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Review Article

The Relationship Between the Spirit of Sport Values & Anti-Doping Beliefs Among Elite U.S. Swimming Athletes: Direct-Based Measures Using the Theory of Planned Behavior

Pauline Grist[1]*, Ann Kearns Davoren[2], Jeffrey Milroy[3], Mike Perko[4], and Erica Payton-Foh[5]

[1]*University of North Carolina, Center for Athlete Well-being, Greensboro, North Carolina, USA*

[2]*Prevention Strategies, Greensboro, North Carolina, USA*

[3]*University of North Carolina, Center for Athlete Well-being, Greensboro, North Carolina, USA*

[4]*Department of Public Health Education, University of North Carolina, USA*

[5]*University of North Carolina, Department of Public Health Education, USA*

***Corresponding author**

Pauline Grist, University of North Carolina, Center for Athlete Well-being, Greensboro, North Carolina, USA

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Abstract

This study delves into the correlation between the values encapsulated in the spirit of sport and key elements derived from the Theory of Planned Behavior (TPB) within the realm of elite athletes. The potential advantages for National Anti-Doping Organizations (NADOs) lie in scrutinizing the embodiment of these sport values among their athletes and assessing whether these values could serve as predictors for significant TPB constructs. Such an exploration holds promise for enhancing the design and assessment of anti-doping strategies, allowing for both pre- and post-assessments of values-based education (VBE). Our investigation draws upon firsthand data collected in 2023 from elite USA Swimming athletes (N=77) who had competed nationally in the preceding year. Using multilinear regression analysis, we probed the relationship between 13 spirit of sport values and attitudes, subjective norms, and perceived behavioral control as outlined in the TPB. The findings unveiled noteworthy correlations: respect for others, respect for rules, health, and fun demonstrated significant associations with anti-doping attitudes; health, fun, teamwork, self-control, and self-respect were notably linked to anti-doping subjective norms; and task orientation, respect for others, fun, community, teamwork, self-respect, and ethics displayed substantial associations with perceived behavioral control.

INTRODUCTION

Doping in sport is a well-known problem that has evolved greatly over the years [1,2]. 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. [3], 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 [4,1]. 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 [5,6], and it is one of the most influential psychological theories in doping research [7]. Researchers applying TPB have demonstrated the capability of perceived behavioral control, doping attitudes, and subjective norms to predict doping intention and doping behavior [8-10]. Numerous other studies have also measured attitudes towards doping by various athlete populations to better understand doping behaviors [11-14].

Preventative programs require an understanding of the psychosocial predictors of doping intentions and behavior [14]. 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 [15], 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 [16].

The International Standards for Education (ISE)

According to WADA [17], 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" [17]. 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 [14], controlling coach behaviors, the engagement in health harming behaviors, and the use of nutritional supplements [18,14]. Personality has also been linked to attitudes towards doping [19,18]. However, little research exists on doping in relation to the spirit of sport values [20], 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 [16].

Mazanov et al. [21], 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. [20], further examined the importance of spirit of sport values and sport values [22,23], 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 [21,20]. However, Mazanov et al. [21], utilized Best Worst Scale assessing the importance of each spirit of sport value to the athlete but did not measure the value within the athlete. Additionally, when Mortimer et al. [20] examined values and doping they did so with a sample of college athletes and not with a sample of elite athletes. Mazanov & Huybers [24], argue that psychological research needs to further investigate the construct of spirit of sport given its role in the Code, and Lucidi et al. [10], 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 [10,6], and it is one of the most influential psychological theories in doping research [7]. Researchers applying TPB have demonstrated the capability of perceived behavioral control, doping attitudes, and subjective norms to predict doping intention and doping behavior [8-10]. Kirby et al. [7], 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.

Current Study

The aim of this paper is to examine the association between the *spirit of sport* values within elite athletes and anti-doping attitudes, subjective norms, and perceived behavioral control.

METHODS

Procedures

Prior to the start of the study, IRB approval was obtained from Cayuse Human Ethics to conduct a cross-sectional, anonymous online survey of 221 elite USA swimming athletes. Prior to the launch of the study, USA swimming emailed the full sample of athletes to announce the study to assure athletes that

the survey was legitimate, stress the importance of completing the survey, and to let them know that an independent third-party was conducting the survey to protect their privacy and maintain their anonymity. Initial personalized invitation that contained an anonymous unique survey link and four subsequent reminders were sent to non-respondents. Prior to survey participation, all participants completed an online consent form. As an incentive, athletes were provided a $10 Amazon gift code upon completion of the survey.

Participants

The study consisted of data from elite USA Swimming athletes who participated at the national level within the past year (i.e., competed on national team, Olympic team, or in world championships). 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.

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 I, Extraversion (X), Agreeableness versus Anger (A), Conscientiousness (C), and Openness to Experience (O). Ashton and Lee [25] 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 [26]. 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 [14]. 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. [27], was based on the definition of sportspersonship by Vallerand et al. [28], 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. [28], all items were significant (t statistics >3.17, p=<0.5). 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 [29], "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 [30]. 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 [31] Self-Importance Moral Identity Scale. Moral identity is "the extent to which morality and being amoral person are important to one's identity" [32]. 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. [19], Sport Drug Control Model and an important variable in doping research [33,34,20]. 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. 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 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). 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 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 and adapted by. considered courage persistence or perseverance despite being afraid. 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. 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)

Attitudes, Subjective Norms, Perceived Behavioral Control: 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.

RESULTS

We tested the correlations between anti-doping attitudes, anti-doping subjective norms, and anti-doping perceived behavioral control and all the predictor variables (Tables 1-3). We found that respect for others, respect for rules, health and fun had a significant positive relationship to to anti-doping attitudes; health, fun, teamwork, self-control, and self-respect had a significant positive relationship to anti-doping subjective norms; and task orientation, respect for others, fun, community, teamwork, self-respect, and ethics had a significant positive relationship to 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 attitudes. 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).

After conducting the forward regression on the predictor variables and subjective norms, 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).

Results of the forward regression on the predictor variables and perceived behavioral control 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.

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

Table 1: 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

Table 2: 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	

Table 3: 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

should not avoid using performance enhancing drugs. Fun, self-control, health, and self-respect were positively associated with subjective norms. Though research on the relationship between values and anti-doping is scarce, Mortimer et al. [20], 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. 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, respect for others, fun, and health 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 [14]. found that athletes with high sportspersonship reported lower doping intentions compared to those with low sportspersonship. Our findings support pervious research into the importance of sportspersonship, specifically, respect for the rules on anti-doping constructs within TPB. Health is included in Donovan's Sport Drug Control Model under threat appraisal of doping. It is categorized as one's health threat (i.e., the perceived likelihood of succumbing to the ill health effects of doping, the perceived likelihood of successfully reversing the ill-health effects of doping, and the perceived severity of the health effects of

doping. examined how or if perceived health risks influence elite cyclists' decisions to use PEDs and found younger substances. Younger cyclists were not concerned about the long-term health consequences but more focused on the short-term performance enhancing benefits. Though pervious research has examined health threat appraisal and its relationship to doping, we examined individual's health motivation, and our results suggest that health motivation correlates with anti-doping subjective norms and attitudes.

Task- oriented motivations for achievement in sport, respect for others, fun, community, teamwork, self-respect, and ethics were predictive of perceived behavioral control over doping avoidance. To measure the value of ethics in athletes we utilized the Moral Identity Scale [29]. Moral identity is defined as "a self-conception organized around a set of moral traits" [29]. People with high moral identity are more likely to behave in ways that are moral when compared with individuals low in this dimension. 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 [31]. found moral disengagement to be a predictor of doping intention, and found moral disengagement was inversely strongly associated with doping self-regulatory efficacy. 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 [14] and favorable anti-doping attitudes [13]. 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.

Mortimer et al. [20], found community and teamwork to be positively related to clean sport likelihood while self-respect and courage were not positively associated with clean sport likelihood. Some of our results support the findings of Mortimer et al. [20]. We found community is positively associated with perceived behavioral control and teamwork positively associated with subjective norms. In contrast to the findings of Mortimer et al., we found self-respect to be correlated with anti-doping attitudes and perceived behavioral control.

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 & Future Studies

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 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.

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. 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.). 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 spirit 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.

CONCLUSIONS

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 impacts anti-doping beliefs and behavior among elite athletes, thus mandatory inclusion in VBE, then an emphasis should be placed on research around these values, and their impact on anti-doping beliefs and or behaviors.

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