

BRIEF REPORT

Judging Cheaters: Is Substance Misuse Viewed Similarly in the Athletic and Academic Domains?

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The present study examines how individuals judge others who use performance-enhancing drugs in two different domains—the athletic domain and the academic domain. Approximately 1,200 males in their freshman year of college completed a questionnaire that included two scenarios. One scenario described an athlete who misused anabolic steroids to help him succeed at a sporting event. The other described a college student who misused Adderall to help him succeed on his midterm exams. Participants rated the extent to which they thought the target had cheated and the extent to which they felt the substances were necessary for success. Results showed participants believed the athlete was more of a cheater than the student, and this difference got larger as past prescription stimulant misuse increased. Results also demonstrated that participants felt Adderall was more necessary than anabolic steroids for bringing about success. Contributions to the literature on zero-sum and non-zero-sum domains are discussed. Implications for future research and efforts to prevent substance misuse are described.

Keywords: performance enhancement, anabolic steroids, prescription stimulants, judgments

Prescription stimulants (PS) like Adderall and Ritalin are prescribed to treat attention deficit hyperactivity disorder (ADHD), and recent evidence suggests that between 8% and 34% of college students have misused a PS at some point, that is, used a PS without a valid prescription (DeSantis, Webb, & Noar, 2008; Teter, McCabe, Cranford, Boyd, & Guthrie, 2005). These studies also show males report higher rates of misuse than do females.

The primary motives for misuse are not recreational but for academic pursuits. Individuals report misusing PS to improve concentration while studying, to be able to study longer, and to feel less restless while studying (DeSantis et al., 2008; Judson &

Langdon, 2009; Rabiner et al., 2009; Teter et al., 2005). Although the misuse of substances to gain an edge in the academic setting seems relatively new, in the athletic domain, misuse of substances to gain a competitive edge has a long tradition.

Anabolic steroids (AS) are synthetic hormones related to testosterone (Saudan et al., 2006). Although AS have legitimate medical purposes (Basaria, Wahlstrom, & Dobs, 2001; Creutzberg, Wouters, Mostert, Pluymers, & Schols, 2003; Johns, Beddall, & Corrin, 2005), they are, like PS, often misused for performance enhancement rather than recreation. The strongest motives for misuse of AS are to improve athletic performance, to enhance muscle mass for purposes of bodybuilding, or to improve physical appearance (Copeland, Peters, & Dillon, 2000; Hildebrandt, Langenbucher, Carr, & Sanjuan, 2007; Yessalis et al., 1988). About 1.5% of adolescents and young adults report having misused AS, and, similar to PS, males are more likely than females to misuse the substances (Dodge & Jaccard, 2006; Hoffman et al., 2008).

There are a number of parallels between the misuse of PS and the misuse of AS. In both circumstances, an individual is misusing a substance that has legitimate medical uses and the purpose of misuse is to gain a competitive advantage. Despite these parallels, there have been no empirical studies testing how individuals construe the misuse of these substances. How individuals perceive the misuse of these substances has implications for prevention efforts. For example, to the extent misuse of these substances is viewed similarly, prevention programs from one domain may be applied, with some modifications, to the other domain. Therefore,

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the purpose of this study is to compare how individuals perceive misuse of PS with how they perceive the misuse of AS.

There is reason to believe that, regardless of the similarities, individuals will view the misuse of these two substances differently. In one of the few theoretical frameworks proposed for understanding how individuals view substance misuse in the academic domain, Goodman (2010) identified two distinctions that are particularly relevant: (a) whether misuse occurs for tasks that are zero-sum or non-zero-sum, and (2b) whether the purpose of the task is process goods or outcome goods.

Zero-sum tasks are those for which there is a winner and a loser (Goodman, 2010). That is, one's success in zero-sum tasks necessarily implies another's failure. In contrast, non-zero-sum tasks are those for which one's success at a task is independent of another's performance on that same task. Tasks focused on process goods are concerned with "excellence in performance" (Goodman, 2010, p. 146), whereby the way in which one succeeds matters. In contrast, tasks focused on outcome goods are concerned with outcomes that are the result of task performance. For tasks focused on outcome goods, the end result is more important than how it was achieved. Goodman (2010) has predicted that, in the academic domain, tasks that are zero-sum and in which process goods are emphasized over outcome goods, the misuse of performance enhancers will be tolerated less than for tasks that are non-zero-sum and emphasize outcome goods.

The zero-sum/non-zero-sum distinction proposed by Goodman (2010) may be relevant for understanding how tolerant individuals will be of performance-enhancing substance misuse in the athletic versus academic domains. Tasks in the athletic domain predominantly reflect tasks that are zero-sum. That is, in athletics, there can be only one winner and one's win necessarily comes at the expense of another. In contrast, for college students, tasks in the academic domain often, although not always, reflect activities that are non-zero-sum. For example, most tests in college can be considered non-zero-sum in that one individual's success does not necessarily preclude the success of another.

If athletics is viewed as a zero-sum domain and the academic domain is viewed as a non-zero-sum domain, then an individual who takes performance enhancers and succeeds in the athletic domain should be viewed as more of a cheater than an individual who takes performance enhancers in the academic domain and succeeds. This is because the athlete has won at the expense of another athlete and may have reached a level of performance he would not have reached otherwise. However, the individual in the academic domain succeeds with relatively no cost to another. Even if the level of performance was one he would not have reached without the substance, it does not come at the expense of another.

Hypothesis 1: An athlete who takes a performance enhancer and succeeds will be judged as more of a cheater than a student who uses a performance enhancer and succeeds.

In addition, individuals may view performance enhancers that lead to success in the athletic domain as more necessary for bringing about success than performance enhancers used in academic domains. This is because, in athletics, one must outperform a large number of others to succeed, whereas, in academics, it is possible for several, or even many, to reach similar levels of success. Thus, success in the zero-sum domain is restricted to a

few, so an edge may be viewed as more necessary than an edge in a non-zero-sum domain. This leads to the following study hypothesis:

Hypothesis 2: The use of a performance enhancer by an athlete will be viewed as more necessary for successful performance than a performance enhancer used by a student.

Method

Sample and Recruitment

Participants were recruited from a large university in the mid-Atlantic region for a larger project designed to investigate links between misuse of AS and other performance enhancing drugs. All freshman males younger than 25 years of age who lived on campus were sent an e-mail invitation. The invitation provided a brief description of the study, which stated, "The project is about exercise habits and use of nutritional supplements among college students," and provided a link to the survey along with a personal identification number to access the questionnaire. About 1,200 undergraduate males completed the questionnaire. Seventy-three percent of the sample was white, 7.6% was Asian, 2.8% was Black, 1% was Middle Eastern, less than 1% was American Indian, and 3.2% reported belonging to some other race. Nearly 12% failed to report their racial background. The response rate was 37%.

Participants read two scenarios where the target performed better than expected after having taken a performance enhancer prior to an important event. One scenario described Bill, a male collegiate-athlete. The scenario read,

Bill is a sprinter for his college track team. The championship meet will be held in a few weeks. Bill does not have much time before the team championship meet. Bill wants to do well, but he is worried that he does not have enough time to improve before the championship meet. Bill's friend Mike uses Steroids. Bill decides to ask his friend Mike for a supply of Steroids. Bill takes the Steroids and does better than expected by winning the championship race.

The other scenario described Jeff, a male student. The scenario read,

It is midterm exam time . . . Jeff wants to do well on his exams but is concerned that his grades may be low. He does not have much time and is worried that he will have trouble focusing on his work when studying. Last night Jeff went to the library and had trouble focusing. Jeff's friend Paul has a prescription for Adderall pills. Jeff decides to ask Paul for a few of the Adderall pills because Jeff has heard the pills help people focus. Jeff takes the pills and several days later, receives his midterm grades. They are higher than he expected.

Measures

Perceptions of misuse. The perception that using the substance was a form of cheating was assessed for both scenarios by asking, "Bill [Jeff] is a cheater for using Steroids [Adderall]." The perception that use of a performance enhancing substance was necessary was assessed by asking, "Taking Steroids [Adderall] was necessary for Bill [Jeff] to do well." Responses ranged from -2 (*strongly disagree*) to 2 (*strongly agree*).

Past substance misuse. PS misuse was assessed by asking participants how many times they had used a PS (like Adderall, Ritalin, or Dexedrine) without a doctor's prescription in the last 12 months. Response categories were based on previous studies (see, e.g., McCabe, 2008; McCabe & Teter, 2007; Teter et al., 2005) and included the following: never, 1–2, 3–5, 6–9, 10–19, 20–39, and 40+ times. Similar items have been used in previous research (McCabe, 2008; McCabe & Teter, 2007) and have been shown to have face validity (Teter et al., 2005). Because frequencies for 10–15, 15–19, 20–39, and 40+ times were so small, they were combined into a single category of 10+ times.

One item asked the number of times the participant had tried AS during their lifetime. Response options were based on the Youth Risk Behavior Surveillance Survey (Centers for Disease Control, 2011) and included: never, 1–2, 3–9, 10–19, 20–39, and 40+ times. Because the base rates for use were so low, the variable was dichotomized as 1 (*used*) and 0 (*never used*). Such items have been shown to converge with behaviors like athletic participation (Humphreys & Ruseski, 2011; Terry-McElrath, O'Malley, & Johnston, 2011).

Sport participation. Participants were asked if they participated on a sport in high school. This variable was used to control for experience with sports.

Results

Descriptive Statistics

Less than 1% of the sample reported having ever used AS. About 8% of the sample reported having used a PS without a prescription during the past 12 months, which is similar to rates obtained in other studies (Arria, O'Grady, Caldeira, Vincent, & Wish, 2008; McCabe & Boyd, 2005; Shillington, Reed, Lange, Clapp, & Henry, 2006; Teter, McCabe, LaGrange, Cranford, & Boyd, 2006). About 4% had used the substances once or twice, 1.4% used it between 3 and 5 times, 1.4% between 6 and 9 times, and the remaining 1.5%, 10 or more times.

Scenario Comparisons

Cheater. A repeated measures ANOVA was conducted to test whether mean ratings for cheating differed as a function of the type of drug used, where scenario rating was entered as the within-subjects factor, and past misuse of a PS and whether the participant had played a sport in high school were entered as covariates. Results of the analysis showed participants rated Bill, who used steroids, as more of a cheater ($M = 1.50$) than Jeff, who used Adderall, $M = -0.16$, $F = 233.73$ (1, 1262), $p < .01$, $\eta_p^2 = 0.16$, adjusting for past PS misuse and high school sport participation. This was qualified by two statistically significant interactions. One interaction was between scenario rating and past PS misuse, $F = 14.87$ (1, 1262), $p < .01$, $\eta_p^2 = 0.01$, such that differences between the scenario ratings tended to get larger as misuse of a PS became more frequent. The nature of the interaction is shown in Figure 1. The other interaction was between scenario rating and sport participation, $F = 5.24$ (1, 1262), $p < .025$, $\eta_p^2 = 0.004$, such that those who played a sport rated Bill as more of a cheater than those who did not play a sport.

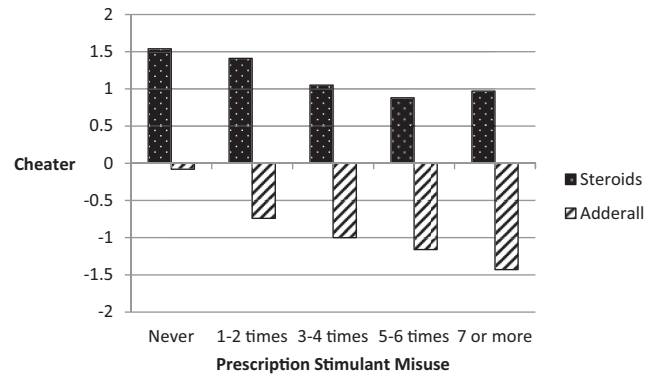


Figure 1. Mean ratings for cheater as a function of prescription stimulant misuse and scenario adjusting for sport participation.

Necessary. A repeated measures ANOVA was conducted to test whether mean ratings for the drug was necessary differed as a function of the scenario. Scenario rating was entered as the within-subjects factor. Past PS misuse and high school sport participation were entered as covariates. Results showed participants reported Bill needed steroids less to succeed, $M = -1.05$, than Jeff needed Adderall, $M = -0.70$, $F = 12.29$ (1, 1261), $p < .01$, $\eta_p^2 = 0.01$, adjusting for PS misuse and high school sport participation.

Discussion

This study is one of the first to compare perceptions of PS misuse with perceptions of AS misuse. Consistent with Hypothesis 1, the data showed that participants perceived those who misused AS as less ethical than those who misused PS. This difference became larger as past misuse of PS increased, primarily because past users of PS began to view PS misuse as more acceptable. Given the low base rates of AS misuse, a similar interaction could not be tested with AS.

While these results are consistent with the idea that using performance enhancers is viewed as less ethical in the sporting domain than in the academic domain, it is also possible the differences were due to the wording of the scenario. That is, the scenario for Jeff explicitly mentioned effort (i.e., went to the library to study), whereas effort was not explicitly mentioned for Bill (i.e., attended practice). As a result, participants may have felt Bill was more of a cheater than Jeff because Bill did not try. Effort is explicitly stated in the scenario with Jeff, and we believe it is implied in the scenario with Bill. That is, athletes on college teams are required to attend practice, and it is doubtful an athlete could consistently fail to attend practice. Therefore, participants likely assumed Bill attended practice and hence put forth effort.

In contrast to Hypothesis 2, individuals perceived misuse of PS as more necessary for successful performance than use of AS. This finding implies individuals view high levels of success in academics as necessitating misuse of substances more so than in athletics. It also suggests individuals tend to believe athletic performance improvements may come through means other than misuse of AS. There are several possibilities for this result.

One possibility is that individuals believe intelligence, which would be largely responsible for academic success, is less malleable than athletic ability. As a result, taking a PS may lead to an

improvement in one's capacity to acquire new information. It is possible that the scenario led participants to believe Adderall compensated for a deficiency in Jeff's ability (i.e., his ability to focus). Because the scenario with Bill did not mention that AS compensated for a deficiency in his ability, participants may have inferred Bill had enough ability to win and therefore reported AS were not as necessary for Bill's success as Adderall was for Jeff's success. Future research should test whether beliefs about the malleability of ability are related to misuse of performance enhancing substances in these two domains.

Another possibility is that participants inferred from reading the scenario that the athlete had taken steroids only once. As a result, participants may have assumed the single dose of AS could not have been responsible for his success. Yet students report single use of a PS may lead to performance improvements (DeSantis et al., 2008).

Results of the study have implications for prevention efforts. For example, these data imply that individuals view AS misuse as more a form of cheating than misuse of PS, and prevention efforts could emphasize misuse of PS is a form of cheating. One notable AS prevention program, the Adolescents Training and Learning to Avoid Steroids (ATLAS) Prevention Program, reduces athletes' beliefs in the appropriateness of using AS to win (Goldberg et al., 1996), and other work suggests that when AS misuse is viewed as a form of cheating, athletes are less likely than those who do not view misuse as a form of cheating to use AS (Dodge & Jaccard, 2008).

While there have been no published reports of prevention programs targeting PS misuse among students, researchers have suggested that such programs be developed (Herman-Stahl, Krebs, Kroutil, & Heller, 2007; McCabe, Knight, Teter, & Wechsler, 2005), and the present results can inform such programs. Finding that individuals believed PS misuse to be more necessary for success than AS misuse suggests individuals believe lack of preparation can be overcome by shortcuts in the academic domain to a greater extent than in the athletic domain. As such, interventions targeting PS misuse should emphasize that long-term learning and knowledge are best acquired through sustained efforts over time, rather than short bursts of effort.

The results of this study, when viewed in conjunction with existing work, highlight the utility of zero-sum and non-zero-sum distinctions in academic and athletic domains. Results suggest achievement contexts, like athletics and academics, have different cultures and expectations regarding appropriate behaviors, and this is one of the first studies to document that such expectations may affect how we judge the actions of individuals in those domains. The ATLAS program mentioned previously capitalizes on this (Goldberg et al., 1996), as one aspect of the program aims to reduce athletes' beliefs in the acceptability of using AS to improve athletic performance. The ATLAS program has incorporated components that take advantage of the zero-sum non-zero-sum distinction, lending some support to the value of this distinction.

Results of the present study must be viewed in light of several limitations. The sample included males in their freshman year of college, and the rate of AS use was lower than the 1.5% to 2.0% typically reported for U.S. collegiate males (McCabe, Brower, West, Nelson, & Wechsler, 2007), indicating the sample may not reflect the population of U.S. collegiate males. The response rate was relatively low but is within the range (25% to 50.5%) reported

in other work that has employed similar sampling strategies (Kaplowitz, Hadlock, & Levine, 2004; Ray, Turrisi, Abar, & Peters, 2009).

Presentation of scenarios was not counterbalanced (i.e., AS scenario was viewed first), which could have led participants to believe AS misuse was worse than PS misuse. We believe this is unlikely for two reasons. The scenarios were not asked in close proximity, as one was presented at the beginning of the questionnaire and the other was presented toward the end. In addition, that we found differences in the directions of ratings for each scenario suggests it is unlikely that order effects played a role in the results.

Despite these limitations, the present study has a number of strengths. The sample was large and included males, the population most at risk for misuse of AS and PS. This is one of the first studies to compare how individuals judge performance enhancement in the athletic and academic domains. In sum, it appears individuals tend to feel PS misuse is more acceptable than AS misuse. However, individuals tend to believe that the misuse of PS may be more effective than misuse of AS in bringing about success. These results provide interesting directions for future research and have implications for the design of prevention programs.

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