

Theorizing the Use of Performance Enhancing Substances and Methods in Sport as Four Different Types of Deviant Behavior.

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Abstract

The central objective of this paper is to demonstrate that the validity of the Hughes and Coakley (H&C) model of deviance in sport is context specific and depends on the time, place, social groups involved, and the relative power of the audience and deviant(s). H&C argued that performance enhancing substance (PES) use constituted a single type of deviant behavior among athletes (i.e., positive deviance). The Heckert and Heckert (H&H) deviance framework made it possible to theorize performance-enhancing substances and methods (PESM) use as four ideal types of deviant behavior among athletes and in sports collectives. Given the variability in the historical and social contexts where PESM use has occurred in sport, a comprehensive explanatory framework is needed to understand a full range of PESM behaviors. This paper demonstrates that the H&H framework has a clear explanatory advantage over the H&C model.

Keywords: Deviance, Deviance in Sport, Performance Enhancing Substance Use, Overconformity/Underconformity, Negative Deviance/Deviance Admiration/Positive Deviance/Rate Busting

Introduction

Hughes and Coakley (1991), henceforth known as (H&C), argued in their highly cited article that deviance among athletes was mostly an example of overconformity to the sport ethic rather than an outright rejection of the accepted goals and norms of sport. In order to succeed and improve physical performance in sports, athletes often push beyond normative boundaries that exceed commonly accepted ideas about conduct, training and recovery efforts. The behavior of athletes may become “pronormative” because of the extreme intensity of effort that is exerted to surpass conventional fitness boundaries. H&C further suggested that athletes who overconformed were engaged in positively deviant behavior. In fact, they used these concepts interchangeably.

In earlier research, Ewald and Jiobu (1985) were amongst the first to empirically document positive deviance in non-elite long distance runners in a direct test of Becker’s (1963) reactivist/subjectivist model of deviance. Surveyed runners would train multiple days per week with each session often lasting several hours. The researchers judged this type of commitment to be well beyond recreational standards given their subjects’ lack of involvement in competitive running events. Moreover, the runners subjectively understood their participation in the sport to be pronormative because it often involved some pain, discomfort, and a significant sacrifice of time that prevented involvement in other activities. Despite these deterrents, they learned to view long distance running as pleasurable and autotelic.

Notably, H&C cited this study and a handful of other prior empirical studies that provided support for their overconformity/positive deviance framework. They admitted, however, that there was, “a need to empirically investigate this phenomenon” (pg. 310) given the limited supporting literature. Despite this recognition, no additional empirical evidence was presented in

the article that substantiated their central claim that performance enhancing drug (PED) use in sport was fundamentally an example of overconformity to the sport ethic.

Coakley (2015) later revealed that the original normative core of the sport ethic argument was based on regular discussions he and his coauthor Hughes had with elite and non-elite athletes, coaches, and trainers during a three year period in the late 1980s. There had been no formal IRB (Institutional Review Board) approved study design that included a data collection protocol, or a rigorous test of their proposed model of PED use in sport. Nearly twenty-five years later his chapter also pointed to the lack of empirical testing of the three central hypotheses of the original H&C overconformity/positive deviance model.

He also mentioned H&C's oversight of influential factors that had emerged since the formulation of their first model in the late 1980s. Among these factors were increased stakes associated with many prolympic sports including lucrative sponsorships, financial gain for some elite athletes, increased social status via high profile media exposure, and sports funding strategies both at the organizational and U.S. national levels that rewarded high performers and punished, or eliminated nonperformers. Other influential factors were also discussed including the emergence of new sports norms related to advances in sport medicine, technology and training methods, and the related increase in the availability of performance enhancing substances for use as training and recovery aides, and in competition. Another important omission not specifically mentioned by Coakley included the adoption of worldwide, legal statutes regarding prohibited doping substances and methods.

This article does not surmount the central limitation of H&C's original article. It does not empirically test either their original model, or an alternative model of performance enhancing substance and methods (PESM) use. However, an effort is made in this paper to account

theoretically for many of the emergent factors that have limited the validity of the central arguments made in H&C's original work as they relate to PESM use in sport over time. Despite the critical tone of this paper, it is important to state that the central aim is not a complete discounting of H&C's positive deviance/overconformity model as it applies to the use of PESM among some individual athletes. It is also important to point out that the H&C model can be used to validly and reliably explain other types of deviant non-PESM behavior among athletes.

The primary objective of this paper is to demonstrate that the validity of the H&C model of deviance as it applies to PESM use is context specific and depends on the time, place, social groups involved (Thio 1983), and the relative power of the audience and deviant(s) (Heckert and Heckert 2002; Thio 1983). It is recognized that the H&C model may have more explanatory power in the context of PESM use in non-elite athletics. In elite athletics, however, explanatory power was reduced when the majority of sports organizations and leagues adopted comprehensive rules that banned, or regulated the use of PESM. A brief review of this history is worthwhile.

The institutionalization of worldwide, anti-doping norms

The International Association of Athletics Federation (IAAF) was the first sport organization to have a prohibition against doping in 1928, although it was only limited to stimulants (Gudjónsson 2012). In 1939, with the publication of a report to the Hygiene Committee of the Nations Society, effort to develop a medically informed definition intensified (Brissonneau and Montez de Oca 2018). Decades later, the Italian Sports Medical Commission produced one of the first lists of doping substances in 1962. The list was used as an international reference (Brissonneau and Montez de Oca 2018). France soon followed. In 1965, it became one of the first countries to adopt anti-doping legislation (i.e., la Loi Herzog named after Maurice

Herzog then the French Minister of Youth and Sport). It was passed in order to test for and regulate the use of PES in the Tour de France and other athletic competitions. Three years later, the International Olympic Committee (IOC) banned specific doping agents including stimulants in 1968 and then anabolic steroids in 1975 (there were no tests available for steroid detection prior to 1974). Importantly, more stringent, standardized and comprehensive anti-doping rules were not adopted internationally until 2003. This occurred after the creation of the World Anti-Doping Association (WADA) in 1999 (Gudjónsson 2012). The first list of WADA banned doping substances, masking agents and doping methods followed in 2004. Currently, many professional and amateur sports organizations around the world use regularly updated WADA prohibited PESM lists.

Given the establishment of doping regulations in the late 1960s and mid-1970s, and the institutionalization of specified substance/methods lists in the early 2000s, PESM use as a type of positively deviant, overconformity among individual athletes had higher face validity prior to the adoption of any widely known prohibitions/sanctions against specific substances/methods. Face validity for the H&C overconformity argument decreased once it became normative that the use of a specific PESM was a violation of fair play rules in a sport. To more accurately explain both historical and contemporary deviant PESM behavior, a threshold could be assigned to the time point at which a particular substance and method was banned by major sports agencies/organizations and athlete compliance became relatively high (e.g., prior to the IOC's 1975 ban on anabolic steroids, PESM behavior by athletes/teams/nations could be validly explained by the positive deviance/overconformity framework). After the 1975 ban, increasingly the framework became less applicable in relation to steroid use in elite Olympic sports.

Importantly, a careful consideration of the relative social context including the shifting normative landscape in which the PESM use occurs is required for an accurate interpretation of the behavior from a theoretical position. An orthodox interpretation of PESM use as a form of negative deviance gained face validity once major sports organizations implemented and levied sanctions against those who violated doping rules, including teams, nation states and athletes. In addition, several contemporary studies have produced evidence that demonstrated that PESM use behavior was often evaluated negatively by athletes themselves (e.g., as a form of cheating/dishonesty/deviance/delinquency (Peretti-Watel et al., 2004; Wilson, Gilbert and Edwards, 2004; Fincoeur, Henning and Ohl, 2020)). Such sentiments were especially strong among those who were recreational/amateur athletes (Smith et al., 2010; Lentillon-Kaestner and Carstairs, 2010), or were members of a team that had a strong anti-doping stance (Brissonneau and Ohl 2010). The increasing complexity of the evolving normative and evaluative PESM use landscape requires a broader theoretical view of deviance in contemporary athletics.

It is also important to point out that recent textbook restatements (Coakley 2017; Coakley 2021) of the original H&C model have not capitalized on a key theoretical advancement in the area of crime and deviance. Heckert and Heckert (2002), henceforth known as H&H, first introduced an integrative model of deviance where they cross-classified normative expectations (under/nonconformity, overconformity) with social reactions/collective evaluations (negative, positive). Within this broader framework, different types of individual and aggregate level PESM behavior and collective action in sport can be classified more accurately according to expectations and evaluations of the specific times and contexts where the behavior occurred. While H&C and Coakley argued that PES use constituted only one type of deviant behavior

among athletes (i.e., positive deviance), the H&H framework could be used to classify PESM use as four ideal types of deviant behavior among athletes and within sports collectives.

The H&C model of PES use

Although H&C's original formulation did not explicitly state that all norms of the sport ethic had to be exceeded by an athlete for a state of overconformity to exist, it could be inferred that this was a prerequisite. The four norms of the sport ethic include: 1) complete dedication to/making sacrifices for the game; 2) striving for distinction by improving or winning; 3) accepting risks and playing through pain; and 4) accepting no obstacles in the pursuit of success (Hughes and Coakley, 1991; Coakley, 2021). If a more flexible and context dependent conception of deviance is used, it is a straightforward exercise to imagine that various degrees of overconformity could exist where some of the normative boundaries of the sport ethic are exceeded while others are not.

H&C also developed several hypotheses that were germane to predicting which athletes were most likely to engage in overconformity/positively deviant behavior. More importantly, they proposed that overconformity was most likely among athletes who had the strongest long-term desire to participate in the most exhilarating and thrilling sports. The drive to maintain a social status as an athlete was the strongest determinant of the athlete's likelihood of overconforming behavior. Other secondary, individual-level factors were impactful as well. They expected that athletes whose social/financial mobility was exclusively tied to sport, those who had a low self-esteem and were more vulnerable to peer pressure had a greater risk of overconforming. This was especially the case for men and low income, minority athletes in revenue generating sports. Later, Coakley made two additional predictions. In the same vein as the first hypothesis, he suggested that overconformity was more probable among those who strongly linked their athletic identity to

their masculinity, and among athletes who were part of a team where coaches and teammates promoted a social context where positive deviance was normative (Coakley, 2021).

As an exemplar, H&C applied their model of overconformity/positive deviance to explain dangerous performance enhancing substance (PES) use among athletes. What acts constituted dangerous behavior was not explained. They hypothesized that the most committed athletes had the highest risk of use. This could include the “mediocre athlete on a second rate team.” H&C dismissed the notion that athletes who used PES were morally defective, or alienated. They argued that most athletes could not be characterized as Mertonian retreatists intent on rejecting culturally approved goals and institutionalized means to achieve them. Nor were they Mertonian innovators who accepted normatively approved goals but achieved them through disapproved means. Instead, they theorized that PES using athletes were overcommitted conformists, victims of an uncritical acceptance of, and commitment to the sport ethic. The athlete was the archetypical cultural dope embedded in a system controlled by sports authority figures and teammates.

H&C also strongly criticized those in sport who argued (e.g., journalists and sports commentators) that winning (the second norm of the sport ethic)/human greed was the sole cause of deviance in sport. Perhaps, they had also aimed a shot at Merton’s description of cheating in competitive athletics in the context of his structural strain theory of deviance:

The working of this process eventuating in anomie can be easily glimpsed in a series of familiar and instructive, though perhaps trivial, episodes. Thus, in competitive athletics, when the aim of victory is shorn of its institutional trappings and success becomes construed as “winning the game” rather than “winning under the rules of the game,” a premium is implicitly set upon the use of illegitimate but technically efficient means. The star of the opposing football team is surreptitiously slugged; the wrestler incapacitates his opponent through ingenious but illicit techniques; university alumni covertly subsidize “students” whose talents are confined to the athletic field. The emphasis on the goal has so attenuated the satisfactions deriving from sheer participation in the competitive activity that only a successful outcome provides gratification. (1968:189)

Importantly, H&C argued athletes were not resistant to winning and making money from sport. Instead, they emphasized that the majority of athletes had no realistic chance of achieving either on any scale. Clearly, this supposition has strong face validity if the universe of athletes is considered and observed outcomes are limited to winning/generating income. Empirical evidence in published studies that demonstrated average PES using athletes have come to this realization would be more convincing.

While somewhat inconsistent with their initial unintentionality narrative, H&C made a point to reintroduce agency into the athlete's PES use decision-making process. Ultimately, they left open the possibility that a PES using athlete may knowingly reject established rules about the use of banned PES if that athlete was strongly motivated to remain in a sport because of the social status and prestige they could gain from continued participation. H&C recognized that defeat, or failure to achieve results often prevented future competition in elite sport.

Although PES use in this context was not construed as an effort to win in a conventional sense, it could still be viewed as an effort to gain or keep other significant sport related benefits. Findings from multiple studies have supported this supposition (Lentillon-Kaestner and Carstairs 2010; Outram and Stewart 2015; Sefiha 2012). Thus, a powerful, rational motive exists for many athletes to improve enough to remain competitive, to "stay in the game," so that they continually receive the social benefits of participation. Hence, there is some difficulty aligning the original H&C position with widespread, contemporary PESM use in elite training and competition, or among amateurs who have unrealistically high expectations about their future success to win, or play and win as future elites. Although the H&C narrative may validly explain PESM use among amateurs who recognize limits to their future athletic trajectories and successes, or among

athletes who play purely for the love of the game, a broader conception of elite sports benefits reduces the validity of the H&C framework.

Prevalence estimates of normative PESM use

A continuous trickle of high profile but noteworthy examples of banned PESM use in the popular press have exposed documented individuals (e.g., Lance Armstrong, Barry Bonds, Alberto Contador, Jose Canseco, Jason Giambi, Ben Johnson, Jackie Joiner-Kersey, Mark McGwire, Gary Sheffield etc.), teams (e.g., U.S. Postal Service's pro-cycling team, Festina, etc.), organizational (e.g., BALCO), and state sponsored athletic programs (e.g., the Russian doping program at the Sochi winter Olympic games, the former East German doping program). A summary of this reporting on PESM use among elite and amateur athletes suggests that it has occurred regularly, and even in egregious cases often goes undetected by monitoring agencies for lengthy time periods (Ruiz and Schwirtz 2016). These accounts have rarely given specifics about the overall prevalence rate of doping by athletes. Some insight can be gained by examining recent scandals (e.g., Festina, Sochi winter Olympic games, and the U.S. Postal Service's pro-cycling team).

In 2018, WADA reported rates of illegal doping to be between 1.4% (blood/urine) (WADA 2018a) and 3.5% (athlete biological passport – ABP) (WADA 2018b). These rates are in line with an earlier study (de Hon, Kuipers, and van Bottenburg 2015) that reviewed 27 years of WADA biological laboratory doping test findings (1987-2013). It demonstrated similar rates of adverse analytical findings (AAF) and atypical findings (ATF) from year to year. Their review discussed several problems concerning the difficulties of using these data to produce accurate estimates of intentional doping.

In contrast to the reported 2018 WADA ABP method, de Hon, Kuipers, and van Bottenburg (2015) cited a doping prevalence result of 14% for all elite athletes. This estimate, taken from another prior peer reviewed study, relied on the ABP method of detection using samples from elite track and field athletes between 2000 and 2010. They considered the ABP method to be more accurate than blood/urine tests designed to find specific doping agents. However, the authors additionally argued that to produce the most accurate estimate of doping prevalence it was necessary to use data from biological (ABP methods) and from randomized response technique (RRT) surveys. They cited a doping prevalence range of 14% to 39% of all adult elite athletes from both types of prior studies. It is important to note that this cited range combined a lifetime prevalence rate of 14% with an annual prevalence rate of 39%. This mixture clearly introduces ambiguity about the true range.

In comparison, a more recent peer-reviewed study demonstrated banned PESM use was remarkably high in several elite, international sports contexts (Ulrich, Pope, Cleret, Petroczi, Nepusz, Schaffer, Kanayama, Comstock, and Simon 2018). The estimated prevalence of past-year doping was between 43.6% (95% C.I. 39.4-47.9%) and 57.1% (95% C.I. 52.4-61.8%) of the surveyed respondents. The competitions covered typical summer Olympic sports and included a sample of 2,167 athletes who competed in both competitions. Participation rates exceeded 93% of the athletes approached in both surveys. The authors argued that this range was unlikely to overestimate the true prevalence of banned PESM use because they had employed several methods to assess the robustness of their numbers. They used a RRT to guarantee anonymity to the respondents because of the sensitive nature of the information the athletes were asked to divulge.

In addition, the study used a control question to assess past-year supplement use at the later competition event. An even higher prevalence of past-year supplement use (70.1%, 95% C.I. 65.6–74.7%) by athletes was discovered. Again, this finding suggested that the true prevalence of banned PESM was not likely to be an overestimate. Importantly, supplement use has been linked to a higher risk of banned substance use among athletes (Backhouse, Whitaker, and Petróczi 2013; Barkoukis, Lazuras, Lucidi, and Tsorbatzoudis 2015). Barkoukis, Lazuras, Lucidi and Tsorbatzoudis (2015) suggested that among collegiate and adolescent athletes, supplement prevalence use estimates are higher than 70% and appear to have increased over time.

Others have pointed out that estimating a prevalence measure of doping is fraught with a variety of definitional and methodological problems (Gleaves, Petróczi, Folkerts, de Hon, Macedo, Saugy, and Cruyff 2021). Any estimate is a function of who is considered an athlete (e.g., elite) and is ultimately included in the defined population. The specific sport, the operational definition of doping used, the country from which the athletes originated, and in the case of surveys, the willingness of the athletes to discuss their PESM use behavior with researchers all impact the validity and reliability of any prevalence measure.

Despite recognition of these pitfalls, Gleaves et al., (2021) used PRISMA guidelines to carry out a review of 105 doping prevalence estimate studies published between 1975 and 2019. Not surprisingly, the included studies used substantially different prevalence definitions and methodologies. Although the review reported the results of two studies with the lowest and highest estimate (0 to 73% of athletes in any competitive sport), the main aim of the paper was to produce quality ratings of the included studies and develop guidelines to increase the quality of future studies. The authors concluded that the current doping prevalence evidence is disparate and weak.

Given the enormous differences between estimates of banned PESM use among elite athletes, it is almost certain that WADA's testing of biological samples does not accurately reflect PESM use prevalence among elite athletes. Instead, it underestimates it substantially. There is some hint that it may also be the case that RRT studies may still not accurately estimate the true upper limits of PESM use behavior either given the ubiquitous use of legal supplements by athletes. Despite large discrepancies between different PESM prevalence estimates, the totality of evidence including recent peer-reviewed studies and consistent reports of PESM use among athletes by the media, suggest that banned PESM use is likely to be normative among elite athletes and many groups of practicing sports enthusiasts.

Evaluative attitudes about PESM use

Irrespective of the likely widespread use of PESM among elite athletes, evaluative views largely reflect a lay understanding of both WADA's anti-doping stance and the IOC's zero tolerance policy. A review of recent studies on the general public's anti-doping attitudes and opinions concluded that respondents of all ages were broadly intolerant and in favor of punishing dopers who break the rules (Backhouse, Whitaker, Patterson, Erickson, and McKenna 2015). However, some limited evidence has demonstrated evaluative attitudes against doping may have shifted in younger individuals.

Vangrunderbeek and Tolleneer (2011) found that attitudes held by 555, 18-year old college students enrolled in a Belgian human movements course (1998 to 2006) about elite athletes who doped, had become more permissive over time rather than less. Cross-sections of student portfolios trended toward more indifference (10% to 36%), and substantially reduced zero tolerance attitudes (85% to 50%) towards doping over time.

Other supportive, related findings suggested that attitudes toward doping changed nonlinearly with age such that the greatest level of leniency peaked at about 25 years of age and declined afterward (Singhammer 2012). Similarly, others found that older people held more negative attitudes towards doping than younger people (Solberg, Hanstad, and Thøring 2010). Definitive conclusions about changing anti-doping views based on cross-sectional, or repeated, cross-sectional study data is clearly problematic.

To date, I am aware of only a single study that tangentially examined the effect of normative attitudes on Iranian professional athletes' past, present, and future PED use (Kabiri, Shadmanfaat, Howell, Donner, and Cochran 2022). The measurement of the effect of the normative attitudes of others on the respondent's doping behavior included the influence of three groups: important people, people who were influencers, and people whose opinions were valued. Beyond the reporting of three factor loading scores, the unique contribution of this normative attitudinal measure on PED use behavior was difficult to assess. It was combined into a single, four factor social learning scale that was used in a structural equation model.

The study's findings suggested that as the normative positions of the respondent's significant others changed about PED use, the respondent's own doping definitions changed as well. Despite this finding, the study concluded that the behavioral process of doping remained relatively stable over time. Users used, nonusers did not. Nevertheless, they noted that differences were still apparent between athletes' in their PED use trajectories. Despite these intraindividual differences, the study's authors did not appear to investigate if PED use trajectories of those athletes who had been exposed to varying normative attitudes about doping, were different from those who were stable users/stable nonusers. Additionally, the study did not examine the effect that age may likely have had on normative attitudes about PEDs and athlete PED use behavior.

Despite the dearth of longitudinal studies on changing normative attitudes about banned PESH use in sport, there is no shortage of psychologically oriented studies that have demonstrated an association between a variety of individual-level factors that increase the likelihood of holding a positive perception about their use. Supplement use increases the likelihood of using banned doping agents by a factor of 2 to 10 times (Barkoukis, Lazuras, Lucidi, and Tsorbatzoudis 2015; Mallia, Lucidi, Zelli, and Violani 2013). Elite athletes who use nutritional supplements, or state that supplements are necessary for success are also more likely to approve of doping (Barkoukis, Lazuras, Lucidi, and Tsorbatzoudis 2015; Bloodworth, Petróczi, Bailey, Pearce, and McNamee 2012). Elite and recreational athletes commonly reported that the highest levels of performance could not be reached without the aid of additional substances including those that have been banned (Cooper 2012; Smith, Stewart, Oliver-Bennetts, McDonald, Ingerson, Anderson, Dickson, Emery, and Graetz 2010).

In contrast, peer reviewed, sociologically grounded studies (Aubel, Lefèvre, Le Goff, and Taverna 2019; Aubel and Ohl 2014; Brissonneau and Montez de Oca 2018; Lentillon-Kaestner and Carstairs 2010; Smith et al. 2010) have explicitly examined the impact of sport culture/social context on doping-specific attitudes and beliefs of elite and non-elite athletes. Aubel and Ohl (2014) and Lentillon-Kaestner and Carstairs' (2010) small qualitative studies examined doping practices within cycling teams. Rather than focusing on the personality characteristics or other individual level attributes of the cyclists, the two studies identified economic, cultural and social factors that increased/decreased the likelihood of doping.

Smith et al., (2010) interviewed a small set of Australian and New Zealand elite and recreational athletes in a variety of sports. They found little evidence linking traits and dispositions of athletes to specific attitudes about drug use in sport. Among the very small sample

of 11 elite and recreational athletes they interviewed, in-depth case history data demonstrated that attitudes toward PED use were fundamentally shaped by the culture of the athlete's respective sport. Additionally, the athlete's elite/recreational status determined how attitudes toward PED use were shaped.

They found that elite athletes typically held tolerant attitudes toward PED use where it was normative to pursue everything beyond typical limits. Contextual factors in sports including increased commercialization and elevated rewards for athletic success were also directly linked to the development of these attitudes. However, the H&C overconformity framework did little to explain the intolerant attitudes of recreational athletes toward banned PEDs. In fact, the recreational athletes viewed banned PED use as a clear example of cheating. These athletes were also supportive of harsh sanctions applied to those who used them. Their results could also suggest that PESH use tolerance might shift as athletes moved from one level to the next.

Brissonneau and Montez de Oca (2018) presented a detailed narrative of the unambiguous impact of the French state and the evolving role that French sports physicians had on the use of PESH in cycling and other elite sports in France. Partly based on interviews with an unknown number of doctors, and 55 athletes including 20 cyclists (all male), 2 wrestlers, 4 weightlifters, several bodybuilders, a boxer, and a swimmer, they argued that sports doctors first shaped the rationalized and medicalized use of PESH in sport. This occurred with the introduction of scientific training methods that boosted physical performance but increased fatigue and injury rates among athletes. Doping and the use of pharmacology in French professional cycling and other elite French sports became widespread as a result. This occurred despite the concurrent existence of a structural ambivalence in sport medicine.

Using Becker's (1963) terminology, they argued that some French physicians acted as moral entrepreneurs who labeled PESM use as injurious to the health of athletes and the fair play ethics of sport. Others emulated and adopted the training and pharmacological methods that were used in the United States and East Germany to develop top athletes. With sustained effort, the moral entrepreneurs developed a doping definition and then implemented control legislation in France in 1965 that was mentioned earlier in this paper. This legislation produced the first list of prohibited substances in the country. Irrespective of some legal prohibition in France, doping and the use of pharmacology in professional cycling and other sports continued on a rampant, widespread basis.

According to Brissonneau and Montez de Oca (2018), the 1998 Festina scandal was a turning point in European cycling. Views about PESM use shifted from normative to negatively evaluated deviance. From that point forward, a reformist agenda based on an anti-doping socialization process of younger cyclists arose in France to establish additional but uneven control over the use of pharmacology and PESM in French sport.

Although their account is rich with detail, it is difficult to assess how representative the samples of doctors and athletes were, and how attitudes and actions about doping behavior in France compared with other countries. Despite these limitations, the later establishment of WADA and the IOC's zero tolerance anti-doping policy was an outgrowth of this social movement and a victory, at least in name, for the reformist anti-doping agenda in worldwide elite sport. From the perspective of those who study deviance, this evolution demonstrated clear shifts in both normative expectations and social reactions to PESM use in elite athletics.

Sociological models of deviant overconformity

An important but knotty strand of the original H&C model was their interchangeable but imprecise use of the concepts of positive deviance and overconformity. This is understandable given that much of the theoretical and empirical work prior to the mid-1980s focused narrowly on deviance as a form of underconformity (Becker 1963; Merton 1938; Sutherland 1940). There was, however, some recognition by Sorokin (1950) and Lemert (1951) for the need to examine deviant, supranormal behavior to develop a more robust theory of deviance.

Parsons' (1951) analysis of Merton's structural strain theory of deviance suggested that the innovation and ritualism typologies were exemplars of two "compulsively conformative types" of deviance. Importantly, Parsons never directly referred to these types of deviant behavior as overconformity. In fact, Dubin (1959) credited Parsons with the observation, "that overconformity is one central feature of deviant behavior, of which Merton's ritualism is a special case." Despite this acknowledgment to Parsons, Dubin's extension of Merton's deviance typologies was likely the first work that explicitly stated that overconformity was an example of social deviance.

Dubin provided six detailed typologies of overconformity related to behavioral/value ritualism including, the leveling of aspirations, the institutional moralist, the organization automaton, the demagogue, the normative opportunist, and the means opportunist. Despite criticism, Merton (1959) recognized Dubin's work as a valid extension of his original theory's deviance typologies. Dubin's analytical reasoning and concrete exemplars had clearly demonstrated the range of overconforming but socially deviant behavior that was possible.

Although the concept of overconformity had clearly been identified as a form of deviance, Dodge (1985) first linked it to the concept of positive deviance. The early literature on positive

deviance was contentious. Critics suggested that those who proposed and attempted to argue for its theoretical validity were negatively deviant! To wit, some including Sagarin (1985) assertively stated that the term “positive deviance” was an oxymoron. Others (Clinard and Meier 1979; Goode 1978; Goode 1991) contended that the term was not viable from a conceptual standpoint and resembled *maverick thinking* (Goode, 1991). Regardless of this earlier debate, the concept of positive deviance has become widely accepted as a useful and valid theoretical construct/typology in the sociology of deviance.

Positive deviance was defined by Dodge as: “acts, roles/careers, attributes and appearances that are also singled out for special treatment and recognition, those persons and acts that are evaluated as superior because they surpass conventional expectations” (1985:18). Although Dodge recognized that pronormative rule compliance could in fact also be evaluated negatively, particularly in the case of overproducing line workers, or high academic achievers who were frequently labeled as eggheads, rate busters, bookworms, etc., by student subculture, he made no conceptual distinction between overconformity that was positively or negative evaluated.

To address the definitional and conceptual conundrum raised by a simple negative/positive deviance dichotomy, Heckert and Heckert (2002) proposed a parsimonious two by two typology of deviance that cross classified normative expectations (either nonconformity/underconformity or overconformity) by social reactions and collective evaluations (either negative or positive evaluations). Four deviance types were proposed: 1) *negative deviance* i.e., non/underconformity that is negatively evaluated; 2) *deviance admiration* i.e., non/underconformity that is positively evaluated; 3) *rate-busting* i.e., overconformity that is negatively evaluated; and 4) *positive deviance* i.e., overconformity that is positively evaluated

(see Table 1). H&H's definition of positive deviance, similar to Dodge's, "refers to any type of behavior or condition that exceeds that normative standard or achieves an idealized standard and that evokes a collective response of a positive type" (2002:459).

[INSERT TABLE 1 HERE]

It is important to note that the H&H framework is rooted in a relative and contextual conception of deviance that integrated aspects of both the labeling/reactivist (e.g., Becker, 1963) and social control/normative perspectives (Ben-Yehuda 1986; Ben-Yehuda 1990; Hirschi 1969) of deviance. They argued that behavior is labeled as deviant only if others had evaluated it as a departure from normative expectations (Heckert, 1989; Heckert and Heckert, 2002). They also asserted that deviance and the social reactions to it vary within social contexts, between them, and over time. Hence, what may be positively deviant in one context/time period may become negatively deviant in another context/time period, or vice versa (Heckert, 1989).

Consistent with earlier sociological work on deviance (Dubin 1959; Merton 1959; Norland and Hepburn 1976) H&H argued that deviant behavior exists on a continuum of negatively and positively evaluated behaviors. They further proposed that reactional strength and variability was fundamentally determined by the relative social power of potential deviants and the audience, and the self-interest of the actors. Dominant groups that had higher social power were positioned to enforce normative boundaries that coincided with their interests. Hence, dominant groups evaluated and labeled behavior and conditions positively, or negatively according to these interests. H&H concluded that, "Research should be conducted to show how powerful actors and groups sometimes suppress innovation or manipulate ideology and social reactions to maintain economic dominance" (2002:472).

H&H model of deviance and the PESM use literature

H&H's theoretical work (2002, 2004) that integrated normative/objectivist and reactivist/subjectivist conceptions of deviance has largely been overlooked by those who study PESM use. A substantial portion of the contemporary non-sociological PESM research produced has tacitly concluded that banned use among elite athletes is a form of negative deviance because it violates the current IOC's zero tolerance position on doping (<https://olympics.com/ioc/fight-against-doping>), or WADA's prohibited substances and methods list. Anti-doping policies have frequently been mentioned in the introductions of relevant studies/summaries (Backhouse, Whitaker, and Petróczi 2013; Bloodworth et al., 2012) despite the fact that WADA therapeutic use exemptions and exceptions by the IOC to their own zero tolerance policy (e.g., "clean" Russian athlete participation in the 2018 winter Olympic games after the 2014 Sochi scandal resulted in a ban on athletes competing under the Russian national flag, or the under age 16 exception) are common (Fincoeur, Henning, and Ohl 2020). The non-sociological research literature can also be characterized as having a normative/objectivist view of PESM use that is typically rooted in specific rule violations, or lack of conformity to contemporary normative expectations about fair play in sport (Brissonneau and Montez de Oca 2018; Cooper 2012; Petróczi, Mazanov, and Naughton 2011) and harm to the health of PESM using athletes (Brissonneau and Montez de Oca, 2018; Cooper, 2012).

Non-sociological PESM research has rarely employed a stated, theoretically informed view of deviance/normative assessment. It has largely viewed PESM use behavior in the contexts of knowledge, attitudes, and beliefs about doping among adolescents, athletes (adolescent and competitive), athlete support personnel (coaches, physicians, pharmacists, etc.), parents, teachers, and the public. This literature has also identified individual-level variables (e.g., age, BMI, career

stage, gender/sex, moral code, nutritional supplemental use, personality traits, race/ethnicity, religious involvement, social background, sport participation, sport type, team type) of athletes that are predictive of PESM intentionality or use (Backhouse et al. 2015).

Some social-psychologically oriented research has similarly taken an explicit normative/objectivist position on PESM use. Using Gottfredson and Hirschi's (1990) low self-control model to explain criminally deviant behavior, Kabiri et al., (2020) concluded that low self-control was predictive of professional Iranian athletes' self-reported use of PEDs. Despite a purportedly broader integrated approach to predicting PED use, the study's main theoretical model subordinated mediating, or possible alternative mechanisms including deviant peer associations ($\beta=.195$) and the opportunity to use PESM ($\beta =.113$), to the effect of low self-control ($\beta =.157$). Empirical findings of direct effects of these three mechanisms on PED use were very similar in magnitude. In fact, having a deviant peer association had the largest effect of the three.

Citing only a single study i.e., Chapple (2005), Kabiri et al., (2020) accepted Gottfredson and Hirschi's (1990) main assertion that deviant peer association was the *outcome* of low self-control. Kabiri et al., (2020) acknowledged a reciprocal relationship was possible, however, no alternative model was tested. Other empirical studies have shown that weak or absent social control from parents and peers can result in lower internal control (Huijsmans, Nivette, Eisner, and Ribeaud 2019; van Gelder, Averdijk, Ribeaud, and Eisner 2018). In turn, lower internal control may further reduce the effect of social control on self-control in adolescents, leading to a greater probability of delinquency (Na and Paternoster 2012). Studies that used longitudinal data demonstrated that self-control not only varied over time, but it varied *because* of changing social control. This in turn, reciprocally and cumulatively reinforced the effect of low social control on reduced self-control (Huijsmans, Nivette, Eisner, and Ribeaud 2019; Na and Paternoster 2012).

Although Kabiri et al., (2020) did not mention reciprocal causality as a limitation, they pointed to limited external validity of their study given the cross-sectional, country and city specific sample design. An unmentioned limitation of the study's theoretical model was that it could not account for PESH use that occurred prior to the point that such use was labeled as negatively deviant by major sports organizations. It is also worth pointing to possible selection bias in the sample. Those with low self-control are more likely to have self-reported deviant PESH use when compared with those with higher self-control.

Recent findings from a large meta-analysis on the self-control-deviance link found weaker effects in studies where self-reports of deviance and/or self-reports of internal control were used when compared with studies that included non-self-reported data on both constructs (Vazsonyi, Mikuška, and Kelley 2017). This result may seem counterintuitive. However, it is consistent with the reverse coding of both constructs where low reports of self-control are accompanied by more frequent reports of deviant behavior, and vice versa. These studies with weaker effects are likely to suffer from an underreporting bias from those with higher self-control.

In contrast, much of the remainder of the sociologically informed PESH research has presented the H&C overconformity/positive deviance argument without a comprehensive consideration of the contextual circumstances that limit the validity of this framework (see Aubel and Ohl, 2014; Brissonneau and Montez de Oca, 2018; Peretti-Watel et al., 2004; Sefiha, 2012). In fact, Coakley (2015) points to a number of these contexts as mentioned earlier. There are also some (see Aubel and Ohl, 2014, Brissonneau and Montez de Oca, 2018; Fincoeur, Henning and Ohl, 2020; Peretti-Watel et al., 2004; Ohl, Fincoeur, Lentillon-Kaestner, Defrance, and Brissonneau, 2015; Sefiha, 2012) who have taken a mostly reactivist/subjectivist position to explain PESH behavior among elite athletes. Several studies cite aspects of Becker's (1963)

labeling model (Aubel and Ohl 2014; Brissonneau and Montez de Oca 2018; Fincoeur, Henning, and Ohl 2020) and the importance of physician “moral entrepreneurs” in shaping negative evaluations about doping in sport (Aubel and Ohl 2014; Brissonneau and Montez de Oca 2018). Although Fincoeur, Henning and Ohl (2020) point to the social power that the dominant sport culture (i.e. WADA) had to label specific PEDs as deviant and then banned their use.

In recognition of the normative/objectivist deviance framework, Sefiha (2012) characterized his study subjects’ use of PEDs as a Mertonian innovation i.e., a complete acceptance of the cultural goal of success, but a rejection of culturally approved means to achieve it. Despite this awareness, his analysis remains more firmly rooted in a reactivist/subjectivist interpretation. The very small qualitative study (n=8) demonstrated that interviewed elite and professional cyclists typically employed neutralization techniques to rationalize their PED use. Athletes raised a variety of justifications and excuses including, condemning the condemners, pointing to PED use among the general population (e.g., Viagra, caffeine, and Ritalin as a study aid), denying potentially harmful PED health effects, and insinuating that organized athletic systems were corrupt. Athletes also viewed the use of PEDs as an occupational necessity particularly at the professional level.

Sefiha suggested that while some previous studies found that other elite athletes (presumably non-using athletes) viewed PED use as “cheating,” his study participants socially constructed a non-deviant view of their own use. This suggested they did not share the view that PED use was a form of cheating, although it was never explicitly stated that this was the case. Despite likely knowledge that some types of PED use violated existing legal statutes, the interviewed athletes expressed a distrust of police enforcement activity (e.g., a PED raid). Similar

to juvenile delinquents, the study participants adopted attitudes to neutralize and then rationalize their potentially criminally deviant acts.

Other study findings cited by Sefiha suggested that while cyclists in other contexts may have rationalized PED use to some extent, they still viewed such actions as “cheating” (Wilson, Gilbert, and Edwards 2004). If they were on a team that had a strong anti-doping stance they were more strongly opposed to PED use (Brissonneau and Ohl 2010), or they viewed PED use as “dishonest, unhealthy and hazardous because of sanctions” (Peretti-Watel et al., 2004). Notably, this was the case among amateur cyclists (Lentillon-Kaestner and Carstairs, 2010).

In addition, Sefhia argued PED use served as a proxy for the athlete’s complete commitment to success at any cost. He argued such use was a normative behavior in elite cycling culture that required a routine acceptance and valuing of risky behavior by the athletes. Rational motives (e.g., financial and professional), socialization, identity formation, and membership within elite cycling culture overrode any external appraisal of norm violations that were labeled as negatively deviant by outsiders. Athletes produced rationalizations to convince themselves that they had not engaged in negatively deviant behavior despite tacit acknowledgement that they had. Importantly, the study never broached the issue of potential consequences for illegal PED use with the study’s participants. Perhaps it never emerged as a concern. This seems odd given the crackdown on PED use in professional cycling after the 1998 Festina team scandal.

Fincoeur, Henning and Ohl (2020) similarly used a predominantly reactivist/subjectivist lens to interpret PESM use that had unclear acceptability or legality in cycling. Examples of “gray zone” PESM included substances that were allowed in one country and prohibited in another, therapeutic use exemptions (TUEs) that allowed athletes to take prohibited substances

after they had applied for and demonstrated a health related need (e.g., glucocorticoid use after a musculoskeletal injury), the use of legal enhancers (e.g., hypobaric/normobaric hypoxic chambers, painkillers, caffeine pills), and the use of unregistered PESM, or those that had not yet been approved/disapproved. The study presented evidence from semi-structured interviews based on a snowball and convenience sample of 146 elite cyclists, staff members, team doctors, directors and other cycling stakeholders between 2012 and 2019.

The study noted several belief shifts toward both illegal and gray zone PESM that occurred in cycling at different time points. Thematic data was summarized in a descriptive four-way, cross-classification scheme based on the dimensions of deviance and delinquency. Delinquency referred to a breach of a standing PESM regulation. The successful application of a negative label independent of a PESM's legality was defined as deviance. No specific typologies were developed from the scheme. Doping and gray zone use was located within each theme according to a specific time period.

Results suggested that the systematic team doping scandals of the late 1990s and early 2000s gave rise to strong anti-doping attitudes and behaviors toward banned PESM by cycling stakeholders. The findings further suggested that shifts in the perceived legitimacy of using banned, illegal substances occurred after the early 2000s. Stakeholders considered such use as deviant and delinquent. Prior to this period, banned PESM use was recognized by stakeholders as delinquent but not as deviant.

Another shift in perceived legitimacy occurred with gray zone PESM. The authors pointed to a transitional moment after the late 2010s when the former president of WADA, John Fahey, commented about the use of caffeine pills. Although their use was legally permitted, he

opined that it was against the spirit of sport (Proctor 2010). After this time point, study participants increasingly voiced the belief that even the use of legal gray zone PESM was deviant. Prior to the late 2010s, stakeholders had not expressed these views.

From a critical standpoint, the generalizability of the study is limited given the sample design and the singular focus on elite cycling. Despite this limitation, the study developed a time dependent, cross-classification scheme that dovetails well with the H&H model of deviance. The study's four themes can easily be reframed to serve as clear examples of the deviance ideal typologies laid out in the H&H framework i.e., doping until the late 1990 early 2000s/deviance admiration, doping since the 2000s/negative deviance, gray zone use until 2010s/positive deviance, and gray zone use since the late 2010s/rate busting.

The study also produced strong empirical support for the H&H model. The evidence suggested that a broader and more flexible evaluative and normative theoretical perspective is needed by researchers working in sociological and nonsociological fields. Such a perspective must carefully consider the historical and social context, and acknowledge that different types of deviant behaviors are involved in PESM use. The H&C model validly explains only one of four possible ideal types.

Empirical application of the H&H deviance typology to PESM use

In contrast to H&C's assertion that PESM use is mostly an example of overconformity that is positively deviant, the H&H framework can be utilized to more accurately situate different types of deviant PESM use found in a variety of social/historical contexts. This can be done by simultaneously considering consistent rule changes powerful sports organizations have implemented to restrict and regulate use, and changing social evaluations of PESM use by

athletes and other sports stakeholders. As discussed earlier, H&C's framework had wider validity in the pre-WADA era before standardized lists of banned PESM were adopted globally and consistently updated. However, it is important to note that other large sports organizations (e.g., the IOC), at different times, implemented bans on specific PES (e.g., anabolic steroids, amphetamines) long before the more comprehensive, evolving WADA regulations became normative. Despite the existence of widespread pre-WADA social contexts where athletes and sports stakeholders were less likely to negatively evaluate PESM use and rule breaking, powerful sports collectives successfully labelled some PES use as negatively deviant and subjected violators to sanctions. During the pre-WADA era where much PESM behavior was still positively deviant, use of other widely banned PESM can be accurately labeled as negatively deviant, or even as deviance admiration in some team/nation-state contexts.

A careful consideration of the social context can provide cues as to how various groups (e.g., the IOC, L'union Cycliste Internationale/U.S. Postal Service's pro-cycling team) evaluated norm compliance/noncompliance differently. From the standpoint of the deviance researcher, it would be possible to simultaneously encounter a situation where one group (e.g., athletes and coaches on a team) view banned PESM use as positively deviant, and another group (e.g., officials of the IOC, or UCI) to label such use as a clear example of negative deviance replete with sanctions.

Given the expansive restrictive/zero tolerance rules, widely available lists of prohibited PESM, and unambiguous punishments for violations, much contemporary PESM behavior is labeled as negatively deviant by powerful actors in the international sport arena. Despite this normative and evaluative position, notable examples including TUEs, gray zone PESM use, and banned use in the context of the supportive nation state/team requires researchers to consider a

range of contexts that give rise to different types of deviant PESM use behavior in sport. The identification and comprehensive analytical understanding of the normative and subjective evaluative circumstances that circumscribe different types of PESM use should lead to improved policy making in the sport world to discourage/incentivize their use. When different types of PESM deviance can be accurately identified, a set of homogeneous rules and consistent sanctions can be developed and applied to eliminate ambiguity about use. Utilizing the H&H framework, four typologies of deviant PESM use are described to demonstrate how it can be applied to explain different categories of PESM use behavior situated in different sport contexts.

Rate-busting

1) *Social-historical context* – A period prior to the institutionalization of an official ban on a PESM by major sports agencies/organizations. 2) *Normative circumstance* – Major sports agencies’/organizations’ rules about the use of new and/or gray zone PESM, TUEs, and enhancers may/may not be in place. Anomie may exist over the use of legal PESM. 3) *Social evaluations* – Major sports stakeholders and even athletes negatively evaluate use because they are known to provide some performance advantages in training, recovery, or competition. 4) *Power relations* – Major sports agencies/organizations do not punish users unless rules about acceptable use/use limits have been exceeded. Teams, athletes, sports physicians, coaches, and sport support personnel are unlikely to admit any use and may actively cover it up. 5) *Specific examples* – Use of hyperbaric/hypoxic chambers, use of narcotic painkillers outside of competition. The use of legal stimulants during training. Glucocorticoid use for inflammation outside of competition and caffeine pill use.

Positive Deviance

1) *Social-historical context* – The period prior to the institution of an official ban on a PESM by major sports agencies/organizations, or the period before the widespread application and enforcement of a newly instituted ban. 2) *Normative circumstance* – New rules were introduced by major sports agencies/organizations to ban the use of specific PESM. Major sports agencies’/organizations’ rules about the use of new and/or gray zone PESM, TUEs, and enhancers may/may not have been in place. Anomie existed over the use of newly banned and legal PESM. 3) *Social evaluations* – Teams, athletes, sports physicians, coaches, support personnel, and nation states positively evaluated PESM use because substances and methods were recognized to give some performance advantages in training, recovery, or competition. 4) *Power relations* – Rules about banned PESM were largely unenforced by major sports agencies/organizations. Enforcement of existing PESM bans was uneven and punishment for violations was nonexistent/light. Teams, athletes, sports physicians, coaches, and athletic support personnel may have openly admitted any PESM use. 5) *Specific examples* – The use of anabolic steroids in Olympic weightlifting and track and field prior to the 1975 IOC ban and implementation of a testing protocol during the 1976 Montreal Olympics. The use of banned substances in UCI cycling prior to the crackdown in 1998. The use of banned anabolic agents and steroids in the National Football League prior to the 2020 collective bargaining agreement when penalties for these PESM were increased significantly.

Negative Deviance

1) *Social-historical context* – The period after widespread application of institutionalized rules to restrict and punish banned PESM use. 2) *Normative circumstance* – Major sports agencies/organizations have clearly targeted and explicitly banned specific PESM. Penalties for banned PESM use have been clearly specified. 3) *Social evaluations* – Major sports

agencies/organizations, sports stakeholders, teams, athletes, sports physicians, coaches, support personnel, and nation states negatively evaluate banned PESM use because they are recognized to give some performance advantages in training, recovery, or competition, their use violates fair play sport norms, and health concerns exist over their use. 4) *Power relations* – Sports agencies/organizations, nation states, teams, sports physicians, coaches, and athletic support personnel strongly discourage the use of banned PESM. Those who have been caught using banned PESM are punished according to existing sanctions. Sports practitioners would not have openly admitted banned PESM use before they were detected. 5) *Specific examples* – Banned PESM use that occurs at any contemporary international competition that is detected and punished. Detected use of banned PESM by athletes in many professional sports where punishments are clearly defined and levied. The United States Anti-Doping Agency's cases against Lance Armstrong, his teammates, coach, and support personnel that resulted in multiple, stringent punishments. The Russian 2015 track and field PESM scandal after WADA had discovered it and then levied sanctions against team athletes, coaches, and support personnel.

Deviance Admiration

1) *Social-historical context* – Some nation states, sports institutions, and teams create/d internal conditions that actively encourage/d the use of banned PESM among athletes. 2) *Normative circumstance* – Major sports agencies/organizations clearly targeted and explicitly banned specific PESM. Penalties for banned PESM use were clearly specified. Despite clear knowledge of institutionalized rules to restrict and punish banned PESM use, internal effort among sports practitioners in these nation states, sport institutions, or teams to curb deliberate violations of banned PESM rules was absent. There was no regard for fair play sport norms concerning banned PESM use. The appearance of compliance to existing rules was limited to external contexts

where athletes could have been caught and punished for banned PESM use. 3) *Social evaluations* – Internal conditions within teams, sports organizations and nation states produce/d positive evaluations of the use of banned PESM by athletes because they provided some performance advantages in training, recovery, or competition. 4) *Power relations* – Nation states, teams, athletes, sports physicians, coaches and athletic support personnel collectively adopt/ed measures to evade detection by powerful sports agencies/organizations who will/would levy strong punishments for violations of existing PESM rules. This included shielding athletes from testing, and/or devising coordinated schemes to defeat/neutralize testing for the use of banned PESM. Externally, nation states, teams, athletes, sports physicians, coaches and athletic support personnel denied any PESM use among athletes. 5) *Specific examples* – Widespread, banned PESM use by the Russian Winter Olympic Team at the Sochi games alongside active measures taken by the Russian Federal Security Service to evade detection. The U.S. Postal Service’s pro-cycling team’s use of banned PESM and the use of sophisticated countermeasures to evade detection throughout Lance Armstrong’s Tour de France wins (*see Table 2*).

[INSERT TABLE 2 HERE]

Discussion and Conclusion

Most contemporary studies have used either a normative or a reactivist approach to study PESM use in sport. A review of this multidisciplinary literature demonstrated that the normative approach has most often been used without any direct linkage to, or evident acknowledgement of this theoretical approach. A frequently employed justification of many studies in this genre is the mention of contemporary rules of major sports organizations that have banned specific PESM. Prohibited use has explicitly been viewed as a rule violation. Much research effort has been

expended on identifying the characteristics of athletes most/least likely to engage in PESM use so that rule compliance can be increased.

Given consistently evolving PESM use contexts, a broader and more flexible evaluative and normative theoretical perspective is needed by researchers working in sociological and nonsociological fields to develop a more accurate and comprehensive understanding of PESM use in sport. The validity of predictive PESM use models could be improved if additional variables are considered including the social-historical context, prevailing normative circumstances and social evaluations of them, and the power relationship between the actors who use and label use as acceptable/unacceptable.

The H&C framework was an early effort to integrate normative and evaluative aspects of deviant behavior in sport. However, it narrowly focused on overconformity/positive deviance as an explanation for PED behavior. When it was first proposed, this single typology was likely to validly and reliably explain much of the PESM use behavior that occurred until the adoption of worldwide rules banning an entire range of PESM in the late 1990s and early 2000s. Importantly, it was also argued in this paper that even in some earlier contexts the H&C framework could not adequately explain all PESM use (e.g., use of banned anabolic steroids and stimulants in Olympic sports after the rules had been normative and evaluative attitudes about use had become negative). While the H&C model explained only one of four possible types of PESM use, the fully integrative, context dependent approach proposed by H&H allows for a comprehensive understanding of past and present PESM use.

The H&C model also incompletely conceptualized the reactivist evaluation of under and overconformity to PED use norms. They did not considered the possibility that PED use in some

contexts could be labeled as a form of overconformity that was negatively evaluated (rate busting), or underconformity that was positively evaluated (deviance admiration). They also ruled out the possibility that PED use was a form of negative deviance. The increasing frequency of different types of PESM use among teams, sports organizations, and nation states along with a constantly evolving global code of approved/disapproved PESM requires that deviant behavior related to PESM use be situated and understood in a variety of social contexts. Nuances that are often involved in different types of PESM use behavior could be better interpreted and explained. A broader theoretical perspective is required to contextualize and understand them all.

Finally, it is also important to point to an additional nuance concerning the contextual relevance of deviance in general. While PESM use behavior may be understood as a form of overconformity that is positively/negatively evaluated in one sport context, it may often simultaneously be understood as a form of underconformity in another and is subsequently evaluated differently. Reactive understanding of deviant PESM behavior may also evolve among athletes (Brissonneau and Ohl 2010) and other sports stakeholders over time. Power relations between social actors determine which view is most accepted within and between social contexts. Research that is motivated by a broader conception of deviant PESM use behavior is well positioned to identify and explain both varied and nuanced PESM behavior that has been increasingly found in contemporary sport. Adopting this orientation is also likely to move PESM future research beyond the simplistic dichotomy of PESM behavior as either negatively/positively deviant. At the same time, using H&H's more complete synthetic theoretical approach can help to resolve some of the seemingly divergent/contradictory findings on PESM use between and within fields. A future line of research informed by this broader

framework could also help to determine which type/s of deviant PESM behavior is/are most prevalent and how it/they change over time.

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Table 1. Heckert and Heckert's Deviance Typology

Social Reactions and Collective Evaluations (Reactivist/Subjectivist)	Normative Expectations (Objectivist)	
	Underconformity/Non- Conformity	Overconformity
Negative Evaluations	<i>Negative Deviance</i>	<i>Ratebuster</i>
Positive Evaluations	<i>Deviance Admiration</i>	<i>Positive Deviance</i>

Table 2. Application of Heckert and Heckert's Deviance Typology to PESM use in Sport

Social Reactions and Collective Evaluations (Reactivist/Subjectivist)	Normative Expectations (Objectivist)	
	Underconformity/Non-Conformity	Overconformity
Negative Evaluations	<p><i>Negative Deviance</i></p> <p>S.H.C. – Period occurring after the widespread application of institutionalized rules to restrict and punish banned PESM use.</p> <p>P.R. –Major sports agencies/organizations, nation states, teams, sports physicians, coaches, and athletic support personnel strongly discouraged banned PESM use. Discovered users of banned PESMs are punished according to existing sanctions. Sports practitioners would not have openly admitted banned PESM use before detection.</p>	<p><i>Ratebuster</i></p> <p>S.H.C. – Period prior to the institutionalization of an official ban on a PESM.</p> <p>P.R. – Major sports agencies/organizations do not punish use unless defined acceptable use/use limits have been exceeded. Sports practitioners are unlikely to admit any PESM use openly and may cover it up.</p>
Positive Evaluations	<p><i>Deviance Admiration</i></p> <p>S.H.C. – Some nation states, sports institutions/teams created internal conditions that actively encouraged the use of banned PESMs.</p> <p>P.R. – Strong sanctions imposed by major sports organizations for banned PESM use compelled various nation states, teams, athletes, sports physicians, coaches and athletic support personnel to collectively adopt measures to evade detection. Internally, use of banned PESMs was encouraged. Externally, any banned PESM use was denied.</p>	<p><i>Positive Deviance</i></p> <p>S.H.C. – Period prior to the institutionalization of an official ban on a PESM/prior to widespread application and enforcement of a new ban.</p> <p>P.R. – Enforcement of new bans by major sports agencies/organizations was lacking/uneven. Punishment for violations was nonexistent/light. Sports practitioners may have openly admitted any PESM use.</p>

S.H.C. – *social-historical context*

P.R. – *power relations*