Dying to Win? The Goldman Dilemma in Legend and Fact

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Abstract

One of the implicit justifications for anti-doping is that athletes are so committed to winning that they will take performance enhancing substances regardless of the apparent consequences. Athletes are alleged to be, quite literally, willing to die to win. Support for this claim usually centres on the results of research by physician Bob Goldman, in which athletes were asked to respond to a hypothetical dilemma in which they were offered spectacular success in their chosen sport, but at a heavy price: they would die after five years of glory. In this paper, we examine the origins of this bargain, now popularly referred to as the Goldman dilemma, finding that both the methodology and implications of the original work have repeatedly been described inaccurately in both popular and scientific writings. These errors reflect both poor scholarship, and deliberate misuse, where the flawed narrative is used to justify contentious policy decisions.

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It is widely recognised that some well-known "facts" are actually false, but attempting to challenge or dispel them is often difficult (Furnham & Hughes, 2014), and in some cases, almost impossible. While the spread of such canards through the popular media is unsurprising, it is disappointing to find false facts being repeated by those who really should know better, specifically, the scientific community. Sometimes the false facts are relatively trivial, such as accidentally misattributing the true authorship of a famous historical illusion (Burton, 2001). Other times the false facts reflect poor scholarship, such as the false story of Sybil (the classic case of multiple personality disorder), which continued to be used in teaching materials for many years after the exposure of that fraud (Rieber, Takooshian, & Iglesias, 2002). Occasionally, however, the promulgation of false facts is deliberate, such as the willful distortions of the classic Allport and Postman (1945) rumour study by lawyers attempting to show that cross-racial identification could not be trusted (Treadway & McCloskey, 1987).

In this paper, we examine the historical origins and subsequent distortion of the idea that athletes are so determined to win that they would be willing to take a hypothetical magic pill (or some form of performance enhancement), that would guarantee spectacular success, but at a heavy price: the athlete would die after a pre-determined number of years of glory. This bargain, a modern variation on the pact made by *Faust* (alt. *Doctor Faustus*) with the devil, is popularly known as the *Goldman dilemma*. As will be shown in this paper, the Goldman dilemma has been used to argue that athletes differ from other members of the population, and that their single-minded obsession with winning necessitates the creation of anti-doping rules that contravene societal norms of privacy (Waddington, 2010) and also standards of justice (Whitworth & Van Geel, 2013).

In this analysis, we begin by tracing the origins of this idea to its source and documenting how the legend of the Goldman dilemma has been uncritically accepted and embellished for three decades. This analysis is driven by two key questions.

First, does the story of the Goldman dilemma really matter? There is little evidence to *explicitly* link the Goldman dilemma to the development of anti-doping policy, but the dilemma does seem to be an important part of the *implicit* justification for anti-doping, particularly the need to effectively protect athletes from themselves. For example, in 2016 the Chief Executive Officer of United Kingdom Anti-Doping (UKAD) cited the dilemma during a parliamentary inquiry (Culture Media and Sport Committee, 2016). We detail that testimony later in this paper. It is also clearly a popular tale, one that has been retold in dozens of scientific papers (we identify many examples through the course of this paper), and textbooks (e.g., Douglas & Carless, 2014; Weinberg & Gould, 2015). The Goldman dilemma is also a popular starting point for newspaper and media discussions of doping, with citations in the *New York Times* (Reynolds, 2010), *Psychology Today* (Reidbord, 2010), *Runnerslife* magazine (Mullett, 2013), and many others.

Second, why has the story continued to be repeated (and oftentimes further distorted)? We consider two possible explanations: accidental errors and deliberate errors. The standards of scholarship in anti-doping research have long been criticised (e.g., Dimeo, 2007; Møller, 2005) and the accidental error hypothesis has considerable merit. However, it may be that the lack of clarity in the rationale for anti-doping, as defined in the World Anti-Doping Code (WADA, 2015), has necessitated the co-opting of what is at best, tenuous evidence, to justify policy decisions. According to the latest version of the Code (WADA, 2015; p.14) a substance or method will be deemed to constitute doping if it meets any two of three specified criteria. These are:

1. The substance or method (alone or in combination with other substances or methods), has the potential to enhance or enhances sport performance;

2. Use of the substance or method represents an actual or potential health risk to the Athlete;

3. Use of the substance or method violates the spirit of sport.

The logic underpinning the WADA definition, and, in particular, the general confusion generated by the attempt to define the "spirit of sport", has been a fertile subject for academic debate (e.g., McNamee, 2012; Møller & Waddington, 2014; Waddington, Christiansen, Gleaves, Hoberman, & Møller, 2013). Møller (2009; p.4) writes that "Doping is simply defined as infringement of WADA's doping regulations. In other words, doping is whatever WADA at any moment assesses it to be". The retelling of the Goldman dilemma helps in framing the need for draconian anti-doping policies and rules, that are intended, at least in part, to protect athletes from their own obsessive and potentially self-destructive actions. In such cases, the repetition of the flawed story serves a deliberate purpose.

Methodology

Our methodology in this study involved a search of the anti-doping literature for citations to the Goldman dilemma. We utilised two academic databases. First, *PsychINFO*, a psychological database operated by the American Psychological Association containing over three million entries (http://www.apa.org/pubs/databases/psycinfo/index.aspx). Second, SPORTDiscus, the leading database for sports and sport medicine research operated by EBSCO (https://www.ebscohost.com/academic/sportdiscus-with-full-text). We also searched our own extensive database of anti-doping research papers, books and reports. As part of another research project, we had systematically surveyed the entire social sciences literature on doping in sport (2000-2014), identifying over 600 primary sources, representing

disciplines such as psychology, sociology, law, sport management, sport medicine, and others.

Except where necessary, we confined our research to academic sources and thus excluded a large volume of popular literature (newspaper, magazine and website articles) that featured references to the Goldman dilemma. Our aim was not to determine the frequency of citations, instead, we focused on the development of the narrative of the story. Our approach to reporting is based on previous studies detailing the historical origins of psychological myths (e.g., Burton, 2001; Treadway & McCloskey, 1987)

Origins of the Goldman Dilemma

The Mirkin initiative

The current story has its origins in *The Sports Medicine Book,* where authors Mirkin and Hoffman (1978) briefly mention having conducted a survey amongst top running athletes, asking "If I could give you a pill that would make you an Olympic champion and also kill you in a year, would you take it?" (p.84). It was reported that more than half of the athletes surveyed said that they would take the pill. Beyond this scant information, as Christiansen and Gleaves (2013) correctly point out "The authors provide no methods, no design, no details, and no references in their text" (p.217).

The Goldman Derivation: Take 1

Six years later, *Death in the Locker Room* (Goldman, Bush, & Klatz, 1984) was published. While there are ostensibly three named authors, the book is essentially Goldman's: the text is written in the first person, and authorship is attributed to Goldman *with* Bush and Klatz. In this book Goldman used the Mirkin study as a platform to introduce his own:

> I was stunned by Mirkin's survey and wondered whether the indicated willingness to die was universal among athletes; perhaps it was idiosyncratic to runners. So I

> decided to repeat the poll with athletes I knew best, mostly weight lifters and field competitors – discus-throwers, shot-putters, jumpers, etc. To my consternation, I was forced to conclude that weight lifters and field competitors were just as crazy as runners. I asked 198 top world-class athletes a question similar to Mirkin's, "If I had a magic drug that was so fantastic that if you took it once you would win every competition you would enter, from the Olympic decathlon to Mr. Universe, for the next five years, but it had one minor drawback – it would kill you five years after you took it – would you still take the drug?" Of those asked, 103 (52 percent) said yes, that winning was so attractive they would not only be willing to achieve it by taking a pill (in other words, through an outlawed, unfair method – that is, in effect, cheating), but they would give their lives to do it. Now it can be argued that it is only because athletes knew there is no such magic medicine that they indicated their willingness to commit Olympic hari-kari. That faced with such a real-world magic medicine, they would have second thoughts. Perhaps this argument is correct, but the evidence suggests otherwise. The evidence suggests that athletes will take anything or do anything to their bodies to win, with no assurance of winning, and in apparent disregard for their lives beyond Olympia, or sometimes beyond the next major competition.

The book was subsequently reviewed by Mirkin (1984) who restated details of his initial research, clearly identifying the idea as his own:

> Several years ago I handed out a questionnaire to several runners, asking: "If I could give you a pill that would make you an Olympic champion and also kill you in a year, would you take it?" More than half of the athletes answered they would take my magical pill (p.2771).

Curiously, in the review Mirkin makes no comment on Goldman's adaptation of the question, nor to any of the new findings. However, Mirkin does add that "Athletes sacrifice so much and put so much time and effort into attaining world-class level that they often lose sight of other goals. Many would pay any price to become the best" (p. 2771).

Thus far the Goldman dilemma is scarcely more than a brief set of anecdotes and is far removed from the standards that would be expected of a scientific research study. Obvious reporting limitations include the inadequate description of the participant characteristics and the sampling procedures; and the use of an interviewer who was not blind to the study's aims. These issues, coupled with the use of a hypothetical question, may have created a set of demand characteristics (e.g., Orne, 1969) that might reasonably be expected to influence response patterns. Goldman actively rejects his own entirely legitimate alternative hypothesis that athletes recognised the question as a hypothetical scenario with poor ecological validity (Hauw & McNamee, 2014), and instead claims that the "evidence" (presumably his survey) suggests athletes will do anything to win. Beamish and Ritchie (2005) offer the intriguing suggestion that this was a deliberate rhetorical device used by Goldman:

> Goldman wrote Death in the locker room to argue that steroids and other performance-enhancing substances kill athletes. His key claim is that even without any guarantees of success, athletes will do anything to win. Well before he presents any real, systematic evidence, Goldman's rhetorical strategy seems to prove his central thesis. With the second claim established, the first one becomes plausible and that question or one like it is all one has to refer to when demonstrating the power of anabolic steroids and the hold they have over athletes (p.413).

Further concerns centre on the curiously consistent results. Goldman reports that 52 percent of the sample (103 participants) responded positively to his question. This is strikingly similar to the "more than half" reported by Mirkin (1984; p.2771), despite the differences in the two questions. For example, Mirkin used a one-year timeframe, Goldman used five years.

The Goldman Derivation: Take 2

Eight years after the original book, Goldman and Klatz (1992) published a second edition, *Death In the Locker Room II*, in which the same survey is reported. The only new or additional information that was provided here was that Goldman (once again, the book is in the first person) claimed to have "performed a series of polls on athletes in the mid and late 1980s" (p. 24). Thus, it can be inferred that Goldman conducted his survey on multiple occasions, the total number and frequency, however, is unknown. The above therefore summarises all the information that exists from the original sources.

Evidently, there is reason to doubt the scientific credence of Goldman's survey(s). The dubious claims, lack of transparency, and biased narrative style would surely attract much criticism had such research been reported within the scientific literature (Beamish & Ritchie, 2005; Christiansen & Gleaves, 2013). Yet, given that the survey was published outside of the scientific domain (e.g., no peer review), one may argue that such issues are meaningless. It becomes problematic however when unscientific work diffuses into the scientific literature and is used to support empirical research or wider debate. As will be seen, this has been the case with Goldman's assertion that "athletes will take anything or do anything to their bodies to win" (p. 32); Originating from outside the realm of science, this assertion has merged into the scientific literature through sheer repetition and a limited appetite for fact-checking.

Sports Illustrated Takes Up the Story

Ironically, it was within another piece of unscientific writing in which the growth of citations to Goldman's dilemma can be traced. We refer here to a piece written on the survey by Bamberger and Yaeger (1997) published in the April 1997 issue of the magazine, *Sports Illustrated*:

> A scenario, from a 1995 poll of 198 sprinters, swimmers, powerlifters and other assorted athletes, most of them U.S. Olympians or aspiring Olympians: You are offered a banned performance-enhancing substance, with two guarantees: 1) You will not be caught. 2) You will win. Would you take the substance?
>
> One hundred and ninety-five athletes said yes; three said no.
>
> Scenario II: You are offered a banned performance-enhancing substance that comes with two guarantees: 1) You will not be caught. 2) You will win every competition you enter for the next five years, and then you will die from the side effects of the substance. Would you take it?
>
> More than half the athletes said yes.
>
> It is no secret that performance-enhancing drugs have been used by Olympians for decades, or that athletes will do almost anything to gain a competitive edge. (Chicago physician and author Bob Goldman has conducted the above survey every two years since 1982 and has gotten more or less the same response each time.) (p.62)

There are a number of errors within the Bamberger and Yaeger (1997) account of Goldman's original study(s). These are primarily method errors, those where the experimental method has been cited incorrectly. For example, Goldman et al. (1984) ambiguously call their sample "top world class athletes" (p. 32), and while the original question made reference to winning the Olympics, Bamberger and Yaeger's claim "most of

them U.S. Olympians or aspiring Olympians" (p. 62) is a detail that cannot be located in the original source writings. As no indication of demographic data was provided by Goldman, stating the sample to be comprised of American athletes is a further inference (or possibly an unacknowledged personal communication). Moreover, Goldman et al. (1984) report the sample was comprised of "mostly weight lifters and field competitors—discus throwers, shot-putters, jumpers, etc." (p. 32); they make no mention of swimmers, sprinters, or powerlifters.

The inaccuracies do not stop there. Goldman's first book, *Death in the Locker Room*, was published in 1984, and there is no mention of when the original survey was conducted. As such, stating that the survey was performed in 1982 is essentially speculation. Likewise, *Death in the Locker Room II* was published in 1992, not in 1995 as suggested by the opening passage of Bamberger and Yaeger (1997), although it may be that Bamberger and Yaeger were referring to a later printing of the book. Goldman also makes no mention of the frequency of his survey(s)—again, he only makes the unclear claim to have performed "a series of polls in the mid and late 1980s" (Goldman & Klatz, 1992; p.24). The assertion that ". . . Goldman has conducted the above survey every two years since 1982" (Bamberger & Yaeger, 1997; p.62) is thus without support.

Bamberger and Yaeger (1997) also distort the question itself, as Goldman did not present the athletes with a hypothetical banned performance enhancing drug, but rather a "magic drug" that would allow them to win any competition they had entered. This inaccuracy possibly stemmed from a passage where Goldman discusses his results, ". . . they would not only be willing to achieve it by taking a pill (in other words, through an outlawed, unfair method – that is, in effect, cheating)" (p. 32).

Finally, it is worth noting that in the results to the second of these two new versions of the Goldman question, the finding that "more than half the athletes said yes" (Bamberger &

Yaeger, 1997; p.62) shows, once again, that the findings are surprisingly robust (no changes in findings despite three different wordings).

Comparison to Other Populations

Because the Bamberger and Yaeger (1997) publication is also outside the sphere of scientific literature, one may again argue that such reproduction errors carry little cause for concern. However, since the *Sports Illustrated* article was published, citation errors and imprecisions have substantially increased within the scientific literature. For example, Connor and Mazanov (2009) published a non-peer reviewed study ("Provenance and peer review: Not commissioned; not externally peer reviewed"; p. 872) in the *British Journal of Sport Medicine*, which examined Goldman's dilemma within the Australian general population via telephone survey. Of the 250 respondents, only two responded favourably. The account of the original survey they provide is of interest:

> In Goldman's dilemma, elite athletes are asked if they would take a drug that guaranteed sporting success but would result in their death in 5 years' time. The first iteration of Goldman's dilemma was posed to 198 world class athletes in 1982 in which 52% (103/198) answered in the affirmative. Goldman continued to pose evolving and improved variants of the initial dilemma and expanded the subject pool with biannual surveys from 1982 to 1995.

Here we see that not only have Connor and Mazanov (2009) replicated those errors made by Bamberger and Yaeger (1997), but have made several additional errors too. Most notably, the inaccurate statement that Goldman's surveys were conducted every two years is itself incorrectly reproduced to become twice-a-year ("biannual" is used when biennial was intended).

A Reliance on Secondary Sources

These two articles, Bamberger and Yaeger (1997) and Connor and Mazanov (2009), appear to be the sources from which most reporting errors can be traced. For example, Greydanus and Patel (2010), ostensibly citing Goldman et al. (1984), report that the surveys were conducted between 1982 and 1995 - inaccurate information that is clearly from Bamberger and Yaeger. Connor, Woolf, and Mazanov (2013) similarly report the surveys were conducted between 1982 and 1995. Ehrnborg and Rosén (2009) mistakenly cites the survey year as 1995 and reports the sample to have consisted of U.S. Olympic sprinters, swimmers, and powerlifters, which is also information derived from Bamberger and Yaeger. The Connor and Mazanov (2009) error that surveys were conducted biannually is further reproduced by Pisk (2012) and Anderson (2013). Moreover, Pisk claims that bodybuilders and athletes from combative and power sports were surveyed - information that has likely been incorrectly reproduced from Bamberger and Yaeger (1997).

Other authors, especially those of recent years, have made misattribution errors, in which a study or a particular citation is misattributed to an incorrect source. For example, multiple studies (Garnham, 2009; James, 2013; Martin, Baron, & Gold, 2006) have all cited Connor and Mazanov's general-population survey when referring to the original survey. Martin et al. (2006) also make a more serious error when they reference the origin of the survey to Bamberger and Yaeger. If each of these faults is approached in isolation they appear almost harmless, but an overview of the frequency of such inaccuracies is telling.

Discussion

Claims that athletes are willing to die to win (an acceptance of the Goldman dilemma) are frequently cited within the sports-doping literature (e.g., Anderson, 2013; Gleason & Barnum, 1994; Neuberger, Jurkiewicz, Moser, & Simon, 2012; Pisk, 2012; Todd, 1987). Such claims have also been repeated in sport psychology textbooks (e.g., Weinberg & Gould,

2015). The unreliability of many textbooks aimed at undergraduate psychology students has been previously documented (e.g., Steuer & Ham, 2008), with the errors surrounding the Goldman dilemma having also diffused into texts across such diverse study areas as research methods (e.g., Douglas & Carless, 2014), pharmacology (e.g., Bryant & Knights, 2015), and probably many others.

In most cases, the Goldman dilemma is used to justify claims that elite athletes differ psychologically from non-elite athletes, and that paternalistic anti-doping regulations are necessary to protect vulnerable athletes from themselves. Inaccuracies are not present in all the literature, yet the majority of authors use the Goldman survey to support the declaration that athletes will die for a medal (e.g., Anderson, 2013; Connor & Mazanov, 2009; Ehrnborg & Rosén, 2009; Martin et al., 2006). Ehrnborg and Rosén (2009) boldly claim "Elite athletes have an enormous desire to win at all costs" (p. 286) and (inaccurately) cite Goldman's survey as support. In his book, *Drugs and doping in sport: Socio-legal perspectives*, O'Leary (2001) cites Goldman and Klatz (1992) to implicate that "at the highest level, the competitive instincts of many participants may blind them to the dangers" (p. 262), thus similarly insinuating a "win-at-all-costs" mentality exists in athletes. Martin et al. (2006) acknowledge the original survey as unscientific, but still report that winning at the cost of death is acceptable to athletes.

Some extend this logic even further, and in some retellings of the Goldman dilemma the results of the original study (or one its derivations), are compared to the Connor and Mazanov (2009) general population survey, to bolster the assertion that athletes differ from members of the general population. One significant example of this type of spurious reasoning is contained in the popular sports psychology textbook *Foundations of sport and exercise psychology* by Weinberg and Gould (2015). In this book, the authors compare the results of the Goldman dilemma to those from Connor and Mazanov (2009). It should be

noted that the version of the Goldman dilemma described in the book appears to be based on the Connor and Mazanov (2009) version of the story, which was in turn based on the Bamberger and Yaeger (1997) version of the story. In short, the textbook contains a third-hand account of the Goldman dilemma. Putting that concern to one side, Weinberg and Gould (p.484) compare the responses of athletes to that of the general population and conclude:

> Thus, athletes appear to prioritize performance outcomes over health concerns; they would exchange longevity for Olympic success. This says a lot about the psyche of elite athletes and the importance of sport and winning in their lives.

Other authors have referred to the dilemma to support their own viewpoints. For example James (2013) cites Connor and Mazanov (2009), while clearly referring to Goldman et al. (1984), to assert "... in view of the widespread willingness of professional athletes to engage in steroid hormone abuse" (p. 778), demonstrating both a citation error and a clear bias in interpretation. Similarly, Calfee and Fadale (2006) make the claim that a win-at-all-costs mentality is held by modern athletes - despite Goldman's original survey being over twenty years old at that point.

In a similar fashion, Huybers and Mazanov (2012), citing Connor and Mazanov (2009) rather than the original Goldman citation, refer to Goldman's dilemma to make a proclamation of elite athletes' disregard and failure to comprehend health-related consequences of performance-enhancing drugs: "In conjunction with the Goldman Dilemma, it appears athletes discount health costs for drug related performance benefits past a certain point" (p.330). Moreover, Reider (2008) used the survey(s) to make contrived insinuations toward young people's impulsivity, lack of prospective planning or thought, and also:

> . . . [a belief in the] limitless potential of science. If the wizards of pharmacology could develop a substance capable of imparting unequalled performance, it would be

> logical to assume that they could also discover an antidote to its fatal side effects before 5 years had run its course. (p.1673).

How such conclusions have been drawn from Goldman's original survey(s) is an open question.

Replications in the Scientific Literature

Claims related to athletes' preparedness to die to win, for example, "it is not uncommon for an athlete to risk his or her life for success" (Neuberger et al., 2012; p. 859-860), are common within the literature. However, in view of peer reviewed studies that are similar to Goldman's original survey, it is evident that research published in scientific journals has, in fact, shown the opposite - that athletes are *not* willing to die for success. Bloodworth and McNamee (2010), Bloodworth, Petróczi, Bailey, Pearce, and McNamee (2012) and Connor et al. (2013) are among those whom have published peer reviewed research that is comparable to Goldman's original survey, in that they have either directly replicated the original (in as much as this is possible) or otherwise adapted the core ideas.

For example, Bloodworth and McNamee (2010) examined a slight alteration of the original dilemma among focus groups with 22 male and 13 female British athletes (mean age = 19.6), and found the majority responded negatively to the proposal. A subsequent study (Bloodworth et al., 2012), presented two variations of the original dilemma via a mail questionnaire. In one, the consequential shortened-life-span portion of the dilemma was omitted, and one in which it was included and slightly altered. A total of 403 British athletes aged 12 to 21 (with over two thirds between 16- and 19- years of age) representing more than 34 sports responded, with approximately half from Olympic sports and the other half from non-Olympic sports. When the dilemma was presented with the omission of a shortened life span, under ten percent of their sample responded favourably (three, or 0.7% responded yes,

and 26, or 6.5% responded probably). When the dilemma was posed with the addition of the consequential shortened-life-span, positive responses dropped to below one percent (one, or 0.2% responded "yes", and three, or 0.7% responded "probably").

In Connor et al. (2013) Goldman's original question was posed, either in-person or online, to a convenience sample of 212 elite Canadian track-and-field athletes (mean age = 20.89). Only two participants, or less than one percent, responded positively to the dilemma.

In sum, Goldman's findings fail the test of replicability, and thus from an empirical perspective, the evidence against the assertion that athletes will die for a medal far outweighs that in favour of it.

An Alternative Hypothesis

While accidental errors might explain some of the errors reported in this paper, it is important to note that the propagation of the myth, complete with errors, has directly served the interests of anti-doping authorities, most notably, the World Anti-Doping Agency (WADA) and the implementation of the World Anti-Doping Code (WADC). Douglas and Carless (2014) suggest that WADA has used the Goldman dilemma "as a base from which to judge whether anti-doping measures are working. Flawed or otherwise, these studies have become a baseline" (p.14).

The idea that the Goldman dilemma data might serve as a baseline with which to judge the effectiveness of WADA appears to stem from a research project designed by Connor (2010), which was funded by WADA. In the initial summary of the proposal, published on the WADA website, Connor (p.1) writes:

> Evaluating the effect of the anti doping [*sic*] policy is difficult without clear baseline measures…. In essence, we do not know if anti-doping strategies, through WADA and NADOs, have actually reduced the use of performance enhancing drugs because

> there few [*sic*] pre-WADC studies. However, there is one measure that provides a potentially valuable insight into how the WADC has influenced athletes; responses to the Goldman Dilemma…. We hypothesise that anti-doping education and enforcement strategies since 2000 have reduced the willingness of athletes to accept the bargain offered in the Goldman dilemma…. If the rate drops as expected, then it provides evidence that anti-doping rules, education and enforcement have actually worked. While some methodological issues will remain, Goldman's work is the only pre-WADA data that is available and re-testing will allow for an examination of the effectiveness of anti-doping strategies.

Here then we have a funded research study which is premised on comparing contemporary scientific data to a set of historical, non-scientific data, the results of which would (almost inevitably) validate the work of WADA. That is, if the study were to find that views toward the dilemma had not changed, this could be used to argue that anti-doping is clearly necessary, in order to protect athletes from themselves. Alternatively, changed views, which were anticipated (and subsequently found, see Connor et al., 2013), could be used to support the assertion that WADA was responsible for changing those views (to their credit Connor et al., were far more circumspect in their highly cautious interpretation of the findings). For WADA, the only possible negative research outcome would be an *increase* in the percentage of athletes willing to accept the terms of the deal.

The analyses by Møller (2015) and López (2013) offer additional insight into why the Goldman dilemma might fit a broader narrative purpose, specifically linking doping to death. Møller (2015) argues that "One of the most convincing arguments in the anti-doping crusaders' armoury centres on the danger of doping. Hence they cherish dramatic references to doping-related deaths even if the examples are anecdotal" (p.303). Similarly, López (2013) claims that issues of 'doping deaths' or 'doping health dangers'

> have become common sense or naturalized knowledge through repetition and lack of confrontation with critical sources, and the sentiments of fear they have triggered among the public have ultimately helped create a social demand for a politics of fear regarding the management of doping (p.11).

The Goldman dilemma clearly serves such a purpose since one of its core premises involves trading success for death. This would fulfill part of a fear based promotional campaign, in essence: dope and die! The widespread failure of such fear-based health campaigns is ignored in favour of a simplistic (and essentially inaccurate) anti-doping message (see López, 2013).

On other occasions, the links between the Goldman dilemma and death, have been even more explicit. For example, in January 2016, during a United Kingdom parliamentary inquiry into doping in sport, Nicole Sapstead, the Chief Executive Officer of UK Anti-Doping (UKAD), was asked whether she supported a move towards criminalising doping (Culture Media and Sport Committee, 2016; p.47). Sapstead's response is worth close examination.

> **Q618 Chair:** You do not think there is any case for criminalisation for taking performance enhancing drugs?
>
> ***Nicole Sapstead***: No. At this point in time, the World Anti-Doping Code is clear about the sanctions that would come into play if you were proven to have taken a prohibited substance. It is an additional sanction on top of—
>
> **Chair:** You are sticking with the code.
>
> ***Nicole Sapstead***: I am sticking with the code right now.

> **Chair:** You do not think the deterrent effect from a young athlete saying, "I don't want to be pushed into a criminal offence by this" is worth having?
>
> ***Nicole Sapstead***: There was one study where a group of athletes or sportspeople were asked, "This is a magic pill and, if you take this magic pill, it will assure you that you can win your competition event. You will be top of the game, would you take it?" Startling, over 50% said of course they would take it. You then overlay that with, "If we then told you that in five years' time, as a consequence of taking that magic pill, you would die would you still take it?" You would expect the response rate to drop significantly but, no, it didn't. So I could equally argue that a criminal charge, death—if you are prepared to dope I wonder if either of those two are something that you would consider.
>
> **Q619 Chair:** That is interesting; maybe so.

To summarise this remarkable exchange, in 2016, the CEO of UKAD, cited the Goldman dilemma as a rationale for *not* criminalising doping. That is, a fictitious story was used by the head of a National Anti-Doping Organisation as evidence at a government inquiry. Furthermore, the fictitious story was used to justify *not* taking steps towards introducing a deterrent strategy that has already been adopted in many countries. Instead, the Goldman dilemma was used to justify the existing anti-doping regulatory framework. WADA has long resisted calls for criminalisation, perhaps in part because anti-doping regulations invert many core principles of criminal justice, such as the presumption of innocence. For detailed analysis of how anti-doping and criminal justice systems differ, see (Moston & Engelberg, 2017; Smith, 2013; Whitworth & Van Geel, 2013)

Conclusion

The Goldman dilemma serves as an important reminder for researchers and educators to skeptically examine claims, particularly those with a direct link to the development of contentious policy decisions. The idea that athletes are willing to die to win is premised on non-scientific work but has nevertheless been widely accepted as factual by many members of the academic community (and anti-doping authorities). These errors are mainly accidental, but the possibility of deliberate errors should not be discounted. The Goldman dilemma, as both fact and fiction, serves the broader public relations purpose of anti-doping authorities that has helped to propagate the mythological aspects of the story. The film *The Man Who Shot Liberty Valance* famously ends with the statement that "When the legend becomes fact, print the legend" (Warner Bellah & Goldbeck, 1962). The Goldman dilemma is clearly more legend than fact and it is now up to academics to decide what they choose to print. As a possible starting point, it may now be time to rename the Goldman dilemma. A far better title would be the *Goldman fallacy*.

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