



Original research

Predicting attitude towards performance enhancing substance use: A comprehensive test of the Sport Drug Control Model with elite Australian athletes

Geoffrey Jalleh^{a,*}, Robert J. Donovan^a, Ian Jobling^b^a Centre for Behavioural Research in Cancer Control, Faculty of Health Sciences, Curtin University, Perth, WA, Australia^b School of Human Movement Studies, The University of Queensland, Brisbane, QLD, Australia

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ABSTRACT

Objectives: This study presents a comprehensive examination of the Sport Drug Control Model via survey data of elite Australian athletes.

Design: A cross-sectional nationwide mail survey.

Methods: A mail survey of 1237 elite Australian athletes was conducted. Structural equation modelling was employed to test the model.

Results: Morality (personal moral stance on performance-enhancing substances use), reference group opinion (perceived moral stance of reference group on performance-enhancing substances use) and legitimacy (perceptions of the drug testing and appeals processes) evidenced significant relationships with attitude towards performance-enhancing substances use, which in turn was positively associated with doping behaviour. The model accounted for 81% and 13% of the variance in attitude towards performance-enhancing substances use and doping behaviour, respectively.

Conclusions: These findings validate the usefulness of the Sport Drug Control Model for understanding influences on performance-enhancing substances use. Nevertheless, there is a need to survey athletes representing a broader range of competition levels and cross-cultural research to test the model's applicability to other populations of athletes.

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1. Introduction

There is limited application and empirical validation of doping models in sport. The lack of empirical evidence to support or refute these conceptual models leaves a significant gap in the literature in understanding influences on performance-enhancing substances (PES) use.

Donovan et al.'s¹ Sport Drug Control Model (SDCM) was the first comprehensive published theoretical model of factors influencing PES use. The model consists of six components believed to predict an athlete's attitudes and intentions towards PES use: (1) threat appraisal; (2) benefit appraisal; (3) personal morality; (4) reference group opinion; (5) legitimacy; and (6) personality. In addition, two 'market' factors believed to facilitate or inhibit the translation of attitudes and intentions into behaviour, the affordability and availability of PES, were included in the model (see Fig. 1). Donovan² later placed the model in two broader contexts: an overall socio-cultural context (e.g., a ready acceptance of new technologies that

save time and effort, prolong life, prevent suffering and enhance body image and cognitive functioning); and a sport culture that has become medicalised and commercialised. Similar to Donovan's² expansion, Stewart and Smith's³ model of drug use in sport combines the micro orientation of individual athlete intentions with a macro orientation on sporting context and culture. The authors argue that decisions made by athletes are not always rational or bound by clear intentionality. Hence contextual factors may affect athletes' values, beliefs, and decision making.

Strelan and Boeckmann's⁴ Drugs in Sport Deterrence model postulates that the costs associated with PES use are weighed up against the benefits of using such substances, and this cost-benefit analysis is influenced by situational factors. There are no published data examining the utility of this model. However, Strelan and Boeckmann⁵ applied the principles of deterrence theory to hypothetical decisions to use a PES among a sample of 116 Australian footballers and soccer players.

Petróczi and Aidman's⁶ life-cycle model of performance enhancement posits that in the course of their career, athletes constantly set goals and make choices regarding the way these goals can be achieved. Opportunities for behaviour change, including PES use, are presented throughout the cycle of choice – goal

* Corresponding author.

E-mail address: g.jalleh@curtin.edu.au (G. Jalleh).

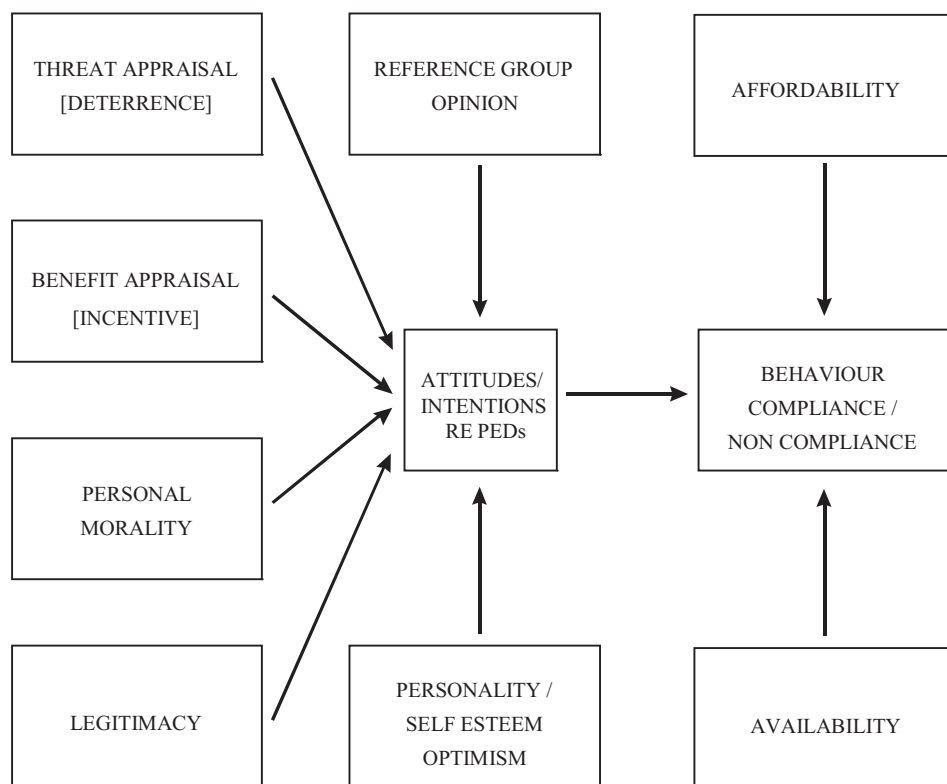


Fig. 1. The Sport Drug Control Model.¹

commitment – execution – feedback on goal attainment – goal evaluation/adjustment. The model is based on expectancy theory, hence athletes' motivation to engage in PES use is assumed to be influenced by the desire to attain expected positive outcomes, and, at the same time, controlled by the expected undesirable outcomes from use of PES. There is no published empirical testing of this model, the difficulty of which is recognised by the authors: "Considering the complexity and reiterative nature of the model, empirical testing of the model as a whole is not feasible" (p. 7).⁶

Mazanov and Huybers⁷ qualitative research provided support for the variables in these four models that are purported to influence PES use. Based on their findings, the authors presented a model of PES use in which 10 factors ('choice' determinants) thought to influence an athlete's decision to use or abstain from PES use were grouped into four themes: (1) objective of PES use (expected performance and financial outcomes); (2) about the PES (sources of information and influence on decision to use PES; expected effects of PES use on health); (3) the deterrence system (likelihood of detection of PES use; likelihood of prosecution if caught using PES); and (4) consequences if prosecuted (expected financial and non-financial consequences). Further, three individual differences variables (termed 'control' variables) were included in the model: (1) decision-making style; (2) stage of career; and (3) type of sport.

Gucciardi et al.⁸ presented findings from an opportunistic examination of some of the constructs in the SDCM. Data were from a survey of 643 elite Australian athletes conducted for the purpose of personality profiling of elite athletes and their susceptibility to PES use. Items in the questionnaire were identified that related to the following concepts in the model: threat appraisal (i.e., perceived likelihood of detection out-of-competition and while competing; successfully appealing a positive drug test); personality (i.e., self-esteem); legitimacy (i.e., perceived seriousness and effectiveness of the Australian Sports Anti-Doping Authority in preventing PES use; perceived security of the drug testing procedures in Australia); morality (i.e., cheating behaviour); benefit appraisal (i.e., perceived

necessity for athletes to use PES to perform at the very highest levels); and reference group opinion (i.e., relevant others' perceptions of them if they were caught using PES).

Structural equation modeling (SEM) revealed that the model accounted for 30% of the variance in attitude towards PES use. Morality, benefit appraisal and threat appraisal evidenced the strongest relationships with attitude towards PES use. Self-esteem, perceptions of legitimacy and reference group opinion showed small non-significant associations with attitude towards PES use. Despite the fact that the questionnaire items were not constructed to specifically measure the constructs, these findings provided preliminary support for the model and its usefulness in understanding influences on athletes' attitude towards PES use. This paper presents the findings from a study that purposefully comprehensively examined the SDCM.

2. Methods

The study design was a cross-sectional nationwide mail survey of elite Australian athletes conducted in 2004. Curtin University's human ethics committee granted approval for this project. The five Australian Sport Institutes/Sport Academies, the Australian Sports Drug Agency (now the Australian Sports Anti-Doping Authority), and four national sporting organisations (Basketball Australia, Australian Football League, National Rugby League, Australian Rugby Union) were approached to distribute the survey to athletes on their databases. Only two Australian Sport Institutes/Academies declined to participate in the study. Athletes were mailed a package containing the questionnaire, a Curtin University covering letter, a covering letter from their sporting organisation encouraging athletes to participate, and a Curtin University-addressed reply-paid envelope. Table 1 presents the questionnaire items that represented all of the constructs of the SDCM shown in Fig. 1. The major dependent variables were doping behaviour (single item) and attitude towards PES use (two items). These are listed first in Table 1.

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