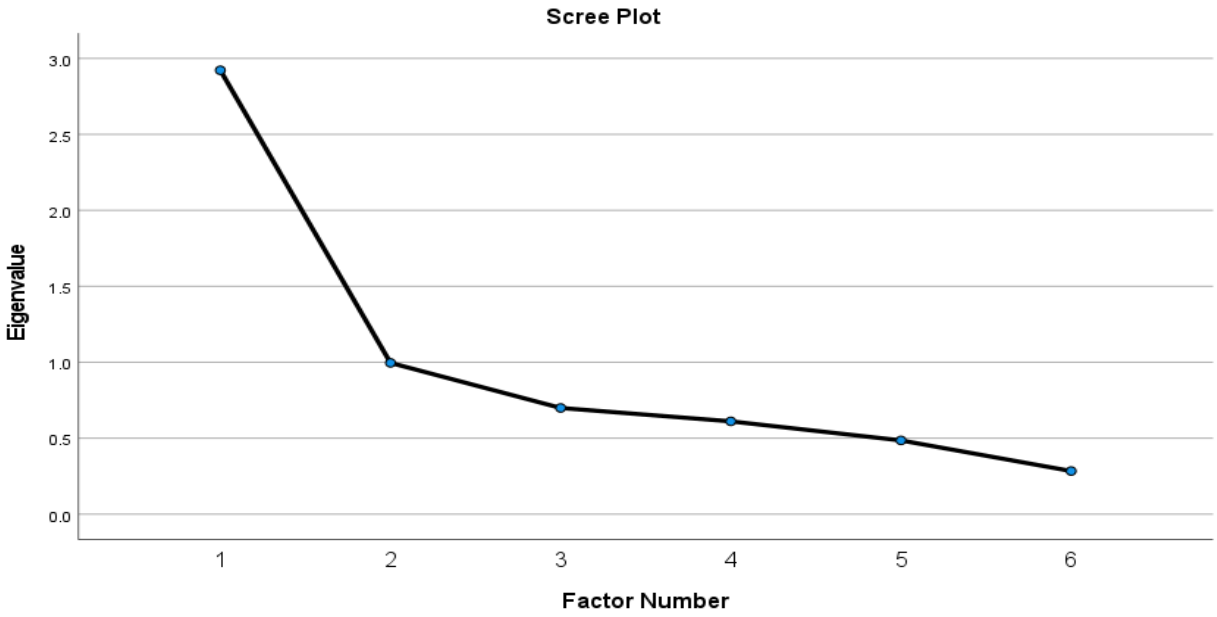

Table 27. Factor Matrix a: The Courage Measure (6-Item Short Scale)

	Item	Factor 1 Courage	Communality
1.	I tend to face my fears.	**.729**	.46
2.	Even if I feel terrified, I will stay in the situation until I have done what I need to do.	**.875**	.59
3.	I will do things even though they seem to be dangerous.	**.608**	.36
4.	If I am worried or anxious about something, I will do or face it anyway.	**.500**	.30
5.	If there is an important reason to face something that scares me, I will face it.	**.**340	.20
6.	Even if something scares me, I will not back down.	**.599**	.32
	Eigenvalues	2.9	
	% of variance	39	

NOTE: Extraction Method: Maximum Likelihood.
[a] 1 factor extracted. 5 iterations required.

Loading Patterns: The Courage Measure (6-Item Short Scale)

Maximum likelihood factor analysis with oblimin rotation was conducted to assess the underling structure of the Courage Measure (6-item short scale) (Ginevra et al., 2020). The Kaiser-Meyer-Olkin (KMO) measure of sampling is .760 (Table 26), indicating sufficient items for each factor. The Bartlett's Test of Sphericity is significant <.05, indicating the correlation matrix is not significantly different from the identity matrix (Table 26). Initial communalities were above .30 for four of the six items (see Table 27). After rotation, one factor accounted for 39.8% of the variance. The scree plot (Figure 14) and the factor matrix (Table 27) show one factor on to which items were loading. Five of the six items are above .50 and will be selected to further utilize with an elite athlete population. Item 5 (*If there is an important reason to face something that scares me, I will face it*) was below .50. Cronbach's alpha reliability value for the full 6-item scale was .773. Reliability for the reduced 5-item scale, when item five was removed, was .727.

Discussion

Principal axis factoring with the oblique rotation was conducted on the responses to items measuring the following constructs: excellence-task, excellence-ego, dedication, self-respect, respect for rules, community, teamwork, fun, and character (self-control). ML extraction with oblique rotation was used for the values of honesty, health, respect for others, and courage.

The Moral Identity Scale was used to assess the value of ethics. Three items for internal view had a factor loading above .50. These three items reflect the desire to have personal characteristics (caring, compassionate, fair, friendly, generous, helpful, hardworking, honest, and kind) which directly relate to moral identity, a central construct in Donovan et al. (2012) Sport Drug Control Model, and an important variable in doping research (Kirby et al., 2011; Hodge et

al., 2013; Lucidi et al., 2013; Kavussanu & Ring, 2017; Mortimer et al., 2021). The reliability for the reduced 3-items measuring internal motivation was .751.

The Task and Ego Orientation Questionnaire was utilized to measure excellence in performance by assessing motivations for athletic performance. In the context of goal achievement theory, task-oriented goals pertain to individual improvement and mastery of a behavior, whereas ego-oriented performance goals are based on comparisons to performers. This scale has been used extensively in sport research (Ntoumanis et al., 2014) and evidence of validity and reliability has been provided through numerous empirical investigations. EFA results from this study further support the validity of the two factors (task-oriented goals and ego-oriented goas) to measure motivations of athletic achievement. Given previous research on the importance of task orientation on anti-doping constructs related to TPB (Nowosiellski & Swiatkowska, 2008), we will select all task and ego items for future analysis.

Items from the Multidimensional Sportsperson Orientations Scale (Vallerand et al. 1997) were used to measure respect for rules, respect for others, and dedication. The full-scale measures five areas of sportspersonship: respect for social conventions; respect for the rules and the officials; respect for one's full commitment toward sport participation; respect and concern for one's opponent; and a negative approach toward the practice of sport. Ntoumanis et al. (2014) utilized this scale in doping research and found athletes who endorse behaviors consistent with the spirit of the game are less likely to report positive attitudes towards or intentions to engage in doping. When assessing the spirit of sport values respect for rules, respect for others, and dedication/commitment, we suggest only utilizing the constructs representing specific values within the spirit statement (respect for rules, respect for others, and commitment/dedication). Our analysis supported single factors that represent respect for rules, respect for others, and

commitment. In contrast, the 10 items from the HEXCO 60 subscale measuring honesty-humility were shown to be unreliable (.349) with this sample. One possible reason for this could be the less than 10:1 subject to item ratio for this scale. Future research could retest this scale with a large elite athlete sample or identify an appropriate honesty scale that demonstrates reliability with an elite athlete adult population. Other instruments measuring honesty may be more appropriate with this population and should be explored.

The Health Consciousness Scale (Hong, 2009) was designed to measure 3 factors: health awareness, personal health responsibility and health motivation. Only 2 factors were identified in the patter matrix and scree plot. Though reliability of the full scale was .833, factors appeared to be cross-loading on two factors which is a data problem that could potentially be addressed with a larger sample size. Only three items reflecting health motivation were selected for further use with an elite athlete population. It should be noted that if future research is aimed at measuring all of spirit of sport values the length of survey should be considered to minimize non-response error. Reducing the number of items in these scales in a manner that retains high reliability and appropriate factor loading should be considered.

The VIA-IS-V3 Character scale is made up of 3 subscales: inquisitiveness, caring, and self-control. Cronbach's alpha reliability value for the full 24 item scale was .629. It should be noted that when assessing the full scale, we did not meet a 10:1 subject to item ratio, so results are not substantial given the small sample size. Based on our results, we found items reflecting the sub-measure of self-control could be utilized with an elite adult sample because (1) self-control is a construct that may be related to anti-doping behaviors as it is a construct important if an athlete is in a situation when they may be offered a banned PED; (2) as previously discussed, if measuring all values within the *spirit statement* survey length must be considered; (3) our

results indicated reliability of the subscale of self-control was stronger than reliability for the full 24-item character scale. Cronbach's alpha reliability value was .629 for the full scale and .825 for the proposed reduced 8-item subscale for self-control.

Teamwork Scale for Youth was developed by Lower et al. (2019) to measure youths' perceptions of their teamwork competency. This scale has been tested with adults and has been found to have an internal consistency of the overall scale with Cronbach Alpha (α=.81) (Guardia at al., 2022). Results from this study demonstrated the scale had good reliability with the elite athlete sample, and we support the use of this 7- item scale with elite athlete populations.

When assessing the value of fun, we examined the 7-item enjoyment subscale from the Motivations for Physical Activity Measure-Revised (MPAM-R). The subscale had a reliability of .913, and we suggest that all items be used with similar populations of interest. The value of self-respect was measured with the Appraisal Self-Respect Scale (Clucas et al., 2022) that measures a disposition to perceive or appraise oneself as being a respect worthy honorable person. Cronbach's alpha reliability values for the full 7-item scale with our elite athlete adult population was .943, and we conclude that all items in this scale be utilized to measure the value of self-esteem among elite athletes.

The Sense of Community Index 2 (SCI-2) subscale of membership was used to measure the spirit of sport value community. SCI-2 was developed on a theory of sense of community (McMillan and Chavis, 1986) stating that a sense of community was a perception with the following subscales: membership, influence, meeting needs, and a shared emotional connection. Items with low communality of less than .40 were removed from the subscale of community membership leaving 3 items (*I can recognize most of the members of this swimming community; I put a lot of time and effort into being part of this swimming community*; and *being a member of*

this swimming community is a part of my identity). Cronbach's alpha reliability value for the proposed reduced 3-tems measure is .739.

The Courage Measure (6-item short scale) was used to assess the spirit of sport value courage. The courage scale was originally developed by Norton and Weiss, 2009 and adapted by Ginevra et al. (2020). Item 5 (*If there is an important reason to face something that scares me, I will face it*) was below .50. Cronbach's alpha reliability values for the full 6 item scale was .773. Reliability was tested again when item 5 was removed. The reduced 5-item scale had a reliability of .727, which was lower than reliability for the full scale (.773). We suggest using all items in the 6-item short scale when examining the value of courage with an elite athlete population.

Limitations

Limitations of this research include the small sample size of (N=77). Though strict rules on EFA sampling sizes have for the most part disappeared (Costello & Osborne, 2005), it is important to keep in mind that EFA is a large sample procedure. These results are not generalizable given the small sample size (N=77). A general rule of thumb is to perform analysis with a 10:1 subject to item ratio. This research did not meet the 10:1 ratio when assessing the following four scales: HEXACO-60 subscale of honesty/humility (10 items); the Health Consciousness Scale (11 items); VIA-IS-V3 Character Scale (25 items); and the Moral Identity Scale (10 items). Future research should be replicated with a larger sample size. Furthermore, this study is only composed of individuals over the age of 18. Since much of values-based anti-doping prevention conducted by NADOs is directed towards youth and teens, future studies should also examine these scales when utilized with elite athlete populations under the age of 18. Confirmatory factor analysis should be utilized to assess if these instruments have

the same structure across certain elite athlete subgroups (i.e., different sports, levels of competition, different countries etc..).

CHAPTER V: STUDY 2-THE RELATIONSHIP BETWEEN THE SPIRIT OF SPORT VALUES AND ANTI-DOPING BELIEFS AMONG ELITE ATHLETES: DIRECT-BASED MEASURES USING THE THEORY OF PLANNED BEHAVIOR

Abstract

This is the first study to examine the relationship between the *spirit of sport* values and constructs from the Theory of Planned Behavior (TPB) among elite athletes. National Anti-Doping Organizations (NADOs) could benefit from examining the *spirit of sport* values their athletes possess and exploring if those values are predictive of important TPB. Doing so could aid in the future development and evaluation of anti-doping prevention programming by allowing for pre and post-test evaluations of values-based education (VBE). Our study utilized primary data collected in 2023 from USA Swimming athletes who have competed at the national level in the past year (N = 77). Multilinear regression was conducted to examine the association between the 13 *spirit of sport* values and attitudes, subjective norms, and perceived behavioral control from the Theory of Planned Behavior (TPB). Results found attitudes were predicted by respect for rules and fun. Perceived behavioral control was predicted by task orientation and moral identity, and subjective norms was predicted by fun.

Introduction

Doping in sport is a well-known problem that has evolved greatly over the years (Morente-Sánchez & Zabala, 2013; Bloodworth & McNamee, 2010). With the inception of the World Anti-Doping Agency (WADA), anti-doping efforts have been intensified considerably. Resources invested in anti-doping measures continue to rise with most of the effort focusing on

elite athletes. Though it is challenging to determine accurate prevalence rates, de Hon et al (2015) estimated prevalence of doping in adult elite sport to be between 14 and 39%. Performance-enhancing drug (PED) use research has expanded beyond improving detection methods and shifted towards social science research, which aims to better understand the psychosocial factors (beliefs, attitudes) that can impact doping behavior (Gucciardi et al., 2011, Morente-Sanchez & Zabala, 2013). With the emergence of psychological research in the field of doping, researchers have begun to use the Theory of Planned Behavior (TPB) to explain key issues relating to doping behavior (Lucidi et al, 2008; Barkoukis et al, 2013), and it is one of the most influential psychological theories in doping research (Kirby et al., 2016). Researchers applying TPB have demonstrated the capability of perceived behavioral control, doping attitudes, and subjective norms to predict doping intention and doping behavior (e.g., Goulet et al. 2010; Lazuras et al., 2010; Lucidi et al., 2010). Numerous other studies have also measured attitudes towards doping by various athlete populations to better understand doping behaviors (Blank et al., 2016; García-Grimau et al., 2011; Sas-Nowosiellski & Swiatkowska, 2008; Ntoumanis et al., 2014).

Preventative programs require an understanding of the psychosocial predictors of doping intentions and behavior (Ntoumanis et al., 2014). A greater understanding of such factors can provide anti-doping education programs with essential information to guide curriculum development and program evaluation.

The World Anti-Doping Agency (WADA) & Spirit of Sport Values

The most significant development to address PED use in sport was the creation of the WADA, and the Word Anti-Doping Code (Code) in 1999. According to WADA (2015), doping is fundamentally contrary to the spirit of sport. The Canadian Center for Drug Free Sport

introduced the Spirit of Sport Campaign in 1993, and this evolved into the basis for the *spirit statement*. The *spirit statement* was included in the first version of the WADA Code and remained unchanged through the 2015 Code. The *spirit of sport* includes 12 values representing the heart of Olympism. It is the celebration of the human spirit, body, and mind, and is reflected by the following values: Dedication and Commitment; Respect for Rules and Laws; Respect for Self and Other Participants; Courage; Community and Solidarity; Ethics; Fair Play and Honesty; Health, Excellence in performance; Character and Education; Fun and Joy; and Teamwork (WADA, 2017).

The International Standards for Education (ISE)

According to WADA (2021), the purpose of educational programs is to preserve the *spirit of sport* and to protect athletes' health and right to compete on a level playing field. All signatories are to plan, implement, monitor, evaluate, and promote education programs in line with the ISE, which is a mandatory international standard developed as part of the World Anti-Doping Program. The guiding purpose of the ISE is to support the preservation of the *spirit of sport* as outlined in the Code and to foster clean sport. Pursuant to the ISE, signatories' education plans should state the overall aims of the education program as well as list measurable and specific learning objectives and timelines related to activities for participants in the education pool. Appropriate educational activities should be selected to achieve the objectives of the education plan.

Values based education (VBE) is defined by the ISE as "delivering activities that emphasize the development of an individual's personal values and principles. It builds the learner's capacity to make decisions to behave ethically" (WADA, 2021b, para.1). In accordance with the ISE, VBE should remain a focus, particularly in children and youth through

school and/or sports club programs and with the relevant public authorities. The ISE also states that signatories shall include principles and values associated with clean sport as a topic in their education programs.

Researchers have conducted studies to better understand numerous factors leading to doping behaviors. Factors identified include favorable attitudes towards doping (Ntoumanis et al., 2014), controlling coach behaviors, the engagement in health harming behaviors, and the use of nutritional supplements (Nicholls et al., 2017; Ntoumanis et al., 2014). Personality has also been linked to attitudes towards doping (Donovan et al., 2002; Nicholls et al., 2017). However, little research exists on doping in relation to the *spirit of sport* values (Mortimer et al. 2020), yet values are encouraged by WADA to be principal components of anti-doping educational programing as stated in the ISE. WADA signatories are prevented from funding sports deemed non-compliant to the Code. Signatories must be Code compliant, thus adopting values-based anti-doping education components as outlined in the Code and the ISE (WADA, 2021).

Mazanov and Huybers (2016) conducted a study in Australia asking participants to prioritize the values in the *spirit statement* in relation to sport in general, an elite sport frame, and a non-elite sport frame. Results indicated that some values in the *spirit statement* were irrelevant to sport. Mortimer et al. (2020) further examined the importance of *spirit of sport* values (WADA, 2015) and sport values (Lee et al., 2000, 2008) among university athletes in the UK. Clean sport likelihood was positively predicted by five spirit of sport values: ethics/fair play/honesty, respect for rules/laws, dedication/commitment, teamwork, community/solidarity; two sport value domains: morality and competence. Results suggested that clean sport likelihood was best predicted by moral values. The study found that half of WADA's *spirit of sport* values did not relate to clean sport likelihood, but medium-sized relationships with clean sport

likelihood were found for values with moral content, suggesting anti-doping educational programs identify and focus more on moral values content.

Previous studies have examined the importance of the *spirit of sport* values in the elite and non-elite population (Mazanov & Huybers 2016; Mortimer et al. 2020). However, Mazanov and Huybers (2016) utilized a Best Worst Scale assessing the importance of the value to the athlete but did not measure the value within the athlete. Additionally, when Mortimer et al. 2020 examined values and doping they did so with a sample of college athletes and not with a sample of elite athletes. Mazanov & Huybers (2016) argue that psychological research needs to further investigate the construct *of spirit of sport* given its role in the Code, and Lucidi et al (2008) posit that anti-doping education and prevention efforts cannot be effective until athletes' attitudes towards PED use are more clearly understood.

With the emergence of psychological research in the field of doping, researchers have begun to use TPB to explain key issues relating to doping behavior (Lucidi et al., 2008; Barkoukis et al., 2013), and it is one of the most influential psychological theories in doping research (Kirby et al., 2016). Researchers applying TPB have demonstrated the capability of perceived behavioral control, doping attitudes, and subjective norms to predict doping intention and doping behavior (e.g., Goulet et al., 2010; Lazuras et al., 2010; Lucidi et al., 2010). Kirby et al. (2016) highlights a limitation of doping research is the lack of theoretically driven studies utilizing an elite athlete population. Many theoretical studies on doping in sport often elicit participants from proxy populations such as colleges, gyms, or recreational athletes.

Present Study

Accordingly, the aim of this paper is to examine the association between the *spirit of sport* values and anti-doping attitudes, subjective norms, and perceived behavioral control from the Theory of Planned Behavior (TPB) among elite US athletes.

Methods

Data Description

Data for this study were collected from an online survey distributed to 221 USA Swimming athletes. Existing instruments were used to measure the following 12 *spirit of sport* values: (1) Ethics, (2) Excellence in Performance, (3) Fun/Joy, (4) Teamwork, (5) Dedication; (6) Respect for Rules/Laws, (7) Respect for Self, (8) Respect for Other Participants, (9) Community, (10) Courage, (11) Character (self-control), and (12) Health.

Procedure & Setting

All data collection occurred via an online survey. Participants completed a short demographics questionnaire, followed by questionnaires which separately measured 12 *Spirit of Sport* values. These measures are described below. Self-report scales were chosen on the following criteria: (a) demonstrated good validity, (b) used with athletes, or (c) used individuals 18+ years of age. Each measure is described in the measures section below.

Participants

The study consisted of data from elite USA Swimming athletes who participated at the national level within the past year. Recruitment of USA Swimming athletes ran from June 2023 until July 2023. Athletes were contacted via email and informed about the optional survey. All athletes who were 18+ years of age, and who were members of national level teams, were eligible to participate in the survey. Once participants logged into the survey, they were asked to

complete an electronic informed consent. At the completion of the survey, all data collected was disconnected from the participant. 90 athletes from USA Swimming (41.6%) agreed to the informed consent and completed some aspects of the online survey. Respondents were eliminated from analyses if they did not answer any additional questions past the informed consent (N=9), or if they had taken the survey multiple times (N=4). A final sample (N=77) was used to analyze the survey results. Participants were male (N=36; 46.8%), female (N=41; 53.2%). Most participants were between the ages of 18-23 (N=50; 64.9%). The second largest age group was 24-30 (N=22; 28.6%). When examining participants' highest level of competition, 24.7% (N=19) indicated competing in the Olympic games, 53.2% (N=41) competed in world championship events or international events, and 20.8% competed at a national competition. 40.3% (N=31) of participants had/held a national title, 29.9% (N=23) had/held an international title, and 23.4% had/held a state title.

Measures

Prior to analyzing data, exploratory factor analysis was pilot tested on all the scales below to assess the reliability of the scales with the target population of elite adults' athletes (N=77). Some scales of the instruments listed below were reduced based on EFA results.

Demographics

The following demographics were collected in this survey: year of birth, gender; race/ethnicity; sport; years in sport; highest level of competition; titles won (i.e., National, International, State)

Honesty

HEXCO 60 is a personality inventory that assesses the six dimensions of the HEXACO model of personality structure. Factors of the HEXACO model of personality structure include

Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness versus Anger (A), Conscientiousness (C), and Openness to Experience (O). Ashton and Lee (2009) selected ten items from each of the six scales from the longer 100-item HEXACO Personality Inventory–Revised (HEXICO-PI-R) and aimed to construct an instrument that would show strong psychometric properties when administered to samples of participants drawn from college student or community adult populations. The internal consistency reliabilities of the reduced scale ranged from .77 to .80 in the college sample and from .73 to .80 in the community sample. We conducted EFA on ten items from the Honesty-Humility subscale and found it to be unreliable with the elite athlete sample (.35). Therefore, items from this scale were not included in our analysis and honesty could not be measured.

Excellence in Performance

The Task and Ego Orientation Questionnaire was used to measure excellence in performance. Goal orientations are individual differences in the ways by which people define success or achievement (Nicholls, 1989). Within the context of achievement goal theory, there are two broad types of goals: (1) task-oriented or learning goals (Task) are self-referenced and therefore pertain to personal improvement and mastery of the behavior, task, or skill, whereas ego-oriented or (2) performance goals (Ego) are normatively referenced and therefore based on comparisons with the performance of others (e.g., peers, competitors). Research indicates that task-oriented goals are related to lower susceptibility to doping (Ntoumanis et al., 2014). Our EFA analysis found this scale to be reliable with the elite athlete sample (task orientation .93; ego orientation .93). Therefore, all items were included in our analysis.

Dedication/Commitment, Respect for Others, and Respect for Rules

The Multidimensional Sportsperson Orientations Scale (MSOS) developed by Vallerand et al. 1997 was based on the definition of sportspersonship by Vallerand et al. (1996) which states that sportspersonship is reflective towards a tendency for respect for the rules, respect for participants (teammates, coaches, referees, and the opponent), respect and concern for the sports environment, and a commitment avoidance of winning at all costs. The MSOS measures athlete's sportsperson dimensions (commitment, social conventions, rules and officials, opponent, and negative approach). The subscales of commitment, respect for others, and respect for laws will be utilized in this survey. The MSOS was shown to have adequate levels of validity and reliability. In a confirmatory factor analysis conducted by Vallerand et al. (1996), all items were significant (t statistics >3.17, p=<.05). Internal consistency (Cronbach's alpha) ranged from .71 (the commitment subscale) to .86 (the social conventions subscale). Our EFA analysis found this scale to be reliable with the elite athlete sample. Cronbach's alpha was .84 for commitment, .85 for respect for rules, and .88 for respect for others. All items were included in our analysis.

Health

Health was assessed using the Health Consciousness Scale. According to Hong (2009), "health consciousness refers to an individual's comprehensive mental orientation toward his or her health, being comprised of self-health awareness, personal responsibility, and health motivation" (p.2019). Hong posits that health consciousness is a composite of the following three subscales: (1) health awareness, (2) personal health responsibility and (3) health motivation. When tested with university students, the Health Consciousness Scale showed highly reliable internal consistency with high levels of reliability with Cronbach's alpha for the scale

being .85. Our EFA results indicated three items that reflect the subscale of health motivation (*Living life in the best possible health is very important to me; Living life without disease and illness is very important to me; and my health depends on how well I take care of myself)*. Since all three items reflecting health motivation are loading highly on factor-2 and did not appear to be cross-loading on other factors, they will be selected for future utilization with an elite adult athlete sample. Cronbach's alpha reliability value was .833 for the full 11-item scale and .803 for the proposed reduced 3-item scale.

Fun

Motivations for Physical Activity Measure-Revised (MPAM-R) is a revision of MPAM (Frederick & Ryan, 1993). MPAM-R consists of five categories of reasoning for engaging in physical activity (enjoyment, fitness, appearance, competence, and social) with a total of 30 items. MPAM-R was tested with new members of a university fitness center (89 females and 66 males). Subscale alphas for MPAM-R were .92, .91., .83, .78, and .88. This study will only utilize the enjoyment subscale (seven items) to assess the *spirit of sport* value of fun. Our EFA results when tested with an elite athlete adult sample indicated Cronbach's alpha reliability values for the 7-item subscale scale is .849. Therefore, all items will be included in our analysis.

Ethics

Ethics was measured using the Self-Importance Moral Identity Scale. Morality (i.e., being a moral person) is commonly assessed using Aquino and Reed's (2002) Self-Importance Moral Identity Scale. Moral identity is "the extent to which morality and being amoral person are important to one's identity" (Hardy, 2018, p. 89). Psychometric analyses of the Self-Importance Moral Identity scale resulted in a 10-item scale consisting of two 5-item subscales, named Internalization and Symbolization, reflecting the private and public aspects of moral

identity. Cronbach's alpha reliability values ranged from .70 to .83 for Internalization and from .69 to .82 for Symbolization. Test-retest correlations, over four-to-six-week spans, were .49 for Internalization and .71 for Symbolization. Cronbach's alpha reliability value for the full 10-item scale was .773. Three items for internal view had a factor loading above .50 (*Being someone who has these characteristics is an important part of who I am; It would make me feel good to be a person who has these characteristics;* and *I strongly desire to have these characteristics*). These three items reflect the desire to have personal characteristics (caring, compassionate, fair, friendly, generous, helpful, hardworking, honest, and kind) which directly relate to moral identity, a central construct in Donovan et al. (2012) Sport Drug Control Model and an important variable in doping research (Kirby et al., 2011; Hodge et al., 2013; Lucidi et al., 2013; Mortimer et al., 2021). The reliability for the reduced 3-items measuring internal motivation is .751.

Self-Respect

The Appraisal Self-Respect Scale (ASR) is a 7-item scale that measures a disposition to perceive or appraise oneself as being a respect worthy honorable person. The ASR scale was found to be unidimensional and showed good internal and acceptable test-retest reliability. Trait ASR was correlated with (yet distinct from) theoretically related measures of global self-esteem, moral self, and principledness and was distinct from other self-esteem facets not based on honorable character traits (Clucas et al., 2022). Our EFA results when tested with an elite athlete adult sample indicated Cronbach's alpha reliability values for the full 7-item scale was .943. Therefore, all items will be included in our analysis.

Teamwork

Teamwork Scale for Youth was developed by Lower et al. (2019) to measure youths' perceptions of their teamwork competency. This scale has also been tested with adults aged 15-

58 in a vocational training context and has been found to have an internal consistency of the overall scale with Cronbach's alpha (α=.81) (Guardia at al., 2022). Our EFA analysis found seven of the eight items had high factor loadings, and one item *(People who work as part of a team can learn more than if they worked alone),* had a low factor loading of .383. Cronbach's alpha reliability value for the full 8-item scale is .86. After removing the single item *(People who work as part of a team can learn more than if they worked alone)* the reliability for the reduced 7-item scale increased to .89. Therefore, seven items will be used to measure teamwork.

Community

The Sense of Community Index 2 (SCI-2) was used to measure the *spirit of sport* value community. SCI is the most frequently used measure of sense of community in the social sciences and has been used in numerous studies around the world. It was developed on a theory of sense of community (McMillan and Chavis, 1986) stating that a sense of community was a perception with the following subscales: membership, influence, meeting needs, and a shared emotional connection. The SCI-2 is a revised version shown to be a very reliable measure (coefficient alpha= .94). The subscales have also proved to be reliable with coefficient alpha scores of .79 to .86. This study will only be utilizing the subscale of Membership. We conducted EFA analysis on the subscale of community membership. After rotation, the single factor (community membership) accounted for 36% of the variance. Items were not selected for future use if they had factor loadings less than .50. Items selected for further use with an elite athlete population were all above .50 (1) *Being a member of this swimming community is a part of my identity;* (2) *I put a lot of time and effort into being part of this swimming community* (3) *I can recognize most of the members of this swimming community*. Cronbach's alpha reliability value for the reduced 3-item scale was .74.

Courage

The Courage Measure (6-item short scale) was used to assess the *spirit of sport* value courage. The courage scale was originally developed by Norton and Weiss (2009) and adapted by Ginevra et al. (2020). Norton and Weiss (2009) considered courage persistence or perseverance despite being afraid. Ginevra et al. (2018) tested the reduced 6-iem scale with a sample of Italian adults and carried out a multiple-group confirmatory factor analysis to investigate the factorial invariance of the reduced scale. Results suggested that the reduced scale measures the same latent dimension in men and women, young adults, and middle-aged adults. Our EFA analysis indicated five of the six items were above .50. Therefore, five items will be selected to further utilize with an elite athlete population. Item five (*If there is an important reason to face something that scares me, I will face it*) was below .50. Cronbach's alpha reliability value for the full 6-item scale was .773. Reliability for the reduced 5-item scale when item five was removed was .727.

Character

VIA-IS-V3 consists of 24 items (eight items per virtue), positively and negatively keyed, resulting in scores for the three virtues developed subsequently for the VIA Classification. Subscales of VIA-IS-V3 include Caring, Inquisitiveness, and Self-Control. Mean reliability is .82. (McGrath, 2017). In our EFA analysis we first analyzed KMO results. The KMO test is a measure of whether the distribution of values based on the sample is adequate for conducting a factor analysis. This test indicates the amount of overlap or shared variance between pairs of variables. The KMO results are <.60, indicating that there are not sufficient items for the sample. Given the KMO results, only one of the three-character sub-constructs (self-control) was selected for further analysis. After rotation of the subscale Self-Control, it was determined that all items

would be utilized with this sample. Cronbach's alpha reliability values for the 8-item subscale scale is .825 (VIA-IS; Peterson, Park, & Seligman, 2005a)

TPB Constructs

Attitudes, Subjective Norms, Perceived Behavioral Control:

Chan et al. (2015) developed a social cognitive scale measuring the following TPB constructs in the context of doping: attitudes, subjective norms, PBC, and intention. Items were developed according to Fishbein and Ajzen's guidelines.

Analysis

We conducted forward linear regression to investigate how well these *spirit of sport* values, Health, Courage, Character (self-control), Teamwork, Respect for Others, Respect for Rules, Self-Respect, Dedication, Fun, Community, Ethics, and Excellence in Performance (task and ego), predict anti-doping Subjective Norms, Perceived Behavioral Control and Attitudes.

Results

The final analytic sample consisted of 77 elite USA Swimming athletes (see Table 28 for sample demographics).

Table 28. Demographic and Sport Characteristics of Athletes (N = 77)

Characteristic		***n* (%)**
Gender		
	Female	41 (53.2%)
	Male	36 (46.8%)
Race/Ethnicity		
	White	70 (91%)
	Asian (East Asia)	4 (.05%)
	Hispanic or Latino	3 (.04%)
	Prefer not to say	1 (.01%)
Age		
	18-23	50 (65%)
	24-30	22 (29%)
	31-36	3 (.04%)
	36+	2 (.03%)
Highest Level of Competition		
	World Championship/International Event	41 (52.3%)
	Olympic Games	19 (24.7%)
	National Competition	16 (20.8%)
	City/District Competition	1 (1.3%)
Titles		
	National Title	31 (40.3%)
	International Title	23 (29.9%)
	State Title	18 (23.4%)
	No Titles	5 (6.5%)

Attitude

Forward multiple regression was conducted to investigate how well the following *spirit of sport* values: Health, Courage, Character (self-control), Teamwork, Respect for Others, Respect for Rules, Self-Respect, Dedication, Fun, Community, Ethics, and Excellence in Performance (task and ego), predict anti-doping attitudes. The assumptions of linearity, normally distributed errors, and uncorrelated errors have been met. When using a forward regression, results indicated two significant models. Model 1 (F (1,52) = 6.88, p = .01) included the variable of Respect for Rules (R^2 = .117). Model 2 indicated a significant increase in variance explained

(R^2 = .208) when including Respect for Rules and Fun in the model (F (2, 52) = 6.70, p = .003). Means, standard deviations, and reliability estimates are presented in Table 29. Table 30 notes the correlations between Attitude and all other variables.

Table 29. Means, Standard Deviations, and Reliability for all Variables.

Variable	M	SD	Alpha
DV: Attitude	6.60	0.60	.70
1.Excellence (task)	4.66	0.61	.91
2.Excellence (ego)	3.68	1.02	.91
3. Ethic	4.69	0.47	.75
4.Community	3.13	0.64	.74
5. Dedication	4.46	0.55	.84
6. Self-Respect	6.14	0.83	.94
7. Respect: Rules	4.31	0.7	.85
8. Respect: Others	3.28	1.06	.88
9. Teamwork	4.22	0.62	.89
10. Fun	5.73	0.84	.91
11. Character (Self-control)	31.89	4.77	.83
12. Courage	5.10	0.84	.73
13. Health	6.28	0.73	.80

Note. DV: Dependent Variable

Table 30. Intercorrelations for Attitude and Predictor Variables (N=77)

	DV: Attitude	1	2	3	4	5	6	7	8	9	10	11	12	13
DV: Attitude	1.00													
1.Excellence (task)	-0.09	1.00												
2.Excellence (ego)	-0.14	0.39[b]	1.00											
3. Ethic	0.00	0.29[a]	-0.01	1.00										
4.Community	0.08	0.21	0.03	0.15	1.00									
5. Dedication	-0.04	0.34[b]	0.17[a]	0.24[a]	0.15	1.00								
6. Self-Respect	0.14	0.45[c]	0.29[a]	0.50[c]	0.18[b]	0.32[b]	1.00							
7. Respect: Rules	**0.342[b]**	-0.18	-0.20	0.05	-0.02	-0.00	0.08[b]	1.00						
8. Respect: Others	**0.309[b]**	0.03	-0.12	0.34[b]	0.14	0.00	0.33	0.42[c]	1.00					
9. Teamwork	0.15	0.55[c]	0.12	0.49[c]	0.20	0.43[c]	0.60[c]	0.22[b]	0.36[b]	1.00				
10. Fun	**0.29[a]**	0.40[b]	0.08	0.24[a]	0.19	0.33[b]	0.40[c]	-0.04[c]	0.16[a]	0.59[c]	1.00			
11. Character (Self-control)	0.09	0.18	0.28[a]	0.09	0.04	0.31[b]	0.13	-0.16	-0.04	0.09	0.23[a]	1.00		
12. Courage	0.03	0.32$_b$	0.27[a]	0.05	0.03	0.51[c]	0.30[a]	0.11[a]	-0.15	0.30[a]	0.27[a]	0.17	1.00	
13. Health	**0.23[a]**	0.42[c]	0.27[a]	0.00	0.20	0.40[c]	0.36[b]	-0.00[b]	-0.02	0.38[b]	0.37[b]	0.40[c]	0.45[c]	1.00

Note: DV = Dependent Variable; [a]p<.05; [b]p< .01; [c]p < .001

Subjective Norms

Forward multiple regression was conducted to investigate how well the following *spirit of sport* values: Health, Courage, Character (self-control), Teamwork, Respect for Others, Respect for Rules, Self-Respect, Dedication, Fun, Community, Ethics, and Excellence in Performance (task and ego) predict anti-doping subjective norms. After conducting the forward regression, only one model emerged. The model that included the predictor variable of Fun explained 16% of the variance in anti-doping subjective norms (F (1,51) = 10.9, p <.05), adjusted (R^2= .16). Table 31 notes the correlations between Subjective Norms and all other variables. Means, standard deviations, and reliability estimates are presented in Table 29.

Table 31. Intercorrelations for Subjective Norms and Predictor Variables (N=77)

	DV: SN	1	2	3	4	5	6	7	8	9	10	11	12	13	
DV: SN	1.00														
1.Excellence(task)	0.16	1.00													
2.Excellence(ego)	0.23	0.39[b]	1.00												
3. Ethic	-0.03	0.29[a]	-0.01	1.00											
4.Community	-0.09	0.20	0.01	0.15	1.00										
5. Dedication	0.08	0.34[b]	0.16	0.24[a]	0.12	1.00									
6. Self-Respect	**0.25[a]**	0.45[c]	0.29[a]	0.50[c]	0.19[b]	0.33[b]	1.00								
7. Respect: Rules	-0.17	-0.20	-0.22	0.05	-0.05	0.02	0.08	1.00							
8. Respect: Others	0.03	0.05	-0.10	0.35[b]	0.19	0.04	0.33[b]	0.46[c]	1.00						
9. Teamwork	**0.28[a]**	0.55[c]	0.12	0.50[c]	0.20[c]	0.43[c]	0.60[c]	0.22	0.38[c]	1.00					
10. Fun	**0.42[c]**	0.41[c]	0.08	0.25[a]	0.21[b]	0.34[b]	0.40[c]	-0.03	0.15	0.59[c]	1.00				
11. Character (Self-control)	**0.29[a]**	0.17	0.28[a]	0.09	0.02[b]	0.31[c]	0.13	-0.18	-0.01	0.08	0.24[a]	1.00			
12. Courage	0.17	0.32[b]	0.26[a]	0.04	-0.02[c]	0.50[c]	0.32[b]	0.07	-0.10	0.30[b]	0.30[b]	0.14	1.00		
13. Health	**0.30[a]**	0.41[c]	0.26[a]	-0.00	0.18[b]	0.39[b]	0.36[b]	-0.02	0.01	0.38[b]	0.38[b]	0.39[b]	0.43[c]	1.00	

Note: DV=Dependent Variable; SJ=Subjective Norms [a]p<.05; [b]p< .01; [c]p < .001

Perceived Behavioral Control

Forward multiple regression was conducted to investigate how well the following *spirit of sport* values: Health, Courage, Character (self-control), Teamwork, Respect for Others, Respect for Rules, Self-Respect, Dedication, Fun, Community, Ethics, and Excellence in Performance (task and ego) predict anti-doping perceived behavioral control. Table 32 notes the correlations between PBC and all other variables. Means, standard deviations, and reliability estimates are presented in Table 29.

After conducting the forward regression, results indicated two significant models. Model 1 (F (1,52) = 15.8 $p < .001$) included the variable of Excellence (task oriented) ($R^2 = .23$); Model 2 indicated a significant increase in variance explained in the model ($R^2 = .29$) when it included the predictor variables of Excellence (task orientated) and Ethics (F (2,51) = 11.7, $p < .001$), adjusted. This model accounted for 29% of the variance in perceived behavioral control.

Table 32. Intercorrelations for Perceived Behavioral Control and Predictor Variables (N=77)

	DV PBC	1	2	3	4	5	6	7	8	9	10	11	12	13
DV: PBC	1.00													
1.Excellence (task)	**0.48**[c]	1.00												
2.Excellence (ego)	0.08	0.39[b]	1.00											
3. Ethic	**0.41**[c]	0.29[a]	-0.01	1.00										
4.Community	0.26[a]	0.21	0.03	0.15	1.00									
5. Dedication	0.17	0.34[b]	0.11	0.24[a]	0.15	1.00								
6. Self-Respect	**0.24**[a]	0.45[c]	0.29[a]	0.50[c]	0.18	0.32	1.00							
7. Respect: Rules	0.08	-0.18	-0.20	0.05	-0.03	-0.00	0.08	1.00						
8. Respect: Others	0.24[a]	0.03	-0.12	0.34[b]	0.14	0.01	0.33	0.42	1.00					
9. Teamwork	**0.46**[c]	0.55[c]	0.12	0.50[c]	0.19[c]	0.43	0.60	0.22	0.37[b]	1.00				
10. Fun	**0.34**[b]	0.40[c]	0.07	0.24[a]	0.19[b]	0.33	0.40	-0.04	0.16	0.59[c]	1.00			
11. Character (Self-control)	-0.04	0.18	0.28[a]	0.09	0.04[b]	0.32	0.12	-0.16	-0.04	0.09	0.23	1.00		
12. Courage	0.08	0.33[b]	0.27[a]	0.05	0.03[c]	0.51	0.30	0.11	-0.15	0.30[a]	0.27	0.17	1.00	
13. Health	0.19	0.42[c]	0.27[a]	0.00	0.20[c]	0.40	0.36	-0.00	-0.02	0.38[b]	0.37[b]	0.40[c]	0.45[c]	1.00

Note. DV = Dependent Variable; PBC = Perceived Behavioral Control; [a]p<.05; [b]p< .01; [c]p < .001

117

Table 33. Summary of Intercorrelation Tables

Spirit of Sport Value	Anit-Doping Attitude	Anit-Doping Subjective Norm	Anti-Doping Perceived Behavioral Control
Excellence in Performance (Task)	-0.09	0.16	**0.48*** **
Excellence in Performance (Ego)	-0.14	0.23	0.08
Dedication/Commitment	-0.04	0.08	0.17
Respect for Others	**0.31****	0.03	**0.24***
Respect for Rules	**0.34****	-0.17	0.08
Health	**0.23***	**0.30***	0.19
Fun	**0.29***	**0.42*** **	**0.34****
Community	0.08	-0.09	**0.26***
Teamwork	0.15	**0.28***	**0.46*** **
Courage	0.03	0.17	0.08
Character (Self-Control)	0.09	**0.29***	-0.04
Self-Respect	0.14	**0.25***	**0.24***
Ethics	0.00	-0.03	**0.41*** **

NOTE: *p<.05; ** p< .01; ***p < .001

Discussion

Based on TPB, the present study explored the relationships between *spirit of sport* values and direct-based measures of TPB in the context of doping avoidance in sport. After the initial EFA conducted on 13 values, we developed a set of items that could measure 12 of the values. Unfortunately, the scale selected to examine honesty was found to be unreliable when pilot tested with elite athletes and was not included in our analysis of values.

In this study, subjective norms referred to a person's belief that most of the significant others in their life think that they should or should not avoid using performance enhancing drugs. Fun was the only value that was positively associated with subjective norms and anti-doping attitudes. Though research on the relationship between values and anti-doping is scarce, Mortimer et al. (2021) found the value of fun unrelated to clean sport likelihood. Our findings suggest otherwise. Elite athletes who experience fun/enjoyment in their sport are also more likely to believe that the important people in their life think that they should avoid using PEDs. Elite athletes with high levels of fun/enjoyment in their sport also had positive attitudes towards anti-doping. These results suggest that fun should be explored further in anti-doping research.

Zelli et al. (2016) examined interpersonal appraisals of athletes competing at high levels and results suggested that interpersonal appraisals may meaningfully contribute to doping research. Students who interpreted others solicitation to use substances as favorable later had a strong tendency to express justifications for PED use. Patterns linking student's beliefs about doping to student's interpersonal appraisals indicated a reciprocal influence over time. It is unclear why the value of fun/enjoyment in sport predicted subjective norms around anti-doping,

and further research should examine fun/enjoyment in sport and its relationship to important anti-doping theoretical constructs.

Results of the multilinear regression found the values of respect for the rules and fun to be positively associated with positive attitudes towards doping avoidance. We examined respect for rules, a subconstruct within sportspersonship. Individuals who endorse behaviors consistent with the spirit of the game are less likely to report positive attitudes towards or intentions to engage in doping (Ntoumanis et al., 2014). Barkoukis et al. (2011) found that athletes with high sportspersonship reported lower doping intentions compared to those with low sportspersonship. Our findings further support pervious research into the importance of sportspersonship, specifically, respect for the rules on anti-doping constructs within TPB.

Task- oriented motivations for achievement in sport and moral identity were predictive of perceived behavioral control over doping avoidance. To measure the value of ethics in athletes we utilized the Moral Identity Scale (Aquino & Reed, 2002). Moral identity is defined as "a self-conception organized around a set of moral traits" (Aquino & Reed, 2002, p. 1424). People with high moral identity are more likely to behave in ways that are moral when compared with individuals low in this dimension (Aquino et al., 2009). In contrast, individuals with moral disengagement (MDE) use psychosocial maneuvers which allow them to transgress moral standards avoiding negative emotions such as guilt and shame, thereby reducing constraints on immoral behavior. A large body of work has investigated the relationship between moral disengagement and doping (e.g., Lucidi et al.,2004; Zelli et al. 2010; Hodge et al., 2013; Kavussanu et al., 2016; Ntoumanis et al., 2017). Lucidi et al. (2004) found moral disengagement to be a predictor of doping intention, and Zelli et al (2010) found moral disengagement was inversely strongly associated with doping self-regulatory efficacy. Kavussanu and Ring (2017)

found moral identity predicted doping likelihood indirectly via moral disengagement and anticipated guilt. Athletes who felt that being a moral person is central to their self-concept were less likely to use PEDs to enhance their athletic performance or recover from injury. Our results further support pervious findings on the role of moral identity and anti-doping constructs.

To examine the value of excellence in performance we measured task and ego goal orientation. Previous research also indicates that task-oriented goals are related to lower susceptibility to doping (Ntoumanis et al., 2014) and favorable anti-doping attitudes (Sas-Nowosielski & Swiatkowska, 2008). Results from this study support the relationship between task orientated goals and anti-doping by illustrating that task-oriented individuals are in command of enacting doping avoidance.

Doping in sport is a complex, multifaceted problem that continues to be a subject of psychosocial research. The psychological factors associated with the use of performance-enhancing substances or methods in sport have received increased research attention in recent years, yet research on the *spirit of sport* values and their relationship to anti-doping remains limited. Given the emphasis placed by WADA on the *spirit of sport* values and the inclusion of those values within the ISE, future research should continue to investigate the relationship of the *spirit of sport* values to constructs from theories utilized in anti-doping research. Identifying values predictive of important anti-doping constructs (i.e., attitudes, perceived behavioral control, subjective norms, intentions, and behavior) would allow NADOs and national sporting organizations to effectively design their anti-doping education utilizing the inclusion of values predictive of theoretical constructs. Surveys measuring all values and theoretical constructs could be disseminated to athletes a priori, and anti-doping educational materials/events could be

designed with the inclusion of the values that would most likely impact anti-doping intention and behaviors.

Limitations

Doping is a sensitive issue and a behavior that individuals might be highly motivated to intentionally minimize or deny due to fear of sanctions or punishments. Social desirability response (SDR) is described as "a conscious or unconscious attempt to distort responses by overestimating positive or underestimating negative qualities or behaviors" (Gucciardi et al. 2016, p. 78). Social cognitive variables, such as attitudes, norms, and beliefs can help us to better understand doping behavior, but findings may be confounded by the tendency to respond in socially desirable ways, especially in studies using self-report measures. Social desirability may act as a potential confounder by inflating the associations of self-reported attitudes, normative, and behavioral control beliefs with doping intentions. This may happen because respondents might be reluctant to disclose their true attitudes toward doping in fear of judgement (Barkoukis et al., 2016).

Doping is viewed as an undesirable behavior. Therefore, without estimating and controlling for social desirability responses (SDR), questions will remain regarding the nature of the participants true attitude and/or their tendency to distort their responses toward the socially desirable pole (Gucciardi et al. 2016, p. 78). SDR can compromise a source of artificial variance (i.e., systematic bias or error variance) and possess a threat to the validity of findings when individuals are asked to self-report key variables such as attitudes towards doping, perceived behavioral control…etc.) (Gucciardi et al., 2016). This highlights the need to include SDR measures and examine for potential confounding effects in studies of broader social cognition mechanisms underlying doping use.

External validity involves the generalizability of findings to a larger population. Threats to external validity are the participants selected and the survey itself. Given the narrow characteristics of the participants in the study (USA Swimming athletes), findings would not be generalizable to individuals who do not have the characteristics of the participants. Relative importance of the various *spirit of sport* values may vary by athlete demographics, level and type of sport, situational circumstances, and national culture. Given cultural differences between nations, this study could be replicated by other NADOs to assist in their understanding of the values that may be predictive of anti-doping constructs within TPB. Future research should also be conducted with youth/adolescent/teen athletes to examine *spirit of sport* values and theoretical anti-doping constructs. This would assist in future development of youth anti-doping programs. Additional research could include conducting a path analysis to provide estimates of the magnitude and significance of hypothesized causal connections between the s*pirit of sport* values and TPB constructs. Finally, additional studies could be expanded beyond the realm of sport to examine how personal values impact drug use in other populations.

CHAPTER VI: SUMMARY & IMPLICATIONS

There have been limited studies examining the relationship between sport values and anti-doping. Past studies have focused on utilizing Best Worst Scaling (Mazanov and Huybers., 2016), ranking the importance of the values to the athletes, or have examined values in college athletes (Mortimer et al., 2021). The purpose of the first study was to utilize exploratory factor analysis with the 13 existing scales, measuring *spirit of sport* values to assess their reliability and appropriateness in future modeling with an elite athlete sample. The study aimed to determine the resulting, reliable constructs to measure *spirit of sport* values in elite U.S. athletes.

Our first study found five of the scales selected to be very reliable with our sample and did not need to be reduced. These scales include: the Multidimensional Sportsperson Orientations Scale (Vallerand et al. 1997), which was used to measure the values of respect for rules, respect for others and dedication/commitment; the Motivations for Physical Activity Measure-Revised subscale for fun/enjoyment; the Task and Ego Orientation Questionnaire used to measure excellence in performance; the Appraisal Self-Respect Scale measuring self-respect; and the Teamwork Scale for Youth (Lower et al., 2019) measuring teamwork.

Other scales were reduced based on EFA results. These scales include: the Courage Measure 6-item short scale (Ginevra et al. (2020), which we reduced to 5-items; the Sense of Community Index 2 (SCI-2) subscale of membership, which was reduced to 3-items; the VIA-IS-V3 Character scale, which was reduced from measuring inquisitiveness, caring and self-control to only measuring self-control; the Health Consciousness Scale (Hong, 2009), which was reduced to three items reflecting health motivation; and the Moral Identity Scale (Aquino & Reed, 2002), which was reduced to three items reflecting internal view of moral identity. Finally,

the ten items from the HEXCO 60 subscale measuring honesty-humility were shown to be unreliable (.349) with this elite adult's sample, and honesty was not measured in study 2.

Results from Study 1 suggests that, given the importance of the *spirit of sport* values and the need for their inclusion in NADOs anti-doping education, future research should include the development of a scale(s) that could measure all these values in elite athletes. Only a few of the scales we utilized in Study 1 have previously been used with elite athlete adult populations. These scales (Multidimensional Sportsperson Orientations Scale, Task and Ego Orientation Questionnaire, and the Moral Identity Scale) have demonstrated strong reliability in previous research, as well as in the EFA of our sample. However, if emphasis continues to advocate for the inclusion of *spirit of sport* values in anti-doping education, instruments should be available for researchers to measure all the *spirit of sport* values, so that anti-doping prevention efforts can be designed a priori based on the relationship between values and antidoping theoretical constructs. This would also aid post-intervention evaluation.

To date, definitions have not been made available for the *spirit of sport* values, so when measuring the values in Study 1 we applied the operational definition for the scale at hand. *Spirit of sport* values such as health and character are extremely broad. As demonstrated through our decisions to reduce scales, it may be more realistic and appropriate to measure one dimension of a value (e.g., measuring health motivation, or health responsibility to reflect the value of health).

Study 2 investigated the relationship between the *spirit of sport* values and constructs from TPB. This was the first study to measure the values in elite athletes with instruments that did not include Best Worst Scaling measurements. Respect for the rules and fun predicted anti-doping attitudes; fun predicted subjective norms and task orientation and ethics predicted perceived behavioral control. This is the first anti-doping study to find fun/enjoyment to be predictive of

anti-doping constructs. Future research should continue to examine the value of fun and the role it plays in the anti-doping beliefs of elite athletes.

The World-Anti-Doping Code made a significant amendment that made anti-doping education mandatory for its signatories. In addition, it also placed an emphasis on values-based education. Values need to be better understood before they can guide anti-doping prevention. How do NADOs select which values to include in their anti-doping education? Should they choose all the values or only select a few? If the latter, then how do they select the values to prioritize? Do values differ by sport, gender, or age? These are important questions that need to be carefully examined when planning anti-doping education. If it is believed that the *spirit of sport* values impact anti-doping beliefs and behavior among elite athletes, thus mandatory inclusion in VBE, than an emphasis should be placed on research around these values, instruments to measure them in elite athletes, and their impact on anti-doping beliefs and or behaviors.

As documented in the ISE, signatories should evaluate their education program each year, and the evaluation should be used to inform the following year's education plan. The evaluation report should be provided to WADA upon request, reflect data related to the specific objectives in the education plan, and determine how/if the stated objectives have been met. If the Code mandates anti-doping education, emphasizes values-based education, and program evaluation then (1) it is necessary to have valid and reliable instruments that can measure these values in elite athletes; and (2) measurement of values should take place a priori so that education/prevention initiatives can be designed to include the values that impact important psychosocial variables (attitudes, subjective norms, perceived behavioral control, intentions, behavior). In conclusion, it is important to understand how clean sport values identified by NADOs relate to important theoretical constructs that help explain and predict behavior. This information could help NADOs identify the

spirit of sport values their athletes possess, and understand which values are predictive of important theoretical constructs aiding in targeted anti-doping program development, implementation, and evaluation.

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APPENDIX A: DEMOGRAPHIC SURVEY QUESTIONS

1. In what year were you born? [Drop-down menu]

2. What is your gender?
- Female (1)
- Male (2)
- Prefer to self-describe as _____ (nonbinary, gender-fluid, agender, etc.) (3)
- Prefer not to say (4)

3. How would you describe your race / ethnicity? *Select all that apply.*
- African American or Black
- Asian (East Asia)
- Asian (India)
- Hispanic or Latino
- Native-American or Alaskan Native
- White or Caucasian
  Prefer to self-describe as _____
- Prefer not to say.

4. What is the main sport you are or have been involved in? [Drop-down menu]

5. How many years have you competed in your main sport?
- Less than 1 year (or season)
- 1 or 2 years (or seasons)
- More than 2 but less than 5 years (or seasons)
- 5 or more years (or season)

6. What is the highest level you have competed at?
- Olympic games
- World championship events/international events
- National competition
- State competition
- Regional competition
- City/district competition

7. Do you hold or have you ever held titles?
- Yes – National title
- Yes – International title
- Yes – State title
- No

APPENDIX B: ATTITUDE, PERCEIVED BEHAVIORAL CONTROL & SUBJECTIVE NORM MEASURES

Anchors: 1 = Strongly disagree, 7 = Strongly agree.

Stem: For me, to avoid using banned performance-enhancing substances/ methods in sport in the forthcoming month is something …

Subjective Norm

1. Most people who are important to me in sport think that I should do
2. Expected of me
3. The people in my life whose opinions I value would approve me to do
4. Many people like me to do

Perceived Behavioral Control

1. Possible for me to do
2. I could do if I want to
3. Over which I have complete control
4. That is completely down to me to decide to do
5. Easy for me to do

Attitude

Stem: For me, to avoid using banned performance-enhancing substances/ methods in sport in the forthcoming month is …

Anchors:

1. 1 = Useless, 7 = Useful.
2. 1 = Foolish, 7 = Wise.
3. 1 = Undesirable, 7 = Desirable.
4. 1 = Negative, 7 = Positive.
5. 1 = Harmful, 7 = Beneficial.
6. 1 = Disadvantageous, 7 = Advantageous.

APPENDIX C: TASK & EGO ORIENTATION QUESTIONNAIRE

Question Stem:

Success in sport can mean different things to different people. The statements in this section of the survey capture a variety of ways in which athletes define their sporting success. Please read these statements carefully and indicate your level of agreement with each one by circling the appropriate number. In sport, I feel most successful when I ….

Question Number	**Question**	**Scale**
Task 1	I reach personal goals	1=Strongly disagree; and 5=Strongly agree
Task 2	I show clear personal improvement	
Task 3	I perform to the best of my ability	
Task 4	I overcome difficulties	
Task 5	I reach a goal	
Task 6	I work hard	
Ego 1	I show other people I am the best	
Ego 2	I am the best	
Ego 3	I am clearly superior	
Ego 4	I outperform my opponents	
Ego 5	I beat other people	
Ego 6	I win	

APPENDIX D: SPORT MOTIVATION SCALE

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
Commitment	Important to be at all practices	Commitment/dedication	1=doesn't correspond at all,7=corresponds exactly
	Give the maximum effort	Commitment/dedication	
	Think how to improve	Commitment/dedication	
	Do not give up after mistakes	Commitment/dedication	
	More effort even if certain if losing	Commitment/dedication	
Social Conventions	Congratulate opp. after a loss	Respect for Other Participants	
	Shake hands with opp.'s coach	Respect for Other Participants	
	Congratulate opp. for good play	Respect for Other Participants	
	Congratulate opp. after a win	Respect for Other Participants	
	Win or lose shake hands with opp.	Respect for Other Participants	
Rules & Officials	Obey the official	Respect for Rules/Laws	
	Respect other officials' decisions	Respect for Rules/Laws	
	Respect official even if not good	Respect for Rules/Laws	
	Truly abide by all the rules of the sport	Respect for Rules/Laws	
	Respect the rules	Respect for Rules/Laws	

APPENDIX E: HEALTH CONSCIOUSNESS SCALE

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
Health Awareness	I'm very self-conscious about my health.	Health	7-point Likert scale of agreement. 1= strongly disagree; and 7= strongly agree
	I'm generally attentive to my inner feelings about my health.	Health	
	I reflect about my health a lot	Health	
	I'm concerned about my health all the time	Health	
Personal Health Responsibility	I notice how I feel physically as I go through the day.	Health	
	I take responsibility for the state of my health.	Health	
	Good health takes active participation on my part.	Health	
	I only worry about my health when I get sick. ®	Health	
Health Motivation	Living life without disease and illness is very important to me.	Health	
	My health depends on how well I take care of myself	Health	
	Living life in the best possible health is very important to me.	Health	

APPENDIX F: MOTIVES FOR PHYSICAL ACTIVITY MEASURE. FUN/ENJOYMENT SUB-SCALE

Question Stem*:*

The following is a list of reasons why people engage in physical activities, sports, and exercise. Keeping in mind your primary physical activity/sport, respond to each question (using the scale given), on the basis of how true that response is for you.

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
Interest/Enjoyment	1. Because it's fun.	Fun	1 = (not at all true for me). 7= (very true for me)
	2. Because I like doing this activity	Fun	
	3. Because it makes me happy	Fun	
	4. Because I think it's interesting	Fun	
	5. Because I enjoy the activity	Fun	
	6. Because I find the activity stimulating	Fun	

APPENDIX G: MORAL IDENTITY SCALE

Question Stem*:*

Here are some traits that might describe a person: caring, compassionate, fair, friendly, generous, helpful, hardworking, honest, and kind. The person with these characteristics could be you or it could be someone else. For a moment, visualize in your mind the kind of person who has these characteristics. Imagine how that person would think, feel, and act. When you have a clear image of what this person would be like, answer the following questions.

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
Internal View	It would make me feel good to be a person who has these characteristics	Ethics	1=Strongly disagree; 5=Strongly agree
	Being someone who has these characteristics is an important part of who I am	Ethics	
	I would be ashamed to be a person who has these characteristics ®	Ethics	
	Having these characteristics is not really important to me ®	Ethics	
	I strongly desire to have these characteristics	Ethics	
Public Dimension	I often buy products that communicate the fact that have these characteristics"	Ethics	
	The types of things that I do in my spare time (e.g., hobbies) clearly identify	Ethics	

	me as having these characteristics"		
	The kinds of books and magazines that I read identify me as having these characteristics	Ethics	
	. The fact that I have these characteristics is communicated to others by my membership in certain organizations	Ethics	
	I am actively involved in activities that communicate to others that I have these characteristics.	Ethics	

APPENDIX H: VIA-IS-24

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
Inquisitiveness	I am always coming up with new ways to do things.	Character	1=Very much like me; 2=Like me; 3= Neutral; 4=Unlike me; 5=Very much unlike me
	I am not someone who comes up with new and different ideas.	Character	
	It's hard to find things that interest me.	Character	
	I love to learn new things.	Character	
	I rarely explore new things.	Character	
	I am always curious about the world.	Character	
Caring	I always treat people fairly whether I like them or not.	Character	
	Without exception, I support my teammates or fellow group members.	Character	
	I am a vengeful person.	Character	
	I am good at expressing love to someone else.	Character	
	Even if I do not like someone, I treat him or her fairly.	Character	
	I always try to help people in need.	Character	
	I am always willing to give someone a	Character	

	chance to make amends.		
	It is difficult for me to express my love to others.	Character	
Self-control	I have a hard time finishing what I start.	Character	
	It is easy for me to stay disciplined.	Character	
	I leave a lot of tasks incomplete.	Character	
	I always think about the consequences before I act.	Character	
	I am a highly disciplined person.	Character	
	I always finish what I start.	Character	
	I think through the consequences every time before I act.	Character	

APPENDIX I: APPRAISAL SELF-RESPECT SCALE (ASR)

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
	I feel I have moral courage	Self-Respect	7-point Likert scale 1=strongly disagree; 7=strongly agree
	I see my behavior as dignified	Self-Respect	
	I feel I have a high strength of character	Self-Respect	
	I take pride living according to my moral code	Self-Respect	
	I will always stick to my principals even if asked to do otherwise	Self-Respect	
	I Have a lot of respect for myself	Self-Respect	
	I see myself as an honorable person	Self-Respect	

APPENDIX J: MODIFIED YOUTH TEAMWORK SCALE

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
	People who work as part of a team can learn more than if they worked alone	Teamwork	5-point Likert scale
	I trust in my ability to work as part of a team	Teamwork	
	I know how to give my opinion to members of my team without hurting their feelings	Teamwork	
	I ask for the opinion of others	Teamwork	
	I make the effort to include other members of my group	Teamwork	
	I value the contributions made by the members of my team	Teamwork	
	I communicate well with team members	Teamwork	
	I think I can be a good leader	Teamwork	

APPENDIX K: SENSE OF COMMUNITY INDEX (SCI-2)

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
Membership	I can trust people in this community	Community	4-Pint Likert Scale 1=Not at all; 4=Completely
	I can recognize most of the members of this community	Community	
	Most community members know me	Community	
	This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize	Community	
	I put a lot of time and effort into being part of this community	Community	
	Being a member of this community is a part of my identity	Community	

APPENDIX L: COURAGE MEASURE (6-ITEM SHORT SCALE)

Subscale	**Item**	**Spirit of Sport Value(s)**	**Scale**
Honesty-Humility	I tend to face my fears	Courage	7-point Likert Scale 1=Never; 7=Always
	Even if I feel terrified, I will stay in the situation until I have done what I need to do		
	I will do things even though they seem to be dangerous		
	If I am worried or anxious about something, I will do or face it anyway		
	If there is an important reason to face something that scares me, I will face it		
	Even if something scares me, I will not back down		

APPENDIX M: HEXICO-60. HONESTY/HUMILITY SUBSCALE

Subscale	Item	Spirit of Sport Value(s)	Scale
Honesty-Humility	I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed.	Honesty	5-point Likert Scale 1= strongly disagree; 5= strongly agree.
	Having a lot of money is not especially important to me	Honesty	
	I think that I am entitled to more respect than the average person is. ®	Honesty	
	If I want something from someone, I will laugh at that person's worst jokes ®	Honesty	
	I would never accept a bribe, even if it were very large	Honesty	
	I would get a lot of pleasure from owning expensive luxury goods ®	Honesty	
	I want people to know that I am an important person of high status ®	Honesty	

	I wouldn't pretend to like someone just to get that person to do favors for me ®	Honesty	
	I'd be tempted to use counterfeit money, if I were sure I could get away with it ®	Honesty	