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Qualitative and Hierarchical Analysis of Protective Factors against Illicit Use of Doping Substances in Athletes Calling a National Anti-Doping Phone-Help Service

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A B S T R A C T

Evidence of a sport-specific hierarchy of protective factors against doping would thus be a powerful aid in adapting information and prevention campaigns to target the characteristics of specific athlete groups, and especially those athletes most vulnerable for doping control. The contents of phone calls to a free and anonymous national anti-doping service called 'ecoute dopage' were analysed (192 bodybuilders, 124 cyclists and 44 footballers). The results showed that the protective factors that emerged from analysis could be categorised into two groups. The first comprised 'Health concerns', 'Respect for the law' and 'Doping controls from the environment' and the second comprised 'Doubts about the effectiveness of illicit products, 'Thinking skills' and 'Doubts about doctors'. The ranking of the factors for the cyclists differed from that of the other athletes. The ordering of factors was 1) respect for the law, 2) doping controls from the environment, 3) health concerns 4) doubts about doctors, and 5) doubts about the effectiveness illicit products. The results are analysed in terms of the ranking in each athlete group and the consequences on the athletes' experience and relationship to doping. Specific prevention campaigns are proposed to limit doping behaviour in general and for each sport.

Key words: *anti-doping, phone-help service, anti-doping campaigns, recreational drugs, performance enhancement drugs, personal factors, environmental factors.*

Introduction

Doping among athletes has become a major public health problem. Given the proven health dangers of certain products, the frequency of poly-drug use[1], the risks of addiction[2] and doping-related injury[3], we find ourselves facing a serious health risk in total contradiction with the expected effects and benefits of sport. The battle against doping is today as much a challenge for public health authorities as it is for those involved in sports. According to the WADA, this battle depends mainly on doping controls, sanctions for doping offenses, and educational campaigns that train and inform on how to prevent abuse. Research psychologists are also heavily involved in this fight, with the principal objective being to improve the strategies to prevent doping and promote healthy behaviours by identifying the factors that put athletes at risk.

According to Mangham and colleagues, protective factors are the skills, personality factors and environmental support systems that contribute to an individual's health and welfare and the avoidance of risky behaviour[4]. They act as shock absorbers and reservoirs of resources for coping with stressors effectively. Protective factors and risk factors are often associated as pairs of opposites which, when examined closely, provide evidence of a range of quite detailed factors. These may be organized into personal and environmental or social factors, each with multiple dimensions.

Among the personal protective factors against doping, the general dimension of health protection has been highlighted, given the emphasis that athletes place on both health in general and their own health in particular[5,6] and their individual perceptions of the dangers of doping products[7,8]. The motivational orientation in sport is another dimension. Donahue and colleagues demonstrated that intrinsic motivation is negatively correlated with the use of doping products[9]. Turblin and colleagues showed that ego orientation is a risk factor[5]. Another dimension concerns the mental representations of success factors in sport. Individuals who represent athletic success as tied to a gift or an innate ability tend to declare themselves as 'pro-doping' as a means to 'fix the inequalities of nature', and vice versa[8]. A fourth dimension is related to the representations and attitudes about drug effects. Athletes who represent drugs as ineffective or unable to improve their sports careers are protected by the development of negative attitudes toward these practices and their endorsement of anti-doping efforts[7]. This protection vis-à-vis illegal substance is also reflected in the use of legal substances. For example, individuals who do not use tobacco, alcohol or recreational drugs are protected against doping in sport[11,12]. Personality factors such as self-esteem have also been identified[1,6]. A strong personality that resists social and group pressure and media images has a protective effect on the temptation to use illicit substances[1,13]. Last, sports rules and ethics have also been identified as protective factors[14].

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The environmental or social factors that protect against doping include an athlete's relations with family and friends, the network of social contacts, activities like academic studies and the influence exerted by the particular sport culture on protection against doping, as it has been shown that doping practices differ significantly depending on the sport[15]. The anti-doping position of the entourage and authorities[16] and an unfavourable attitude of the coach and the team are powerful protective factors[7]. The patterns of substance use by significant others is another dimension: when one's peers and family do not regularly use products like alcohol and tobacco, this absence in the environment also functions as a protective factor[16]. The quality of family ties and relationships has also emerged as important factor[17]. Membership in a religious group may also play a protective role[18,19]. Protection against doping can also be considered as a variable depending on the sport and its 'culture' [Donati's report was clear in showing that anabolic steroid use developed in social groups where a culture of building muscular strength and a 'cult of the body' could be anchored (i.e. army, police, pornographic and fantastic movies, and sports)], such as cycling[20], so-called 'masculine' sports, or essentially fun sports[6]. In addition, the level and number of years in competition have also been identified as protective factors[5,14]. Finally, socioeconomic characteristics will affect the athlete's doping practices, as the temptation to dope is lower and attitudes about drugs are more negative in individuals with high socioeconomic status[17] and high education[14, 21].

Despite these many findings leading to various models[22,23], however, we still do not know how to rank protective factors according to the characteristics of a particular sport. Yet this issue appears to be essential, as recent research has indicated the specificity of doping patterns for different types of sports groups. For example, cyclists do not display the same doping dynamics as other athletes[24,25]. In addition, the reasons given for using banned substances are not the same for footballers, cyclists, and bodybuilders[15]. Evidence of a sport-specific hierarchy of protective factors would thus be a powerful aid in adapting information and prevention campaigns to target the characteristics of specific athlete groups, and especially those athletes most vulnerable for doping control. Prevention strategies would be more effective by targeting forms of support in the environment or by prescribing adapted protective behaviours.

Most of the data on protective factors has been obtained from descriptive epidemiological surveys, which have a number of well-identified methodological limitations[15]. New research methodologies have thus been developed using quantitative indirect methods[26], indirect qualitative and subjective approaches[27], group interviews[28], or thorough and repeated cross-talk investigations[25], all of which have yielded new results. In one of these new approaches, Bilard and colleagues analyzed athletes' calls to a free and anonymous call-in service: 'ecoute dopage'. The data were used as an interesting means to explore the organization of doping behaviour. The setting allowed for anonymous conversations with a doping specialist, and the athletes were therefore assumed more likely to express their true motivations for doping, as well as the reasons for resisting drug use.

The purpose of the present study was to examine the ranking of protective factors in a variety of sports using a methodology to analyze interviews with callers to the French hotline, 'ecoute dopage'. It was expected that the protective factors identified would be consistent with those characterized in the scientific literature but differentiated in their relative ranking according to the sport. It was also expected that the analysis of a corpus of athletes calling a free and anonymous call-in service would provide insight into the meaning of their doping behaviour so that support elements could be developed for adapted policies against doping.

Methods

Study design

This study analyzed the contents of phone calls to a free and anonymous national anti-doping service called 'ecoute dopage' (France). This hotline was created in 1998 to assist and guide athletes and anyone else involved in doping and has been approved by the French Ministry of Sports[15]. Sports psychologists, specialists in doping and substance abuse, and a sports physician staff the telephone service. Creating a climate of trust is a priority so that callers feel safe in speaking freely. Each call is the opportunity for a non-directional interview in which the caller is encouraged to describe his or her feelings, representations, associations, and behaviours, with the psychologist providing support and timely prompts to go deeper. All calls are saved in a database according to specific criteria (age, sex, sport, level and intensity of training, and substance used in the case of an athlete's call) along with a transcription note. The five call receivers are psychologists experienced in research interviews and trained for the protocol.

Data selection

A set of 2745 clinical records of athlete-callers was available for this study. The transcription sheets for those athletes taking banned substances, whether intentionally or not, were eliminated on the basis of the World Anti-Doping Agency list, and only the sheets of those athletes claiming not to use prohibited products were retained. The records of adult male bodybuilders (390), cyclists (235), and footballers (103) were then selected, as athletes in these sports are among the most frequent callers and the female and adolescent samples were too small. A review of each sheet by two independent experts confirmed that 412 callers did not use banned substances, and these interviews were thus analyzed to determine the protective factors: 222 for bodybuilding, 144 for cycling and 46 for football.

Data analysis

Each transcription sheet was analyzed to identify the protective factors corresponding to the caller following four steps deductive procedure: (a) for each transcription sheet quotation or paraphrased quotations corresponding to the motives for not using substances was noted, (b) theses quotations were grouped together to form organized raw data themes for each sport, (c) raw data themes were sorted into different levels of category characterizing by protective factors and (d) raw data themes which did not fit any of the underlying categories of protective factors were labeled according to the meaning of data. The first author carried out primary analysis. Then the second author verified this by independently checking each raw data theme for each level of category characterizing protective factors. When the interpretations of the researchers were not concordant, a discussion with the third researcher was set until a consensus was reached. When the validity of the data processing appeared fragile (e.g., equivocal nature of the motives set, missing data, limited duration of the call to provide sufficient information) the records were excluded from the protocol. The final sample was composed of 360 sheets (i.e. 192 for bodybuilding, 124 for cycling, and 44 for football). The athletes in each sport then calculated the total score for each protective factor, as well as the number of mentions. Chi Square analysis was used to compare

these distributions. The relative prevalence of each level of protective factor category depending on the total number of factors identified for each sport was also assessed.

Results

Four hundred and forty-six mentions of protective factors were identified: 255 by bodybuilders, 146 by cyclists, and 45 by footballers. Table 1 shows that personal factors showed the highest frequency, 85.4% of all factors mentioned in general (93% for bodybuilding, 74% for cycling and 80% for football). The environmental factors were significantly cited more frequently by cyclists ($(\chi 2=4.01$, df=1, $p<0.05)$. Table 2 shows the distribution with more details. The set of protective factors cited most frequently consisted of 'Health concerns', 'Respect for the law' and 'Doping controls from the environment'.

TABLE 1
RANKING OF PERSONAL AND ENVIRONMENTAL PROTECTIVE FACTORS CITED

Factors	General	Body-builders	Cyclists	Football Players
Personal Protective Factors	85.4%	93%	74%	80%
Environmental Protective Factors	14.6%	7%	26%	20%

'Doubts about the effectiveness of illicit products,' 'Thinking skills' and 'Doubts about doctors' formed a second group with lower frequencies of mention. There is a significant differences in the distribution of the factors by sports ($\chi 2=101.36$, df=10, $P<0.001$). The ranking of factors by cyclists differed from the rankings in the other sports. The ordering of factors according to their frequency was 'Respect for the law', 'Doping controls from the environment', 'Health concerns', 'Doubts about doctors' and finally 'Doubts about the effectiveness of illicit products'.

TABLE 2
RANKING OF THE CATEGORIES OF PROTECTIVE FACTORS CITED

Rank	General	(n=446)	Body-builders	(n=255)	Cyclists	(n=146)	Footballers	(n=45)
1	Health concerns	48 % (214)	Heath concerns	63.1% (161)	Respect for the law	42.5% (62)	Health concerns	48.9% (22)
2	Respect for the law	29.4% (131)	Respect for the law	21.6% (55)	Doping controls from the environment	26% (38)	Respect for the law	31.1% (14)
3	Doping controls from the environment	14.6% (65)	Doping controls from the environment	7% (18)	Health concerns	21.2% (31)	Doping controls from the environment	20% (9)
4	Doubts about the effectiveness of illicit products	3.8% (17)	Doubts about the effectiveness of illicit products	4.7% (12)	Doubts about doctors	6.8% (10)		
5	Doubts about doctors	2.2% (10)	Thinking skills	3.5% (9)	Doubts about the effectiveness of illicit products	3.4% (5)		
6	Thinking skills	2% (9)						

Discussion

Despite the important number of factors of protection found in the literature, only a three principal factors was mentioned and underlined by the athletes (i.e. 'Health concerns', 'Respect for the law' and 'Doping controls from the environment'). Personal factors were also much more prevalent than environmental and social factors. 'Health concerns' made up 48% of the identified mentions. These results are consistent with those of Turblin and colleagues and Moore and Werch, who showed that when athletes place a high value on health, they are less tempted to become involved in doping[5,6]. They also confirm the studies showing that the more dangerous a product is perceived to be, the less temptation there will be to use it[7,8]. The second most prevalent factor was 'Respect for the law', which represented more than 29% of all mentions. Consistent with these results, Michel and colleagues argued that individuals who use doping substances have a greater tendency towards transgression and living outside of social norms[13]. This result shows that sports ethics, social rules and legal concerns remain at the centre of sport. The third factor of 'Doping controls from the environment' (drug testing) accounted for 14.6% of the mentions. According to Kuehn and Mikulovic, the 'detestability of products' is one of the most powerful determinants of the intention to dope[7]. This result is noteworthy because it contradicts the belief that controls are useless or not numerous or reliable enough or that competitive athletes know how to get around them. Even if the effectiveness of drug testing can be discussed[29], this result supports the view that it is a strong deterrent. This is all the more noteworthy in that our sample was mainly composed of regional-level athletes, for whom the likelihood of drug testing was extremely low, if not inexistent.

The result also showed two profiles of specific sport (i.e., bodybuilders and football players vs. cyclists). For the bodybuilders and football players, 'Health concerns' was most prevalent (63.1% and 48.9 %). These results indicated that many bodybuilders do not seem ready to sculpt a 'perfect' body at any price. They were consistent with the findings of Boos and Wulff, who showed in a survey of bodybuilders that 85% of those who do not use doping products give 'adverse effects on

health' as the reason[14]. For the football players, these results revealed new elements, as the literature on doping in this sport is extremely poor. For many of these callers, all amateur players competing at a basic level, we can assume that football was primarily a way to have fun and that health concerns outweighed concerns about performance[5]. These results contradict Simon's conceptions, which claimed that the more performance is dependent on predominantly physical capacities, the more frequently the corresponding product will be taken[30].

The second factor for the bodybuilders and football players was 'Respect for the law'. This result was confirmed by Boos and Wulff, who showed that 52% of the explanations given by 'non-doped' bodybuilders for their non-consumption were ethics and respect of sporting rules[14]. In contrast, this result contradicts those of Kanayama and colleagues, who identified many antisocial traits among bodybuilding practitioners[30,31]. This difference could be explained by the fact that the individuals of our study were mostly amateurs who did not compete. They did not differ from the normal population and appeared to be in accordance with the law. This result is important because it shows that respect for the law remains a protective factor against doping and substance use, even in the absence of any outside control, or criminal or sports liability. For Football players, this result confirmed that the practice was primarily considered as a way to have fun and this contributed to the emergence of a certain sporting ethic. According to Donahue and colleagues, intrinsic motivation for sports participation causes the individual to adopt sporting ethics, which negatively predicts the use of doping substances[9].

The third factor for football players (negligible for bodybuilders) was 'Doping controls from the environment'. Despite the low frequency of controls, we can argue that the deterrent here was merely the possibility of being controlled, with all the accompanying fantasies of exposure and shame, dishonor and punishment.

For the cyclists represented a specific population for our results. The first protective factor was 'Respect for the law', that seems to correspond to a new ethic era after the 1998 Tour de France.

The second factor for most cyclists was 'Doping controls from the environment', which was no surprise in light of the previous result. The doping controls could cover two different meanings in the minds of cyclists. For some, doping control could be associated with a discredited and shattered career. For others, it might reflect a possible comeback to honor the sport, a new equality among participants.

'Health concerns' was in third position for the cyclists. The finding that this factor was ranked after 'Respect for the law" and 'Doping controls from the environment' is important. Indeed, it would be rash to think that cyclists have little regard for their health. But, the reality may well be the opposite in that we suspect that cyclists begin doping when they in fact begin treating health problems by self-medicating: in response to pain, fatigue, injury and disease, there is always a substance to take[24,33].

Few limitations can be underline: this retrospective study analyzed psychologists' notes on interviews collected from an anti-doping phone service. Our results should be first examined and validated in the light of the analysis of the risks factors[15]. However, a statistic examination with a comparison with a control group of doping athletes in each of the sport would ensure the validity of these results. In addition, even if service is a fruitful observatory for gaining insight into the individual experience and behaviours related to substance use, the phone callers were perhaps not fully representative of the population of non-doped athletes. Direct and longitudinal interviews in which the athletes question their own behaviours more closely are now needed to better understand the complex system of substance use for performance improvement and appearance improvement; the psychological reasons, group effects, and cultural models that are operative; and the best treatment strategies, depending on the sport[25].

Conclusion

The results showed that prevention campaigns should be approached in accordance with the specific concerns of the populations. For example, an emphasis on the dangers of certain products and the reduction of risk has every chance of success for bodybuilders and football players. In contrast, for cycling the campaigns should start by showing that cyclists do not really need medication, complementation, or supplementation. Injury or 'disease' that they experience should be considered as part of the commitment to sport and treated differently but effectively.

The second factor 'Respect for the law' suggests that all governments and institutions should openly and resolutely stand against doping by implementing effective means of control and repression. This appears to be particularly true for cyclists.

Despite the various ranking, the third factor "doping controls from the environment" consisted a safeguard for those inevitable failures in sports ethics. They awaken the fear of losing everything, being discredited, ruining one's career. For campaigns targeting non-competitors, others means to recall the legal aspects and doping dangers will be needed.

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KVALITATIVNE I HIJERARHIJSKE ANALIZE ZAŠTITNIH FAKTORA PROTIV NEZAKONITE UPOTEBE DOPING SREDSTAVA KOD SPORTISTA KOJI POZIVAJU NACIONALNI ANTI-DOPING „PHONE-HELP" SERVIS

S A Ž E T A K

Postojanje određene sportske hijerarhije zaštitnih faktora protiv dopinga na ovaj način će predstavljati veliku pomoć u adaptiranju informacija i preventivnih kampanja kako bi se otkrile karakteristike određenih sportskih grupa, a naročito karakteristike onih sportista koji su najosjetljiviji na doping kontrolu. Sadržaji telefonskih poziva ka besplatnom i anonimnom nacionalnom anti-doping servisu, zvanom 'ecoute dopage', analizirani su (192 bodibildera, 124 biciklista i 44 fudbalera). Rezultati su pokazali da se zaštitni faktori, koji su se pojavili iz analiza, mogu svrstati u dvije grupe. Prva sadrži 'zdravstvene probleme', 'poštovanje zakona' i 'doping kontrole iz okruženja' a druga se sastoji iz 'sumnji u efiksanost nelegalnih proizvoda, 'sposobnosti razmišljanja' i 'sumnji o ljekarima'. Rangiranje faktora kod biciklista se razlikovalo od rangiranja kod ostalih sportista. Redosljed faktora bio je sljedeći: 1) poštovanje zakona, 2) doping kontrole iz okruženja, 3) zdravstveni problem 4) sumnje o ljekarima, i 5) sumnje u efiksanost nelegalnih proizvoda. Rezultati su analizirani prema rangiranju u svakoj sportskoj grupi i posljedicama na sportsko iskustvo kao i na osnovu odnosa prema dopingu. Predlažu se specifične preventivne kampanje kako bi ograničile doping ponašanje uopšte kao i za svaki sport ponaosob.

Ključne riječi: anti-doping, phone-help servis, anti-doping kampanje, ljekovi za rekreaciju, ljekovi za poboljšanje performansi, lični faktori, faktori sredine.