



A European analysis of young team athletes' beliefs about doping and appraisals of others encouraging substance use

FINAL REPORT

Project Title:

A cross-national longitudinal investigation of the contribution of efficacy belief systems and interpersonal appraisals on doping use in team sports

Principal Investigator

Prof. Fabio Lucidi

Department of Development and Socialization Processes Psychology

Sapienza - University of Rome

ITALY

November 2014



UNIVERSITÀ DEGLI STUDI DI ROMA "FORO ITALICO"



Aristotle
University of
Thessaloniki

Collaborators:

Arnaldo Zelli, Ph.D.- Full Professor, Department of Movement, Human and Health Sciences- University of Rome "Foro Italico", Italy.

Luca Mallia, Ph.D.- Department of Movement, Human and Health Sciences- University of Rome "Foro Italico", Italy.

Ralf Brand, Ph.D.-Full Professor, Department of Sport and Exercise Psychology-University of Potsdam, Germany.

Haralambos Tsorbatzoudis, Ph.D.- Full Professor, School of Physical Education and Sport Sciences- Aristotle University of Thessaloniki, Greece.

Vassilis Barkoukis, Ph.D.- Lecturer, Department of Physical Education and Sport Science- Aristotle University of Thessaloniki, Greece

EXECUTIVE SUMMARY

Background

This two-year study focused on young team athletes' beliefs about doping use and the ways they may evaluate others who – in typical team situations - may encourage the use of doping substances. The study also pursued its scientific focus within and across three European national countries (i.e., Italy, Germany and Greece), and the attention to young team athletes and to a European analysis of team-based doping data represents the novel element of the study.

Research during the last decade has shown that the use of doping substances and nutritional supplements may serve two fundamental motives, namely, the need to overcome one's own dissatisfaction with personal physical appearance and the need to enhance sport performance. Some of this research has also shown that this phenomenon may characterize young adolescents and athletes, clarifying some of the mental and thinking processes that may regulate their doping substance use. This may include athletes' beliefs and convictions about doping use and their appraisals of significant interpersonal situations encouraging doping use.

These mental and thinking processes tap onto what personality and psychological sciences overall conceive as specific "social-cognitive" processes. Thus, doping intentions and use by young adolescents and athletes seem to partly depend on favorable attitudes toward doping substance use, personal views that significant others would approve it (i.e., social norms), on a relative lack of personal confidence in dealing or coping with the pressure to use doping substances that may come from one's social and sport environment (i.e., self-regulatory efficacy), on contingent and personal ways to justify doping use, (i.e., moral disengagement) and, finally, on their capacity to correctly assess or appraise the intentions of others who may encourage the use of doping substances (i.e., interpersonal appraisals).

Over the years, the existing research has clearly established the complex ways these beliefs and appraisals may jointly or uniquely contribute to young adolescents' and athletes' doping intentions and use. However, despite the acquisition of this scientific knowledge, there still exist research questions and issues that have yet to be addressed, and the main objectives of this study departed from these pending issues.

A first issue is concerned with a clearer understanding of doping use in team sports, and the first objective of the study was to develop and rely on specific assessment instruments that were sensitive and tailored to young athletes practicing team sports.

Relatedly, a second objective was to establish whether and to what extent young athletes' beliefs and appraisals – measured with respect to significant features of team

contexts – would account for individual differences in athletes' doping intentions and actual use of doping substances.

An additional issue is the generalizability of research doping findings, and the third objective of the study was to establish whether and to what extent the patterns of relations linking beliefs or appraisals to team athletes' doping intentions and use would hold across different European countries.

Cross-national comparability also signifies a careful examination of what is being compared. The previous objective seeks to establish whether theoretical relations among mental processes hold well in each European country, thus substantially focusing on the issue of *individual differences* in these processes among young team athletes. A final objective of the study offers a complementary look and it examines the *average trends* in young athletes' doping beliefs, interpersonal appraisals elicited by team situations, doping intentions and use. This objective, in other words, focuses on the "average case" of young team athletes, and in the ways average cases from different European countries differ on the key variables of the study. By pursuing this last objective, the study distinguishes empirically between the European generalizability of systematic individual differences and relations from the issue of group differences across European countries in average levels of these processes.

Methods

Samples

With these goals in mind, this study relied on two main assessment phases across two consecutive years and on two main samples of young team athletes residing and practicing their sport disciplines in Italy, Germany, or Greece.

An initial sample of 414 young team athletes (i.e., psychometric sample) was selected to assess the measurement characteristics of the newly developed sport team questionnaires of beliefs and interpersonal appraisals concerning doping. This sample was comprised of 139 Italian (70.5 % males), 122 Greek (72.1 % males) and 153 German (94.1 % males) young team athletes, all ranging between 13 and 19 years of age (mean =16.69; SD=1.55).The findings from this sample are summarized in part 2 and part 3 of the report.

A second sample of 749 young team athletes (i.e., validity sample) was selected to primarily assess the relations linking team athletes' doping-related beliefs, interpersonal appraisals, and their doping attitudes and intentions. This sample was comprised of 351 Italian (73.2 % males), 216 Greek (79.1 % males) and 182 German (48.2 % males) young team athletes, all ranging between 14 and 19 years of age (mean =16.43;

SD=1.69).The findings from this sample are summarized in Part 3 and Part 4 of the report.

Design of the study and instruments

Year 1 of the study was devoted to the development develop and initial evaluation of the measurement characteristics of a set of new instruments concerning the beliefs young team athletes' may hold about doping use and their appraisals of hypothetical team situations in which others may encourage or suggest the use of doping substances.

In Year 2 the study was devoted to further validating the team measurement instruments that were developed in year 1 by collecting additional data on a second independent sample of young team athletes.

Results

The report overall describes four main findings. The first is that the new team questionnaires – specifically designed and developed for this study – have good measurement properties. That is, they provide sets of questions and ratings that allow one to reliably measure individual differences among young team athletes on several types of team-based beliefs and appraisals concerning doping. The second finding is that these measurement properties hold relatively well among Italian, German and Greek young team athletes. The third main finding of the study is that the new team instruments are also valid, in that the beliefs and interpersonal appraisals of young team athletes are meaningfully related to their propensity to endorse doping attitudes and to envision using doping substances in the near future. Also this finding holds equally well among Italian, German and Greek young team athletes. Finally, the report also shows that these multivariate relations are complementary to descriptive country differences in the average levels of athletes' beliefs and interpersonal appraisals.

Conclusions

The study and the present report solicit specific and meaningful considerations with regards to the phenomenon of doping use among young team athletes. The top three outcomes of the project are the following:

- 1) The study's initial assumption was that team sports may represent a unique context, in which athletes' thoughts, views and appraisals about issues concerning doping use might be formed within or sustained by specific team characteristics and experiences. The report shows that this assumption was correct, that it was critical to construe specific team instruments tapping onto meaningful dimensions of

athletes' doping-related beliefs and appraisals, and that the study enabled us to validate these new team instruments.

- 2) These team instruments stand as valid means to address doping-related beliefs and appraisals in team athletes of different nationalities and cultures, as the study data showed the instruments are quite reliable in measuring individual differences in athletes' beliefs and appraisals in Italy, as in Germany and Greece.
- 3) The instruments are also quite valid, as they significantly contribute to athletes' doping attitudes and prospective intentions to use doping substances.

These results have significance in the field of anti-doping, since they indicate the possibility of extending existing research findings on doping use gathered at the individual level to the specific context of team sports. Secondly, our investigation allow to generalize the overall model of psychological effects evidenced in nationally based research to an international European context (i.e., Italy, Germany and Greece), suggesting the possibility to adopt common strategies in these three countries in the development and execution of anti-doping campaigns in the context of team sports. The dissemination of results of this research at a national and international level has started and will be prosecuted in the next months.

The organization of the Report

After a relatively brief introduction describing the phenomenon of doping use and relevant scientific background work of the study's leading group of scholars, the report is organized around the study objectives described earlier and with respect to four corresponding sections or parts:

Part 1 describes the initial activities that were carried out in order to develop the measurement instruments that were used in the project, and Part 2 describes the process of validating these measures across the three European research sites participating to the study (i.e., Germany, Italy and Greece). Further on, Part 3 describes additional analyses assessing the quality and validity of the new team instruments, both in the overall study sample and within and across the three participating European countries. Briefly, this section of the report will examine the guiding hypotheses of the study, which overall focused on the possibility that sport team contexts – in which young athletes practice their sport and have significant social experiences – partly shape the beliefs athletes hold about doping and the appraisals they make about others who may encourage or suggest to use doping substances. Finally, part 4 provides a complementary look at differences across Italy, Germany and Greece by summarizing average differences on key variables of the study, including measurements that provide novel and recent assessment methods in the field of doping research.

INTRODUCTION

The phenomenon of doping use in youth

The use of doping substances in sports is an old and ongoing issue (Strauss & Curry, 1987). Starting in the 60s, the use of substances in professional sport has greatly increased (Sjöqvist et al., 2008) and, more recently, has appeared in amateur sports (Irving et al., 2002), as well as in adolescence at increasingly younger ages (Calfee & Fadale, 2006). Doping substance use poses a significant threat to adolescent health (Calfee & Fadale, 2006). It has been associated with other high-risk behaviours, including the use of alcohol or illicit drugs (e.g., Thorlindsson & Halldorsson, 2010; Kindlundh et al., 1999; Lovstakken et al., 1999), disordered eating (Irving et al., 2002) and reduced academic achievement (Durant et al., 1995; Kindlundh et al., 1999).

Overall, doping studies conducted on large samples in countries, such as the US (e.g. Irving et al., 2002), the United Kingdom (Williamson, 1993), Sweden (e.g., Kindlundh et al., 1999), Australia (Handelsman & Gupta, 1997), Germany (Wanjek et al., 2007), and France (Laure et al., 2004), suggest that between 0.6 and 5% of adolescents report using doping substances. Doping use is more frequent among male than female adolescents and, to a lesser extent, among older than younger adolescents (Johnston et al., 2007; Yesalis & Bahrke, 2000). The characteristics of adolescents' sport or physical activity choices seem to influence adolescents' doping use, although knowledge on this issue is less consolidated. For instance, while it is well known that a substantial percentage of adolescent doping users do not engage in competitive sports on a regular basis (Yesalis & Bahrke, 2000), some studies suggest that doping use is less likely among competitive than non-competitive athletes (Wanjek, 2007), although other studies report an association between being active in strength training and use of doping agents (Kindlundh et al., 1999).

The contribution of psychology to doping research

Past doping research has primarily focused on the personal characteristics of adolescent doping users. While athletes use doping substances primarily to improve their performance, adolescent non-athletes do so mainly to enhance their physical appearance (e.g. DuRant et al., 1995). Compared to non-users, doping users experience greater depressed mood and dissatisfaction with their physical appearance and lower self-esteem (Laure & Binsinger, 2007; Lovstakken et al., 1999), fewer concerns about health (Irving et al., 2002), and higher global-positive expectancies about doping use (Wright et al., 2000).

Doping use also co-varies with socio-environmental influences, such as the value assigned to significant others' views (Goulet et al. 2010; Lazuras et al., 2010; Zelli et

al., 2010b; Lucidi et al., 2004, 2008; Wiefferink, 2008; Dodge & Jaccard, 2007), the relevance of weight-related social norms (Irving et al., 2002), and the knowledge of policy restrictions and drug testing protocols (Tricker & Connolly, 1997). Undoubtedly, the understanding of doping use in adolescence is hindered by the rarity or low frequency of the phenomenon, which adds complexity to the analysis of the characteristics associated with it. It is also in this respect that doping research has recently and increasingly called attention to the value of examining attitudes towards doping use as a social-cognitive factor that greatly increases the risk for doping use (Mallia et al., 2013; Backhouse & McKenna., 2011; Brand et al., 2011; Goulet et al., 2010; Lazuras et al., 2010; Petróczi & Aidman, 2009; Lucidi et al., 2004, 2008; Petróczi, 2007).

The background work of the study's European research group

The group of Italian scholars has over the years worked to develop a nationally-based doping research program focusing on Italian adolescents at high school ages. Since its outset, the program was envisioned as an opportunity to cast doping research within well-defined theoretical frameworks articulating a series of psychological processes that intervene in deliberate or volitional forms of behaviors, such as doping use. Broadly speaking, this integrated effort has focused on examining belief systems and appraisal processes possibly regulating doping intentions and actual use (Lucidi et al., 2004; 2008, 2014; Mallia et al., 2013; Zelli et al., 2010a, 2010b). Overall, the research program contributed to establishing that young adolescents' and athletes' doping intentions and use partly depend on key social-cognitive factors and processes, such as positive attitudes toward doping use, the belief that significant others would approve it (i.e., social norms), one's personal confidence that he or she can resist to external or social pressure to use doping substances (i.e., self-regulatory efficacy), and the personal ways one may adopt or call upon to justify an otherwise illicit or socially reprehensible behavior, such as doping use (i.e., moral disengagement), (Lucidi et al., 2004; 2008, 2014). Furthermore, the research program also has contributed to establishing that the relations linking doping to the above set of beliefs hold especially in those adolescents or athletes who tend to misinterpret social situations or the intentions of others who may encourage or solicit doping use (i.e., interpersonal appraisals) (Zelli et al., 2010b).

The group of German and Greek scholars recently conducted research programs focusing at a national level on different aspects of a social-cognitive analysis of doping use. For instance, the German scholars adopted a new approach to doping prevention for young athletes by focusing on decision-making processes (Melzer, Elbe and Brand, 2010), as well as on new ways to conceptualize and to measure doping attitudes (Brand

et al. 2011, Brand et al. 2014a, 2014b). Likewise, the Greek scholars developed an integrated social cognition model to examine the predictors of doping intentions in elite-level athletes (Lazuras et al., 2010; Barkoukis et al., 2013), focused on different motivational, achievement goals, and sportsmanship profiles in elite athletes (Barkoukis et al., 2011) as well as on beliefs about the causes of success (Barkoukis et al., 2014b) and self affirmation (Barkoukis et al., 2014a).

PART I:

The development of team instruments

During the first year, the research activities focused primarily on the development of new questionnaires specifically designed to measure team athletes' beliefs about doping use and their appraisals of hypothetical team situations in which others may encourage or solicit the use of doping substances.

Overall, these research activities were distributed across several different phases that are described in the following sections.

1.1 Focus Groups protocols

The initial phase of the activities was devoted to conduct focus groups in Italy and collect qualitative data that could inform and guide the development process of the team questionnaire instruments. In particular, focus group protocols and interviews were construed with the overall goal of identifying critical team situations and dimensions that could well represent the ways young team athletes spontaneously think about and react to the topic of doping use in the context of their typical sport experiences.

Twenty-one sport team professionals (e.g., coaches, sports managers, sport team athletes and sports journalists) participated to three different focus groups (nearly 24% of the participants were females, and the average age was 34 years-old, S.D. = 11.65). Prior to interviews, each participant was informed about the aims and purposes of the study and was asked to fill in a personal information sheet and sign an informed consent. The researchers also stressed that interviews would focus on "young athletes in team sports, aged between 16 and 18 years". So, participants were advised to reflect on their past or current experiences, on their teammates' experiences, or on experiences of young athletes they coached or managed.

Participants then received specific instructions for each of a series of tasks designed to evoke in them spontaneous considerations and thoughts about the different team questionnaires that were the main object of this study. Thus, for instance, participants were asked to report or imagine critical situations in the context of team sports in which a component of the team (i.e. a hypothetical actor, such as a young athlete) would be approached by someone (i.e., the solicitor) suggesting him the use of doping substances. This task was designed to provide content material for the measurement of interpersonal appraisals. Likewise, focus group participants were also asked to imagine and verbally describe critical sport team situations in which athletes would experience either light or strong social pressure to use doping substances. Participants also commented on the ways a team as a whole would or could provide ways to resist pressure coming from others or from outside the team. This task was instead designed to provide content material for the measurement of team athletes' self-regulatory efficacy.

1.2 The analysis of focus groups' interviews

The three focus groups' meetings, each one lasting about 2 hours, were audio-recorded and transcriptions of the audio-recordings represented the raw material for a content analysis of the focus groups interviews.

Using an inductive thematic content analysis, focus groups' transcriptions permitted to identify several emerging themes that could reasonably fall into four higher-order theme categories:

- a) Circumstances or contingent situations that could **elicit or encourage doping use in young team athletes**;
- b) Circumstances that could assist young team athletes to **resist to the temptation of using doping substances**;
- c) **Beliefs and motives that could encourage** or lead young team athletes to consider using doping substances or that **could weaken their capacity to resist to social pressure** for using doping substances.
- d) **Beliefs and motives that could dissuade** team athletes from using doping substances or that could **strengthen their capacity to resist to social pressure** for using doping substances.

More details and examples of each of these higher-order theme categories are reported in Appendix 1.

1.3 From focus groups to "team questionnaires"

The content analysis of the focus groups interviews and the corresponding main theme categories and material prompted an initial version of the team questionnaires to be used for the measurement of the study's key social – cognitive variables. The complete English-language versions of the team questionnaires are reported in Appendix 2. The following sections provide a brief summary description of these questionnaires.

Doping-related Regulative Self Efficacy in Team Contexts (T-SE). This questionnaire focused on two distinct dimensions of young team athletes' perceived capacity to resist to social pressure encouraging doping use.

In the first case, the measurement focused on the possibility that young athletes may perceive other team agents (e.g., the coach, a teammate, etc.) as a strong source of "internal to the team" pressure. Some of the situations elicited during the focus groups provided the material for developing six distinct questionnaire items, each of which asked young team athletes to rate their perceived confidence or capacity in resisting the temptation of using doping substances, even in presence of solicitations or

encouragements coming from his/her team(e.g., *"I would be able to resist the temptation to use doping substances even in the case in which all my teammates are using these substances"*).

In the second case, the measurement focused on the possibility that young team athletes may perceive other agents in their own teams(e.g., the coach, teammates, etc.) as a resource to face or overcome social pressure toward doping use (i.e. "external to the team" pressure). Again, some of the situations elicited during the focus groups provided the material for developing six additional items, each of which asked young team athletes to rate the perceived confidence or capacity of their own team to resist to possible outside solicitations to use doping substances(e.g. *"In my team, we would be able to avoid using doping substances, even if we believed or knew that other teams were using them"*).

In both sets of questionnaire items, young team athletes responded to each item on a 7-point rating scale ranging from *"Not at all able"*(1) to *"Completely able"* (7).

Doping-related Moral Disengagement in Team Contexts (T-MD). An additional focus of the study was on measuring young team athletes' possible tendency to find personal justifications to the use of doping substances. With this in mind, the focus group interview material provided distinct sets of circumstances in which doping use was not necessarily condemned or, alternatively, was to some degree justified. Overall, these circumstances or possibilities nicely tapped onto several theoretical categories that psychological science has labeled "moral disengagement" mechanisms, that is, specific ways people may personally justify illicit or prohibited conducts that, if enacted, would challenge one's own moral standards. For instance, a team athlete may personally justify doping use by thinking that the team as a whole – and not single athletes – are responsible for it. This justification falls under the theoretical category of "diffusion of responsibility", and the team moral disengagement questionnaire included one such item (i.e., *In a team, the responsibility of using doping substances or not is up to the group and not the individual"*).

In a similar vein, the team moral disengagement questionnaire also included other six additional items, each of which tapped onto a distinct theoretical category or moral disengagement mechanism (i.e. moral justification, euphemism, exonerative comparison, displacement, misrepresenting the harm, and attribution of blame). Team athletes rated each team moral disengagement item on a 7-point response scale ranging from 1 (*"I do not agree at all"*) to 7 (*"I completely agree"*).

Doping-related Team Situational Appraisals (T-APP). The focus group interviews and material also were useful to identify a series of interpersonal situations which young team athletes may face in their typical sport experiences and which may

encourage or solicit the use of doping substances.

The research group of scholars developed a set of four hypothetical scenarios sharing some important features. All of them presented an interpersonal situation that was framed within a sport team context. All situations also presented a main protagonist (e.g., a team athlete) interacting with someone else (e.g., a teammate). In all four scenarios, the latter character encouraged or suggested to use substances, and this solicitation was anchored to motives such as performance enhancement or alike. Finally, each of the four scenarios was designed to hide or mask the true intentions of the solicitor and any explicit reference to specific doping substances. In this way, young team athletes participating to the study could freely interpret his or her intentions upon reading the scenarios (i.e., in other words, these scenarios would elicit individual differences in young team athletes' interpersonal appraisals).

The study goals were to ask the participating team athletes to imagine themselves as the scenarios' protagonists and, upon reading each scenario, to rate each of these hypothetical interpersonal situations along five distinct rating dimensions. In the first four dimensions, team athletes had to interpret the solicitor's "true" intentions, by separately rating the likelihood that the solicitor acted as he or she did a) in the interest or care of the protagonist (**self positive appraisal**), b) in the interest or care of the team (**team positive appraisal**), c) for personal reasons or gains (**instrumental appraisal**) and d) to hurt or to get the protagonist in trouble (**negative appraisal**). These likelihood ratings were measured along a 7-point scale ranging from "Very unlikely" (1) to "Very likely" (7). The final and fifth rating dimension asked team athletes to provide a sort of prediction of their behavioral intentions, that is, they had to rate the likelihood they would do what the solicitor suggested or encouraged (**behavioral intention**). Again, these likelihood ratings were measured on a 7-point likelihood scale ranging from "Definitely No" (1) to "Definitely Yes" (7).

1.4 Language adaptation of the new team instruments in each European country

The team instruments described above were initially prepared in Italian language and then written in English language after a back-translation language check. The English version was then further translated in both German and Greek by the research groups in the respective countries.

1.5 A preliminary qualitative evaluation of the new instruments across the three European countries

In order to ascertain whether the new team instruments and their items would have a good level of clarity and relevance for young team athletes in each of the European countries (i.e., Italy, Germany and Greece), each country's research group carried out the following activities:

- It recruited a small sample of team athletes (about 15-20) who then individually examined and evaluated the T-MD items (i.e., moral disengagement), the two distinct sets of T-SE items (i.e., self-regulatory efficacy), and the four T-APP hypothetical scenarios. In particular, these team athletes rated the extent to which each instrument and its items were realistic, clear, and pertinent to team sports and doping;
- it contacted several scholars who were experts of social-cognitive theory and research and asked them a) to read the seven T-MD moral disengagement items and guess the theoretical moral disengagement mechanism which each item referred to, and b) to read the twelve T-SE self-efficacy items and correctly locate each item onto either the dimension of "internal-to-the-team pressure" (6 items) or the dimension of "external-to-the-team pressure" (6 items).

These activities and a preliminary analysis of the ratings provided by both team athletes and expert scholars supported the validity of the new team instruments.

PART II:

**The measurement characteristics of the new team
instruments and their comparison across different
European contexts**

2.1 Age characteristics and level of sport experience of the European “psychometric” sample

As mentioned in a previous section of the report, the study relied on a first sample of 414 young team athletes recruited in Italy, Germany and Greece (average age=16.69; SD=1.55). The national components of this sample showed some slight differences in their averaged age and level of sport experiences and practice, as the following Tables 2.1 and 2.2 suggest.

Table 2.1. Age differences across the three European countries.

	Mean	SD
a) Italy	16.53 ^{b, c}	1.42
b) Greece	17.58 ^{a, c}	1.45
c) Germany	16.13 ^{a, b}	1.44

a, b, c Different letters across means represent significant differences in age, at LSD post-hoc test ($p < .05$)

Table 2.2. Differences in sport experience and practice across the three European countries.

	Sport years		Team years		Weekly Days of Training		Weekly Hours of Training		Monthly Competitions	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
a) Italy	6.88 ^{b, c}	3.07	3.38 ^{b, c}	2.00	3.19 ^{b, c}	0.84	5.84 ^{b, c}	1.47	4.92 ^b	1.77
b) Greece	9.08 ^{a, c}	2.87	5.32 ^{a, c}	3.39	4.29 ^{a, c}	1.40	7.86 ^{b, c}	4.27	3.86 ^{a, c}	1.27
c) Germany	10.12 ^{a, b}	2.41	8.70 ^{a, b}	2.88	4.89 ^{a, b}	0.94	11.05 ^{b, c}	4.19	4.74 ^c	1.74
TOTAL	8.74	3.10	6.21	3.62	4.16	1.29	8.38	4.18	4.54	1.68

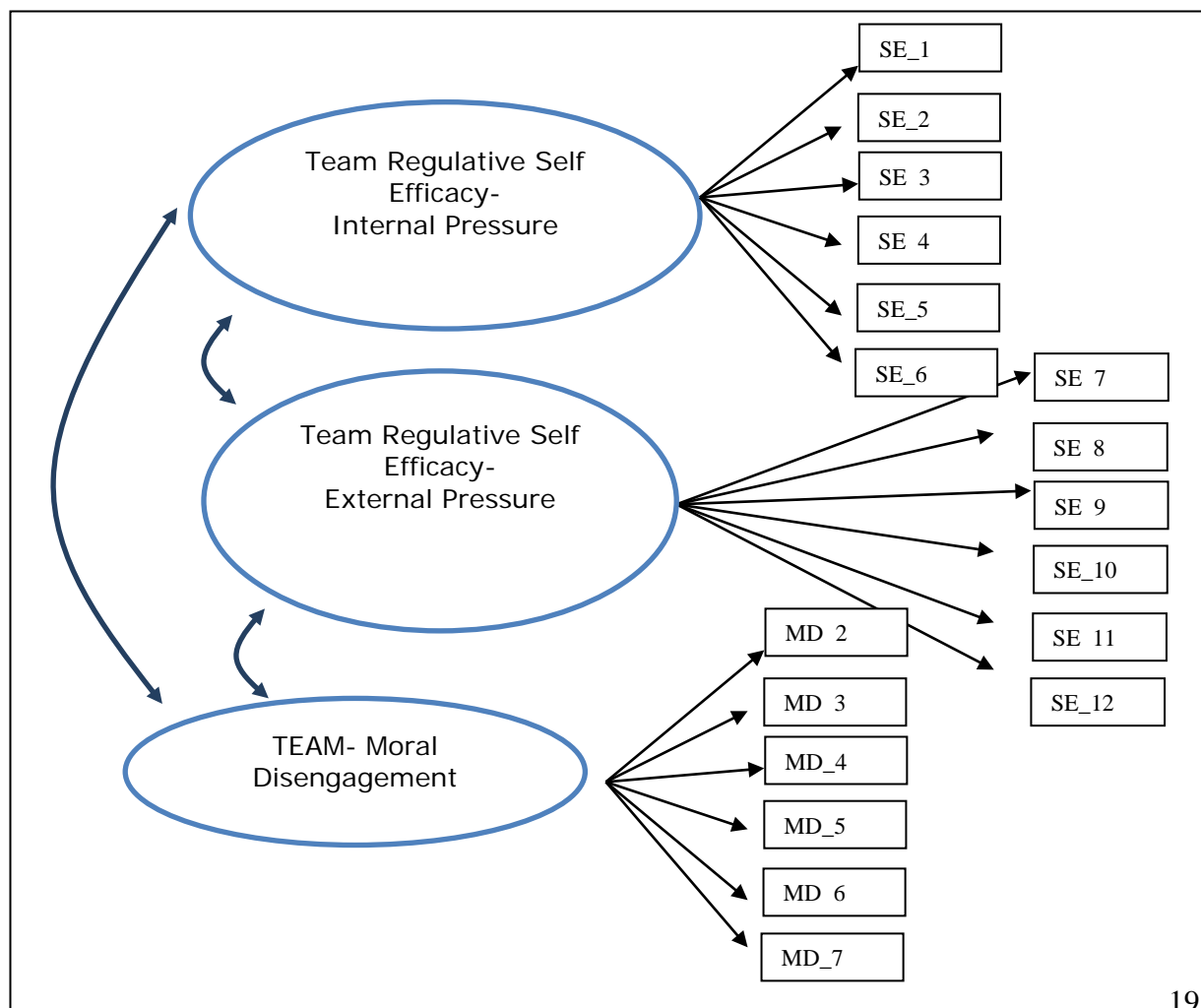
a, b, c Different letters across means represent significant differences in sport experiences and practice, at LSD post-hoc test ($p < .05$)

2.2 Measurement characteristics of “team beliefs”

Data from three European countries on the key measures of young team athletes’ beliefs about doping were analyzed to determine the qualities and similarities of the measurements across the three countries.

One way to pursue this goal is to perform an analysis which first establishes the degree of relations among the items of each new team questionnaire. The assumption is that the higher is the items’ relations, the stronger is the evidence of the belief system or construct being measured by the corresponding questionnaire. The following Figure 2.1 depicts the measurement model that was estimated according to these principles. In particular, the two components of team self-efficacy and the team moral disengagement are represented as three separate belief systems (by the circles), and the model graphically hypothesizes correlations (double-headed arrows) among the three types of beliefs, as well as direct paths (single headed arrows) from each belief to its own questionnaire items (i.e., these arrows graphically represent the measurement of the belief).

Figure 2.1 The measurement model concerning team athletes’ beliefs



The analysis sought to find statistically significant estimates for each of these arrows, and the results of this analysis are summarized in the following Tables 2.3a and 2.3b. The two tables show the measurement characteristics of the model depicted in Figure 2.1, as it was estimated from the data collected from the psychometric samples in Italy, Germany and Greece.

Table 2.3a shows several results for the two components of team self-efficacy and for team moral disengagement, in the order. The “factor loadings” summarize the degree to which each item measured the corresponding belief relatively well (i.e., the higher is the coefficient, the better the item measured the belief), whereas the column labeled “alpha if item deleted” summarizes the degree to which the “internal consistency” of the whole set of items (i.e., the overall “alpha”) would change if the particular item were deleted from the item set (i.e., the more the value of alpha decreases, the more important is the item to the internal consistency of the whole set of items). From the table, one can see that the items’ measurement characteristics are consistent with the goal of measuring different types of young team athletes’ beliefs. For each of the three types of beliefs, the “factor loadings” are relatively high and quite close to the (maximum) score of 1.0, thus reaching formal statistical significance. Furthermore, for each type of team belief, these loadings are quite similar across Italy, Germany and Greece, suggesting that the measurement characteristics hold relatively well across European countries. These considerations are further supported by each team instrument’s level of (alpha) internal consistency, which overall suggests that the young team athletes in each country responded to the items in consistent reliable ways. The alpha coefficients for the team moral disengagement are not as high (i.e., around .75) as the alpha values of the two team efficacy instruments. Nonetheless, they are higher than the conventional cutoff value of good measurement reliability.

Table 2.3b shows the estimated relations among the three types of team beliefs. These estimates derive from the measurement characteristics summarized in the previous table and, overall, suggest that young team athletes from each European country hold team beliefs that are linked in systematic and statistically significant ways. The two efficacy team beliefs are positively related to each other. Thus, young athletes who feel relatively confident in resisting to team pressure to use doping substances are also more likely to see their teams capable of resisting outside-of-the-team pressure to use doping substances. Each of the two efficacy team beliefs are instead negatively related to young athletes’ team moral disengagement. Thus, at lower levels of efficacy beliefs tend to correspond with higher moral disengagement beliefs. Thus, young team athletes who feel relatively less confident are relatively more prone to call upon team interests or characteristics to personally justify doping use. These patterns of relations hold across Italy, Germany and Greece, and differences across the three sites are relatively minor.

Table 2.3a. Psychometric characteristics of the team instruments in Italy, Germany and Greece

Team-Regulative Self Efficacy	Italy		Greece		Germany	
INTERNAL PRESSURE	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
1. ...even in the case in which all my teammates are using these substances.	.80	.95	.90	.97	.90	.97
2. ...even if this would mean to lose my starter position on the team.	.90	.94	.86	.97	.89	.97
3. ...even when my team captain is the one asking me to do so.	.90	.94	.79 [§]	.97	.95	.97
4. ...even when my coach is the one asking me to do so.	.90	.94	.91	.97	.95	.97
5. ...even in the case in which I realized that my teammates are becoming better than me because of doping use.	.85	.94	.86	.97	.90	.97
6. ...even if I thought that it was the only way to step up for the team.	.88	.94	.87	.97	.94	.97
	Alpha=.95		Alpha=.95		Alpha=.97	
Team-Regulative Self Efficacy	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
EXTERNAL PRESSURE	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
7. ...avoid using doping substances, even if we believed or knew that other teams were using them	.79	.91	.85	.93	.78	.92
8. ...to recognize our limits and avoid overcoming them by the use of doping substances	.80	.90	.64 [§]	.93	.82	.95
9. ...to discourage those teammates who would be willing to use doping substances to win	.74	.92	.88	.93	.77	.92
10. ...to protect each other against the risk to use doping	.81	.91	.90	.92	.90	.92
11. ...to make clear to everyone that our team is against any form of doping	.88	.90	.94	.92	.92	.91
12. ...to face difficult times without taking shortcuts such as doping	.88	.90	.87	.92	.88	.92
	Alpha=.92		Alpha=.95		Alpha=.97	
Team-Moral Disengagement	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
1. In a team, doping use is better than betraying your teammates' effort and pursuit for victory	.63	.64	.78	.76	.80	.68
2. In a team, doping use is just another good way to "keep the group together"	.73	.64	.74	.76	.79	.68
3. In a team, a player cannot say "no" to doping use when the coach or the teammates ask him/her to do it	.73	.66	.81	.75	.56	.70
4. In a team, the responsibility of using doping substances or not is up to the group and not the individual	.44	.72	.36	.84	.44	.73
5. In a team, doping use does not ruin other teams' chances to win, as other teams also use doping	.54	.68	.61	.78	.67	.71
6. In a team, a player who is not willing to use doping substances to help his or her team in a difficult moment, does not deserve to be in the team	.56	.70	.65	.75	.58	.73
	Alpha=.71		Alpha=.80		Alpha=.74	

[§]These coefficients are the only ones that are not invariant across the three countries

Table 2.3b. The patterns of estimated relations among team beliefs in Italy, Germany and Greece

	Team-Regulative Self Efficacy Internal Pressure			Team-Regulative Self Efficacy External Pressure		
	Italy	Greece	Germany	Italy	Greece	Germany
Team-Regulative Self Efficacy -Internal Pressure	-	-	-	-	-	-
Team-Regulative Self Efficacy -External pressure	.60**	.65**	.54**	-	-	-
Team-Moral Disengagement	-.19**	-.26**	-.18*	-.26*	-.27**	-.25**

** Statistical significant for $p < .001$

The analysis of the model depicted in Figure 2.1, and the estimated results summarized in the Tables 2.3a and 2.3b, led to the additional estimation of indices (i.e., called fit indices), which summarize the degree to which the model can re-produce the actual item correlations observed in the data. Additional steps of this analysis then permit to compare estimates across countries (i.e., evaluate the “invariance” of the model). In other words, the analysis establishes the extent to which the model estimates of the measurements and their relations are in fact the “same” (i.e., invariant) across countries, and it compares the changes in fit indices at each step of the analysis being run. Technically, “invariance” is supported when the fit indices do not change statistically from a baseline model of reference, that is, the “invariance” model leads to null statistical significance of the changes in fit indices (i.e., through a chi-square test).

The following Table 2.4 provides a summary of these statistical comparisons of the measurement model of Figure 2.1 across Italy, Germany and Greece. The rows of Table 2.4 summarize a series of consecutive models that were tested across countries starting with a baseline model, M0, which was concerned with the initial estimates in each country (i.e., M1 and M1b). The columns of Table 2.4 summarize the statistics that are used to evaluate the tenets and validity of each of these models. Overall, these analyses suggested two important considerations. Firstly, most of the measurement characteristics of the model depicted in Figure 2.1 (i.e., the single-headed arrows of the model) are “invariant” across countries, that is, the three team beliefs questionnaires yielded very similar patterns of item correlations in Italy, Germany and Greece (i.e., these conclusions refer to model M1b of Table 2.4).

Table 2.4. A European comparison of the measurement model of team belief

	Chi-square	df	Chi-Square DIFF.	df DIFF.	Chi-square Test	FIT INDICES
M0- Free all parameters	1037.61	426				CFI=.90; RMSEA=.10; SRMR=.07
M1- Loadings invariance	1109.43	456	71.82	30	0.00	CFI=.89; RMSEA=.10; SRMR=.09
M1b- PARTIAL Loadings Invariance	1083.06	454	45.45	28	0.02	CFI=.90; RMSEA=.10; SRMR=.08

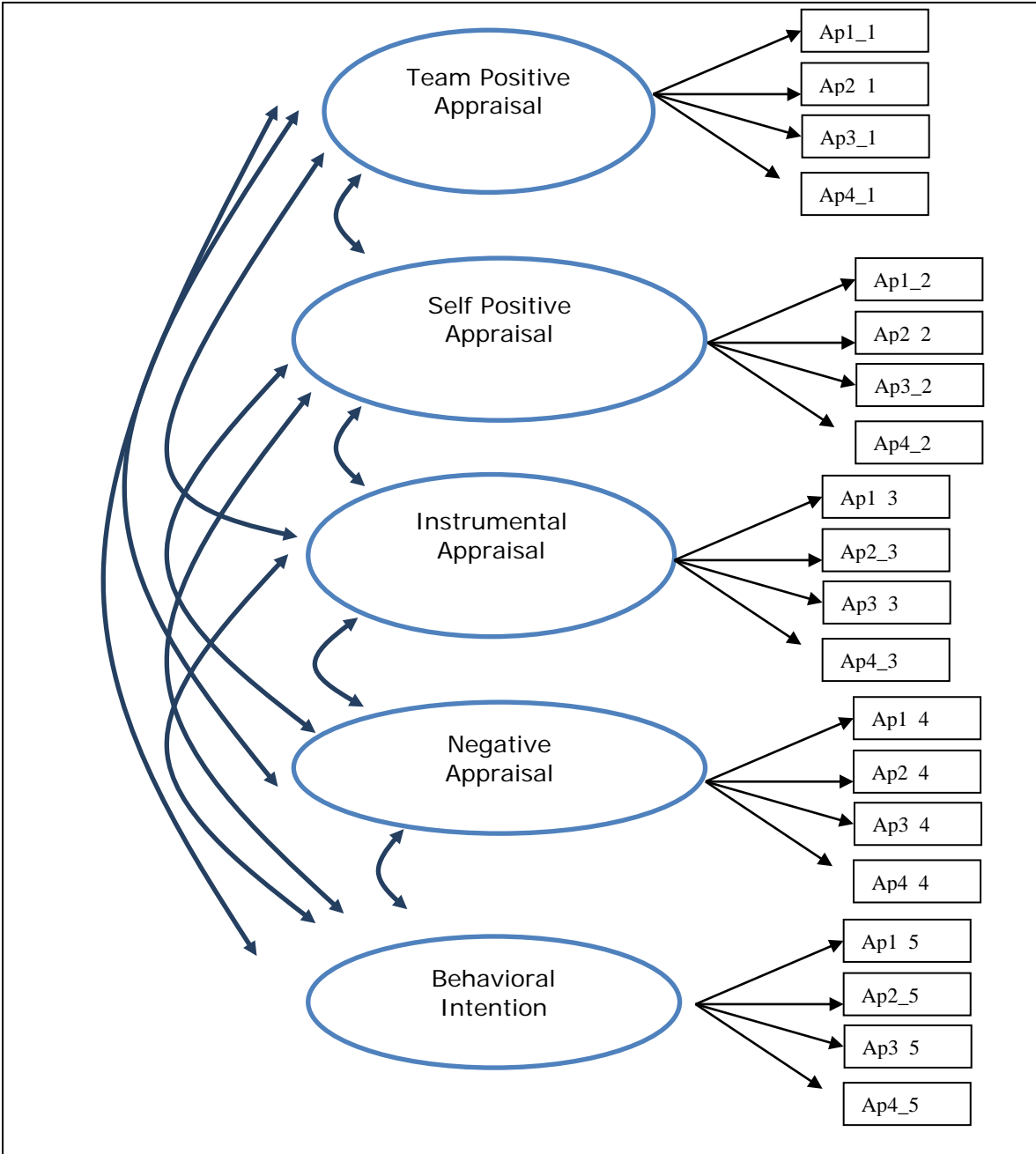
2.3 Measurement characteristics of “team appraisals”

The analyses that have been described in the previous section with respect to young athletes' team beliefs were again utilized for examining the measurement characteristics and the comparability across countries of athletes' “interpersonal appraisals”.

As detailed earlier in the report, one research goal was to measure athletes' appraisals of others who hypothetically (i.e., via four paper-and-pencil scenarios) encouraged them to use substances. Importantly, all scenarios were framed within meaningful and realistic team situations (e.g., interaction with a teammate), and athletes provided data on appraisals 1) by interpreting others' intentions along four distinct dimensions and 2) by providing a sort of behavioral prediction of what they would do if the depicted situation would actually happen.

The following Figure 2.2 summarizes the measurement model linking the five appraisal dimensions. Starting from the top, the first four appraisals refer to those dimensions tapping onto athletes' interpretations of the “true” motives guiding the hypothetical solicitation or encouragement to use substances. The last appraisal of the Figure 2.2 refers instead to athletes' behavioral prediction of what they would do, should the hypothetical situations actually occurred. The analysis of this model led to the estimation of the measurement characteristics of each appraisal and its ratings for each of the four scenarios, as well as the estimation of the relations among the five types of appraisals.

Figure 2.2. The measurement model concerning team athletes' appraisals



The following Tables 2.5a and 2.5b summarize the measurement characteristics of athletes' appraisals. Table 2.5a shows, consistent with the results concerning athletes' team beliefs, that each of the five appraisal dimensions was measured relatively well across the four stimulus hypothetical scenarios. The "factor loadings" were relatively close to the (theoretical) maximum score of 1, reaching formal statistical significance and, furthermore, these loading coefficients were – with a very few exceptions – quite similar among Italian, German and Greek young team athletes. These appraisal findings are supported by relatively high and comparable levels of measurement reliability (i.e., alphas) across the three European countries. In other words, young athletes in each country showed patterns of interpersonal appraisals of hypothetical others' intentions that were consistent and reliable across the four team scenarios.

Table 2.5a. Psychometric characteristics of the team appraisals in Italy, Germany and Greece

Team Positive Appraisal	Italy		Greece		Germany	
	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
Scenario 1	.65	.78	.67	.83	.73	.83
Scenario 2	.73	.75	.69	.84	.75	.84
Scenario 3	.73	.76	.76	.82	.81	.82
Scenario 4	.75	.75	.80	.80	.83	.80
	Alpha= .79		Alpha= .81		Alpha= .86	
Self Positive Appraisal	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
Scenario 1	.64	.69	.71	.78	.65	.76
Scenario 2	.75	.60	.67	.78	.73	.75
Scenario 3	.63	.67	.73	.76	.71	.75
Scenario 4	.58	.66	.76	.72	.76	.70
	Alpha= .72		Alpha= .81		Alpha= .79	
Instrumental Appraisal	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
Scenario 1	.67	.72	.57	.72	.69	.76
Scenario 2	.73	.72	.65	.66	.74	.74
Scenario 3	.70	.73	.48 ^s	.77	.71	.77
Scenario 4	.64	.73	.81 ^s	.64	.71	.74
	Alpha= .78		Alpha= .81		Alpha= .80	
Negative Appraisal	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
Scenario 1	.62	.85	.70	.83	.63	.76
Scenario 2	.90	.78	.81	.82	.74	.63
Scenario 3	.74	.80	.82	.78	.69	.71
Scenario 4	.66	.80	.74	.81	.70	.71
	Alpha= .85		Alpha= .85		Alpha= .76	
Behavioral Intention	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted	Loadings	Alpha if Item deleted
Scenario 1	.67	.78	.71	.85	.67	.82
Scenario 2	.74	.80	.77	.84	.73	.82
Scenario 3	.88	.74	.88	.78	.87	.79
Scenario 4	.69	.81	.80	.81	.77	.80
	Alpha= .83		Alpha= .85		Alpha= .85	

^sThese coefficients are the only ones that are not invariant across the three countries

The following Table 2.5b instead shows the patterns of estimated relations among the five interpersonal appraisals. These patterns suggest several considerations. Young athletes who tend to view others' solicitation or encouragement to use substances as guided by an interest to the team's or the athlete's welfare were also more likely to interpret the solicitation as guided by personal gains of he who encouraged or solicited. Considering that the scenarios were construed within team contexts and that the hypothetical solicitation came from significant others (e.g., coach, trainer, teammate) this pattern seems to suggest that – at least for some young athletes – the personal interests of a coach who encourages to use substances serve, after all, the interest of the team or the athlete. This pattern of positive relations seems to hold particularly well in Germany and Greece, and it is less evident among Italian young athletes. The patterns linking the four interpersonal appraisals of the solicitor's intentions to the behavioral appraisal (i.e., a prediction of what they would do in the hypothetical situations) overall suggest that stronger interpersonal appraisals vary with a stronger propensity in young athletes to act along what the situation suggested. This pattern is particularly evident among German and Greek athletes and less evident among Italian athletes, for whom there seems to be a more coherent or articulated differentiation of the interpersonal appraisals (e.g., athletes who viewed malevolent intentions by the solicitor are less likely to act along with what the situation suggested to do).

Table 2.5b. The pattern of relations among team appraisals in Italy, Germany and Greece

	Self Positive App.			Instrumental App.			Negative App.			Behavioral Intention		
	Ita	Gr	Ger	Ita	Gr	Ge	Ita	Gr	Ge	Ita	Gr	Ge
Team Positive Appraisal	.42*	.84*	.80*	.47*	.72*	.60*	.03	-.07	.43*	.10	.34*	.40*
Self Positive Appraisal	-	-	-	.05	.49*	.44*	.13	-.09	.46*	.45*	.64*	.63*
Instrumental Appraisal				-	-	-	.48*	.25*	.68*	-.16	.23*	.18*
Negative Appraisal							-	-	-	-.10	.14	.36*

**Statistical significant for $p < .05$

As the previous Tables 2.5a and 2.5b have shown, while the measurement characteristics of the appraisals are quite similar across the three European countries, the relations among the five appraisals are partly different across the three European sites. Consistent with these considerations, the measurement characteristics of interpersonal appraisals were substantially the same, that is, invariant across the three countries, and the corresponding model test of this invariance was only marginally significant (i.e., the model M1b in Table 2.6).

Table 2.6 European “invariance” of the measurement model of team appraisals

	Chi-square	Df	Chi-Square DIFF.	Df DIFF.	Chi-square Test	FIT
M0- Free all parameters	759,49	390				CFI=.91; RMSEA= .08; SRMR=.08
M1- Loadings invariance	836,85	420	77,36	30	0,0000	CFI=.90; RMSEA= .08; SRMR=.08
M1b- Partial Loadings Invariance	801,99	418	42,5	28	0,0389	CFI=.91; RMSEA= .08; SRMR=.08

PART III:

**The validity of the new team instruments and its
comparison across different European contexts**

Premises

Thus far, the report has overall summarized two important findings. The first is that the new team questionnaires – specifically designed and developed for this study – have good measurement properties. That is, they provide sets of questions and ratings that allow one to reliably measure individual differences among young team athletes on several types of team-based beliefs and appraisals concerning doping. The second finding is that, despite a few exceptions, these measurement properties seem to hold relatively well among Italian, German and Greek young team athletes.

This section of the report moves forward from these findings and summarizes the work concerning another critical, and theoretically more relevant, issue, namely, the “validity” of the new team instruments. Validity is a broad concept, primarily referring to the properties of instruments as means to verify hypotheses on the ways key variables work with or influence each other.

The present study addresses issues of validity of the new team questionnaires by focusing a) on whether and to what extent team beliefs and appraisals *are related to other relevant* concepts or mental processes and, similarly, b) on whether and to what extent team beliefs and appraisals *contribute to the prediction* of young team athletes’ intentions or willingness to use doping substances in the future.

This section of the report summarizes findings on both issues derived from both the “psychometric” and the “validity” samples mentioned in the report early on (the following section provides some demographic information on the “validity” sample). In doing so, this section of the report also describes the comparability of any validity findings across Italy, Germany and Greece.

3.1 Age characteristics and sport experience of the European “validity” sample

The study relied on a “validity” sample of 749 young team athletes recruited in Italy, Germany and Greece (average age=16.43; SD=1.69). The national components of this sample showed some slight differences in their averaged age and level of sport experiences and practice, as the following two tables suggest.

Table 3.1. Age differences of the “validity” sample across the three European countries

	Mean	Standard Deviation
a) Italy	16,05 ^b	1,465
b) Greece	17,38 ^{a, c}	1,687
c) Germany	16,01 ^b	1,642

^{a, b, c} Different letters across means represent significant differences in age, at LSD post-hoc test ($p < .05$)

Table 3.2 Differences in sport experiences and practice across the three European countries.

	Sport years		Team years		Weekly Days of Training		Weekly Hours of Training		Monthly Competitions	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
a) Italy	5.94 ^{b, c}	3.11	4.07 ^c	2.54	3.78	1.01	6.92 ^c	2.86	4.54 ^b	2.08
b) Greece	7.64 ^{a, c}	2.88	3.97 ^c	2.35	3.84	1.23	6.96 ^c	3.00	4.03 ^a	1.31
c) Germany	9.63 ^{a, b}	3.38	8.32 ^{a, b}	3.70	3.93	0.94	8.02 ^{a, b}	3.40	4.23	2.43
TOTAL	7.33	3.38	5.15	3.40	3.83	1.01	7.20	3.07	4.32	2.00

^{a, b, c} Different letters across means represent significant differences in sport experiences and practice, at LSD post-hoc test ($p < .05$)

3.2 Team beliefs, interpersonal appraisals and athletes’ doping attitudes and intentions

Existing doping research has identified some of the critical factors that often account for and partly explain the use of doping substances. Two of these factors are people’s positive attitudes about doping use and their intentions to use doping substances in the near future. The study summarized in this report relied on well-known instruments measuring doping attitudes and intentions and used in past research.

The measure of young team athletes’ doping attitudes referred to “The Performance Enhancement Attitude Scale” (PEAS; see Petróczi et al. 2007) comprising two versions, a long 17- items and a short 6-item set (e.g., “Doping is necessary to be competitive”, “The risks related to doping are exaggerated”) Italian and German team athletes

belonging to the psychometric sample provided ratings on both versions, whereas Greek team athletes provided ratings on the short PEAS version. In either case, item scores were averaged into a single "Attitudes" score, for which higher values indicated more positive attitudes about doping.

The measure of young team athletes' prospective doping intentions referred to athletes' ratings on three separate statements asking them the likelihood they would intend to use doping substances in the next three months (e.g. "*What is the probability that you will use substances to improve your sport performance/your physical condition in the next three months?*"). Intention ratings were aggregated into a single "Intention" score, for which higher values indicated stronger intentions to use doping substances in the next three months.

The relations with team beliefs

Instrument validity would suggest that team athletes showing the tendency to endorse positive doping attitudes or the intention to use doping substances in the near future should also show *relatively stronger* moral disengagement team beliefs (i.e., calling upon team characteristics to justify, minimize, or discard the illicit or unethical meaning of doping use), and *relatively weaker* team efficacy beliefs (e.g., personal confidence to resist pressure coming from significant others in their team; personal confidence in the team's capacity to withstand outside pressure to doping). In other words, both doping attitudes and intentions would support the validity of the new team questionnaires if they were *positively related* to young athletes' moral disengagement beliefs and *negatively related* to young athletes' efficacy team beliefs.

The following Table 3.3 shows the patterns of relations among the young team athletes who were recruited to be part of the "psychometric sample" in each European country. Looking at the table, one can see that the relations overall suggest good validity of the new team belief instruments. six of the nine relations concerning doping intentions and eight of the nine relations concerning doping attitudes are statistically significant and in the expected direction. Thus, overall, one can confidently assume that the relations among these variables hold relatively well among all the participating team athletes. One can also notice some minor differences across countries. While the relations among Greek young team athletes are all statistically significant, only four of the six relations among German and Italian team athletes are significant.

Table 3.3 The patterns of relations of Team Beliefs with Attitudes and Intentions in Italy, Germany and Greece (*Psychometric Sample*)

	Attitudes			Intention		
	Italy	Greece	Germany	Italy	Greece	Germany
Team-Regulative Self Efficacy - Internal Pressure	-.28**	-.32**	-.18*	-.09	-.54**	-.14
Team-Regulative Self Efficacy - External pressure	-.35**	-.36**	-.16	-.18*	-.41**	-.21*
Team-Moral Disengagement	.36**	.29**	.49*	.13	.54**	.43*

The relations with team appraisals

Instrument validity would additionally suggest that young athletes holding relatively strong attitudes or prospective intentions to use doping substances would also be more likely to benignly interpret interpersonal team situations encouraging substance use. In other words, stronger doping attitudes or intentions should correspond to appraisals assigning good motives (e.g., the welfare of the self or of the team) to those who solicited or encouraged substance use. The following Table 3.4 summarizes the relations of attitudes and intentions with interpersonal appraisals in each of the European psychometric samples. Overall, while statistical significance clearly characterizes Italian and Greek young athletes' relations, relations are for the most part statistically null among German young team athletes.

Table 3.4 The patterns of relations of Team Appraisals with Attitudes and Intention in Italy, Germany and Greece(*Psychometric Sample*)

	Attitudes			Intention		
	Italy	Greece	Germany	Italy	Greece	Germany
Team Positive Appraisal	.11	.07	.16*	.17*	.19*	-.09
Self Positive Appraisal	.29**	.12	.21	.26*	.42**	.02
Instrumental Appraisal	-.01	-.05	.07	-.10	.16	.09
Negative Appraisal	-.03	.04	.08	-.07	.12	.19*
Behavioral Appraisal	.47**	.41**	.32**	.46**	.62**	.26**

It is interesting to note two additional findings from Table 3.4. One the one hand, individual differences in athletes' doping attitudes and intentions do not statistically relate to differences in the other two appraisal dimensions, namely, those referring to the

possibility that the hypothetical solicitation to use substances was motivated by the solicitors' personal interests or otherwise harmful intentions. On the other hand, young team athletes' strong endorsement of doping attitudes and declared intentions to use doping substances in the near future corresponded to relatively high behavioral appraisals, that is, athletes' prediction that they would go along with and do what the hypothetical interpersonal situations suggested, should they really occurred.

Preliminary conclusions about the validity of athletes' team beliefs

The relations of athletes' team moral disengagement and efficacy beliefs with the positive endorsement of doping attitudes and with their prospective intentions preliminarily suggest that the new team belief instruments respect and are consistent with the criterion of validity. This preliminary conclusion seems to hold relatively well across all three European contexts, and the patterns of relations are for the most part similar among Italian, German and Greek young team athletes. All in all, these validity findings suggest that individual differences in athletes' beliefs are systematically and coherently associated with individual differences in athletes' endorsement of doping attitudes and in their prospective intentions to use doping substances.

Preliminary conclusions about the validity of athletes' team appraisals

Preliminarily, one can also confidently assume validity in the measures of team athletes' interpersonal appraisals. Doping attitudes and prospective intentions are relatively stronger among those athletes who interpret hypothetical solicitations to use substances positively and for the welfare of the athlete or his/her team. Even more significant for validity, is perhaps the finding that team athletes who hold relatively stronger doping attitudes and prospective intentions are also those who conceive the possibility of doing what the hypothetical solicitations suggested.

3.3. Team beliefs and interpersonal appraisals as predictors of team athletes' prospective and situational intentions

The previous section suggest that the new team instruments concerning team athletes' beliefs and interpersonal appraisals are valid, insofar the corresponding data are meaningfully related to athletes' doping attitudes and intentions, and these patterns hold among Italian, German or Greek young team athletes. The section, however, relied on the one-to-one relations among the key variables and says nothing to the predictive value of the new team instruments, an important and additional element for establishing their validity. Furthermore, validity might be compromised by measurement errors in the data that have thus far being analyzed.

The study relied on an additional analysis that could simultaneously address both the issue of prediction and the issue of controlling (i.e., taking into account) measurement errors in the data. Briefly, such an analysis was performed by using "Structural Equation Modeling" (SEM), a procedure estimating the multivariate contribution of several predictors on a "target" variable (i.e., criterion), while controlling and removing measurement error from these estimates (i.e., latent relations).

The analysis' goal was to separately estimate the prediction of team beliefs and team interpersonal appraisals on, respectively, two distinct criterion measures of young team athletes' prospective intentions. Graphically, the two SEM analyses are depicted in Figures 3.1 and 3.2, respectively. Both analyses were performed on the whole "validity" sample of team athletes ($n = 749$), and the two figures also summarize the results of these two analyses. Then, both analyses were performed again to verify the degree to which the latent relations of each model were "invariant" across the three European countries. These latter analyses were, procedurally, similar to the "invariance" test adopted and summarized in part 2 of the report with regard to the measurement models. The results of these "invariance" analyses are summarized in the following Table 3.5.

For team beliefs (i.e., Figure 3.1), team athletes' prospective intentions to use doping substances in the next three months provided the "criterion" data. For team interpersonal appraisals (i.e., Figure 3.2), the criterion was instead the team athletes' ratings on an additional dimension presented with each of the hypothetical interpersonal situations, namely, their "willingness" to use a substance in the depicted situation (i.e., a sort of situation-based doping intention).

Figure 3.1. Team moral disengagement and team efficacy predicting athletes' prospective intentions

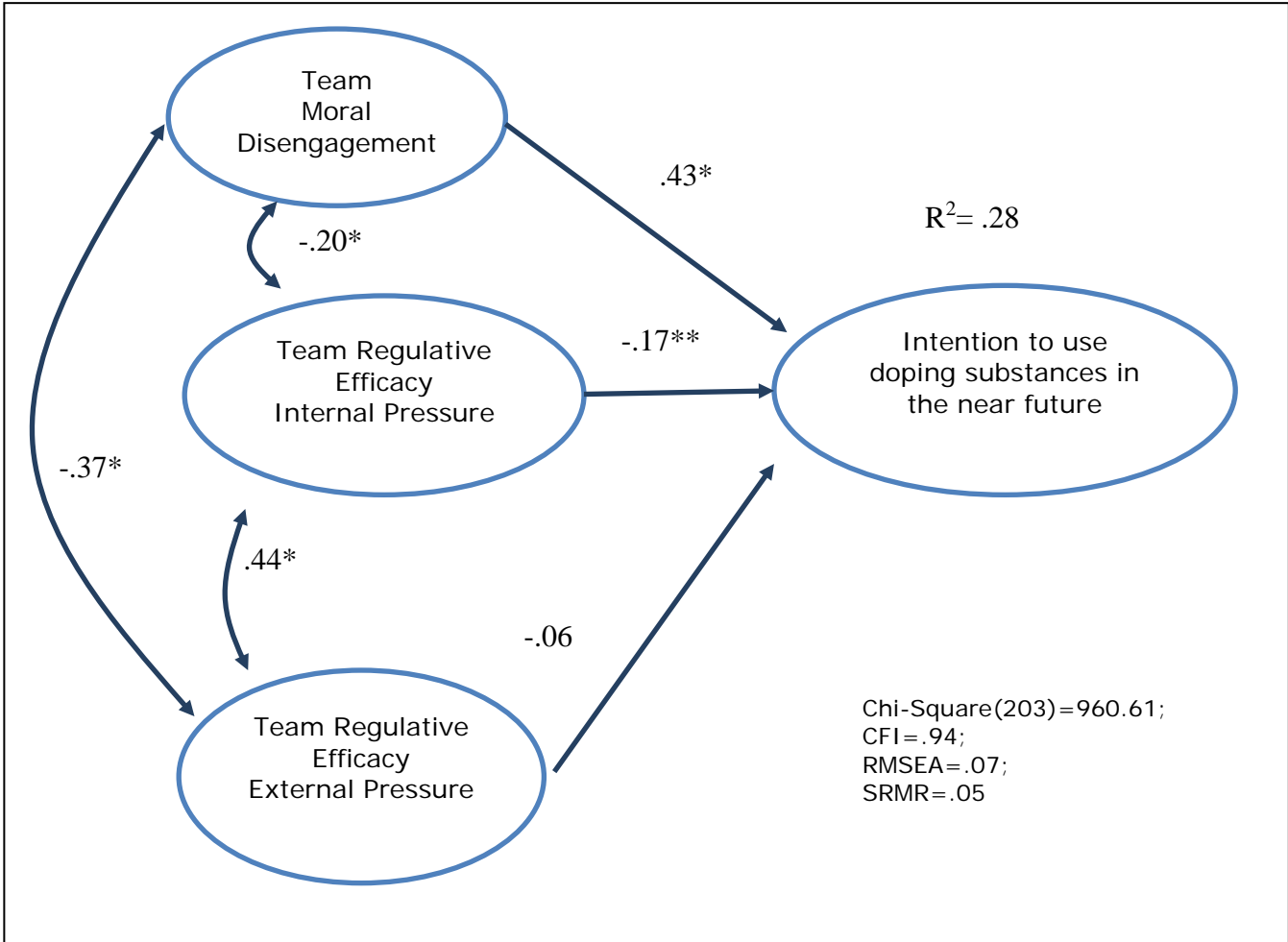
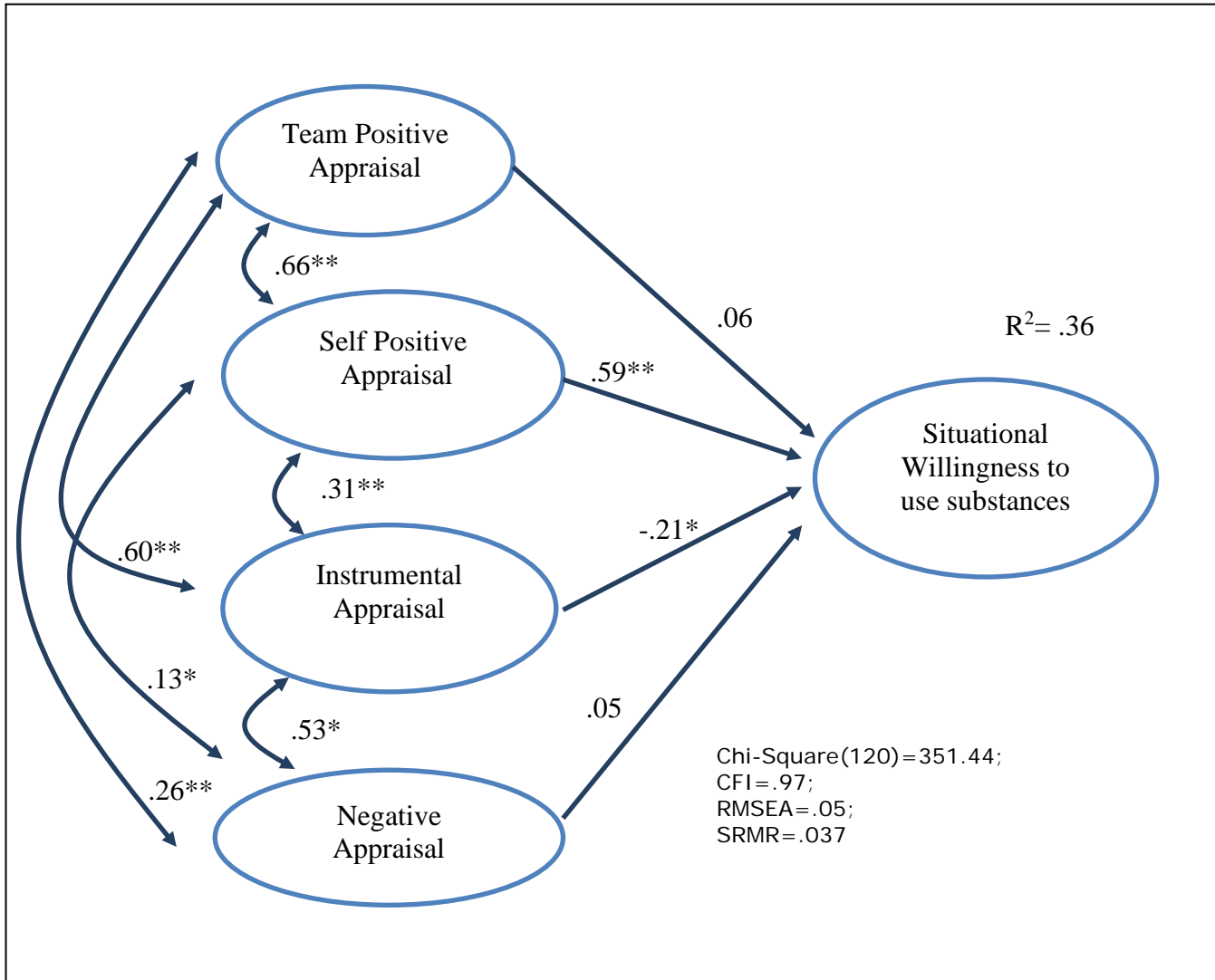


Figure 3.2 Interpersonal appraisals predicting team athletes' willingness to use substances in specific situations



Importantly, the two figures show SEM estimates that are “latent”, that is, estimates that are “cleaned” of possible measurement errors and calculated “simultaneously”, taking into account the entire set of multivariate relations being tested in the model. As such, these findings should be consistent with the univariate, one-to-one relational findings, discussed in the prior section. Indeed, it was so. Figure 3.1 shows that athletes with stronger team moral disengagement or with weaker confidence in resisting pressure coming from teammates or coaches were those with relatively stronger intentions to use doping substances in the near future. These patterns contributed to nearly 30% (i.e., $R^2 = .28$) of the differences in team athletes’ prospective intentions. Likewise, Figure 3.2 shows that team athletes who interpreted others’ hypothetical solicitations “positively” (i.e., for the athletes’ welfare) were those more likely to be willing to use substances in those situations. On the contrary, athletes who interpreted the solicitations “negatively” (i.e., he who solicited substance use has personal gains in mind) were lesser likely to be willing to use substances in those situations. These patterns contributed to nearly 40% (i.e., $R^2 = .36$) of the differences in athletes’ situational willingness to use substances.

These findings are substantially confirmed when the SEM analyses compared the estimates across the three European countries, as the following Table 3.5 clearly shows. Despite some differences, both SEM analyses confirmed the substantial “invariance” of the relations across Italy, Germany and Greece. In other words, the predictive relations linking team moral disengagement and efficacy beliefs, as well as team interpersonal appraisals, to two distinct forms of prospective intentions hold relatively well among each sample of young team athletes.

Table 3.5. The prediction of team athletes’ prospective and situational intentions in Italy, Germany and Greece

	Intention to use doping substances in the next		
	Italy	Greece	Germany
Team-Moral Disengagement	.36*	.41*	.24*
Team-Regulative Self Efficacy -Internal Pressure	-.12*	-.29*	-.17*
Team-Regulative Self Efficacy -External pressure	-.06	-.06	-.08
R²	.18	.30	.15
	Willingness to use doping in specific team sports situations		
	Italy	Greece	Germany
Team Positive Appraisal	.10	.10	.06
Self Positive Appraisal	.46*	.60*	.57*
Instrumental Appraisal	-.27*	-.28*	-.18*
Negative Appraisal	.15*	.06*	.09*
R²	.27	.32	.35

Conclusions about the “validity” of the new team instruments

This part of the report show in convincing ways that the new team instruments specifically developed for this study are valid.

Team moral disengagement and team regulative efficacy, as well as team interpersonal appraisals of hypothetical doping situations, are meaningfully related to young athletes’ concurrent propensity to endorse attitudes in favor of doping use and to envision using doping substances in the near future. This finding holds equally well among Italian, German and Greek young team athletes, and it is substantially confirmed even when relations are rigorously re-estimated after controlling for inflation due to measurement error and after considering them within a multivariate set of predictions that, in principle, might reduce the strength of any relation between a key variable and team athletes’ doping intentions.

PART IV:

**A European analysis of average trends in team beliefs,
team interpersonal appraisals, doping attitudes and
intentions**

Premises

This report thus far has broadly and exclusively focused on one key research issue, namely, individual differences in belief and appraisals processes that may characterize the ways young team athletes experience doping issues during their significant sport and team experiences. As we have described, the findings on this issue are complex and many considerations have been put forward throughout the report. All in all, the study and this report have adopted a so-called *multivariate approach*, that is, a simultaneous focus on many psychological variables and on the theoretical processes that may account for their relations.

This last section of the report adopts instead a so-called univariate approach, that is, it focuses on how Italian, German and Greek young team athletes differ on their average standings on each of the key variables of the study. As mentioned earlier, this approach provides a sort of analysis of the “average cases” in each country and, in so doing, it provides an additional and distinct look at the issue of generalizability of the new team belief and appraisal instruments of the study. This section, in other words, provides some information on whether, for instance, Italian young team athletes are *on average* more likely than their German or Greek counterparts to endorse moral disengagement beliefs or, rather, to make specific appraisals of others’ encouragement to use substances.

As such, this section gets closer to what typically a descriptive analysis of average differences across significant groups tends to do, and it is complementary to the multivariate approach of the report. We hope that this final section adds significant information to further appreciate the entire scope of the two-year study. Relatedly, in lieu of the fact that our samples of team athletes are not representative of the populations of the three participating European countries, this section provides an additional look at the three samples by comparing them on a novel procedure of sample estimation of team athletes’ doping use that has been already validated by another European research group (Petróczi et al., 2011).

This section will then end with a reference to some preliminary work on a paradigm seeking to establish the value of indirect measures concerning doping (BIAT). The study has provided some preliminary data on this paradigm and the final comments of this section will discuss differences on this indirect measure across Italian, Greek and German young team athletes.

4.1 European average differences in team social-cognitive beliefs and team appraisals

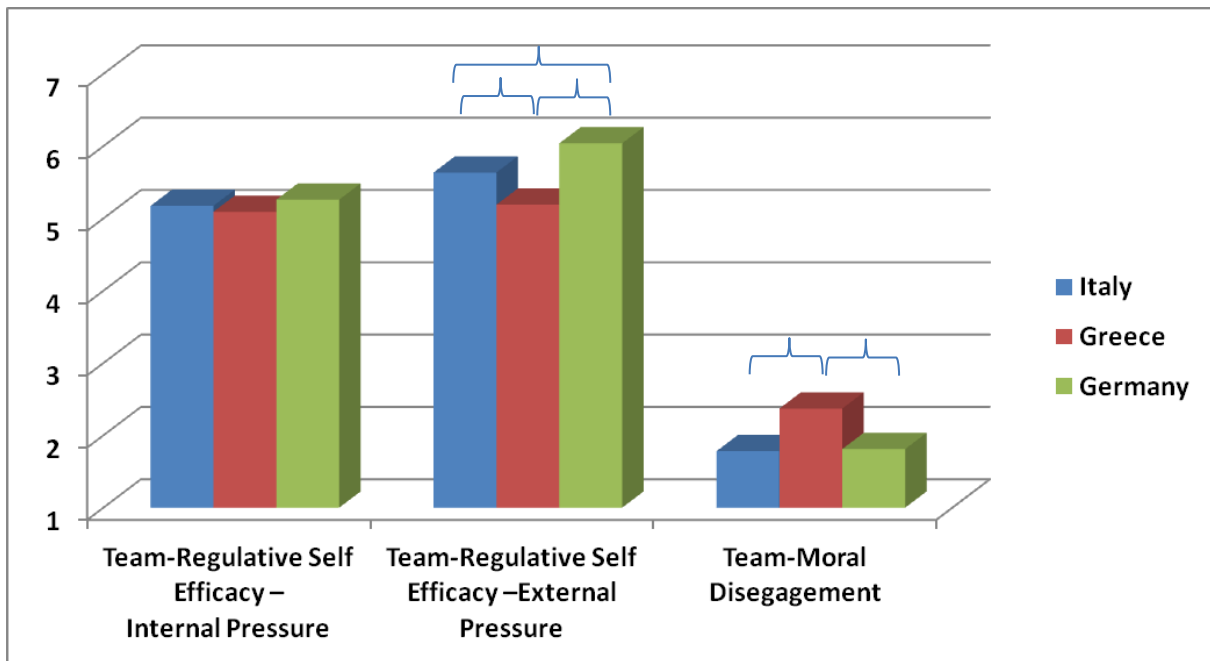
This section summarizes statistical differences among Italian, German and Greek young team athletes on a) their endorsement of team-based “moral disengagement” justifications, b) their personal confidence to resist pressure coming from teammates or

coaches to use substances, c) the perceived confidence in the team capacity to resist pressure coming from outside agents and, finally, d) their interpersonal appraisals of hypothetical situations encouraging substance use. All statistical differences are the outcome of a series of "analysis-of-variance", a procedure that broadly compares differences in groups' average scores also by estimating the extent to which individual scores within each group vary around the respective average. Overall, average scores which are different across groups and groups that are quite homogenous in their scores (i.e., vary little around the mean) tend to lead to statistically significant differences.

Differences in Team Efficacy and Team Moral Disengagement

As the following Graph 4.1 shows, there were no differences in the level of personal confidence Italian, German and Greek team athletes expressed with respect to their capacity to resist pressure from significant team agents (left panel of the graph). The level of personal confidence was quite high, as efficacy scores were around 5 on a 7-point scale. Team athletes were also quite confident that their own teams would be capable of resisting pressure from agents outside of the team environment (i.e., center panel of the graph). German team athletes were most confident in this regard (mean=6.04, SD=1.44), whereas Greek athletes were the least confident (mean=5.19, SD=1.79). These country differences were statistically significant as well ($F_{(2,746)} = 14.82$; $p < .001$). Finally, with regard to team athletes' propensity to possibly justify doping use in their teams (i.e., moral disengagement), athletes on average did not justify it (i.e., scores were around 2 in the right panel of the graph), and Greek athletes were those who showed the highest level (mean=2.37, SD=1.26), as compared to both Italian and German counterparts ($F_{(2,746)} = 24.59$; $p < .001$).

Graph 4.1. European differences in moral disengagement and efficacy beliefs



Groups resulting significantly different at LSD post-hoc test ($p < .05$)

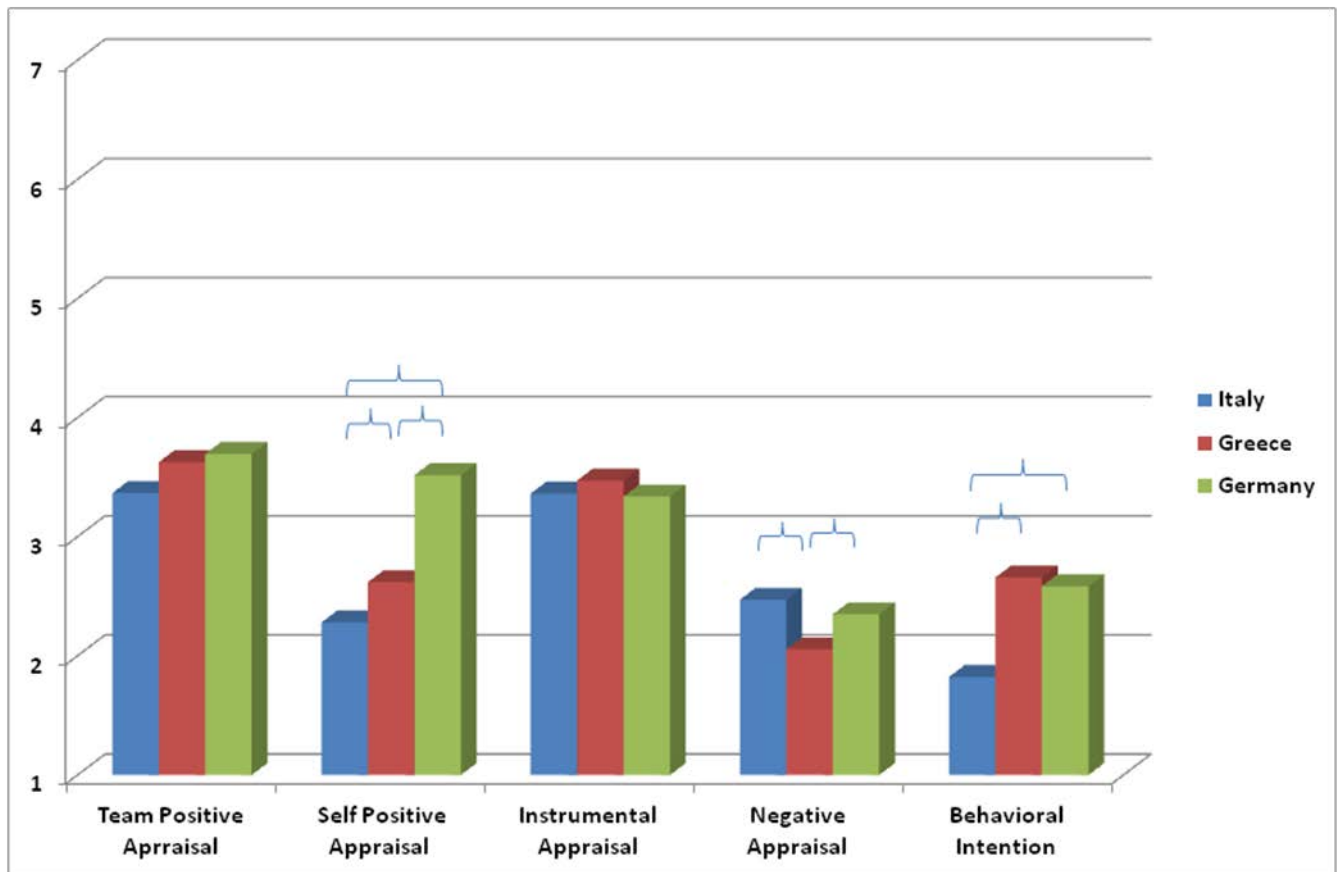
Differences in Team Appraisals

The following Graph 4.2 instead shows country differences in the interpersonal appraisals team athletes made when they evaluated the “true” motives of hypothetical others who – within their team environment – encouraged or solicited them to use substances. There are several findings of interest.

On average, Italian, German and Greek team athletes considered the hypothetical solicitation to be mostly due to the solicitor’s concerns *about the team’s welfare* (i.e., first left panel of the graph) or to his or her *personal gains* (i.e., middle panel of the graph). In both cases, appraisals were not statistically different across countries. Athletes instead differed when they considered whether the solicitor acted for concerns *about the athlete’s welfare* (i.e., second left panel of the graph). In this case, German athletes considered this possibility quite likely (mean=3.52, SD=1.44), as compared to Greek athletes (mean 2.62, SD=1.41) and to Italian athletes (mean=2.28, SD=1.25). These latter country differences were statistically significant ($F_{(2,746)}=51.06$; $p < .001$).

On average, the possible solicitor’s *intention to harm* was considered by all athletes the least likely motive (i.e., second right panel of the graph), and this was particularly so for Greek athletes (mean=2.05, SD =1.12), who differed significantly from both Italian and German counterparts ($F_{(2,746)}= 6.52$; $p=.002$). All athletes also considered quite unlikely to go along with the hypothetical solicitations (i.e., *behavioral prediction*), should the situations actually occur (i.e., first right panel of the graph), and this was particularly and significantly so for Italian athletes (mean=1.82, SD=1.11), as compared to both their German and Greek counterparts ($F_{(2,746)}= 34.77$; $p < .001$).

Graph 4.2. European differences in team appraisals



Groups resulting significantly different at LSD post-hoc test ($p < .05$)

Conclusions.

All team athletes felt on average quite confident in their personal or their teams' capacity to face and resist to social pressure for doping use. Despite a few country differences, all team athletes also showed little propensity to justify doping use, even when justifications may well serve the teams' reasons or motives. Interestingly, all team athletes on average also considered quite likely that the hypothetical team situations encouraging the use of substances are due to concerns about the team welfare or to personal gains on the part of the solicitors. There were country differences in interpersonal appraisals, especially for the appraisal of personal welfare as the motive for the hypothetical solicitation and for the behavioral appraisal or prediction of what team athletes would do if the situations would actually occur.

4.2 "Indirect" methods and measurements in doping research

This last section of the report describes data collected through methods and measurement procedures that are quite novel and currently available in doping research. A key feature of these methods is that they address relevant doping issues "indirectly", that is, without *explicitly or overly* referring to the topic at hand. As such, these methods

seek to overcome the problems that other, more traditional and direct methods, may have encountered. Doping use is a sensitive and socially delicate issue, and these methods seek to reduce biases in people's doping use-related data. One of these methods refers to the possibility of estimating the prevalence of doping use without asking possible users whether and to what extent they in fact use doping substances, a familiar protocol for direct, self-report, accounts of doping use. Another method refers to the possibility of measuring doping attitudes without directly asking people to judge whether doping use may have positive features but, rather, by utilizing techniques that either mask the research purpose or reduce people's conscious control over their responses.

The present study utilized similar protocols to have a further look at Italian, German and Greek team athletes who participated to the study and to seek some additional and comparable data on their doping attitudes and possible doping use.

Sample-based prevalence estimates of doping use among Italian, German and Greek team athletes

The Single Sample Count model is an indirect method of assessing social sensitive behaviors. Participants ought to indicate a total number of 'yes'-answers to four questions with an estimated prevalence of 50% (e.g. My house number is an even number) and one sensitive question (i.e. Have you used doping substances in the last 12 month?). Following the calculations given by Petróczi et al. (2011) the number of 'yes'-answers to the sensitive question can be estimated.

The analysis revealed an estimated prevalence of doping behavior of 17.65% (+- 7.13%) in our total sample consisting of 732 adolescents. With an estimation of 29.38% (+- 12.50%), the highest prevalence was found for Greek young team athletes. For Italian adolescents, the Single Sample Count revealed an estimated 17.84% (+- 10.43) of doping users. Finally, for the German subsample, an approximate prevalence of 3.35% (+- 14.64%) was obtained.

First, these data, provided by the Single Sample count model, indicate that doping is a prevalent behavior with respect to the total sample. Secondly, this estimation varies between countries, but as indicated by the confidence intervals these differences are insignificant. According to the WADA Testing figures 2013 (WADA, 2013), the ratio of these differences is validated by the prevalence for atypical and adverse analytical findings provided for Greece, Italy and Germany (i.e., see Table 4 of the 2013 WADA Laboratory Report).

Because of the reliance on the total number of 'yes'-answers, it is not possible to link the given estimations to other obtained variables on individual level (e.g. PEAS, intentions). Further, the results have to be restricted to the sizes of the concerning samples. A post-hoc power analysis showed that only the total and the Italian subsample

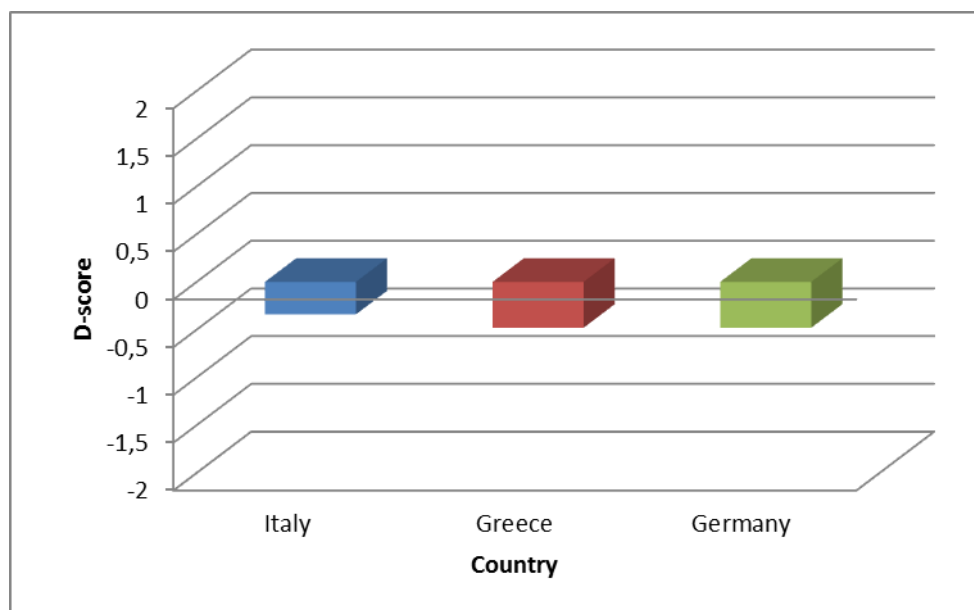
meet the required sample sizes for an adequate estimation. The obtained results should there for not be interpreted as valid numbers for actual doping. The estimations by the Single Sample Count model rather indicate a given prevalence in the total sample, which is supposed to be slightly different between countries.

A European analysis of "indirect" doping attitudes

The pictorial based BIAT (Brief Implicit Association Test) has been successfully introduced for the indirect assessment of doping attitudes (Brand, Heck & Ziegler, 2014a; Brand, Wolff & Thieme, 2014b). This method uses response latencies to stimuli related concepts (i.e. doping-dislike/like-[health food]). The resulting D-score reaches from -2 to +2, in which positive values indicate a more lenient attitude towards doping.

Due to the additional effort in data collection only 116 participants of the total sample (Italy = 50, Greece = 36, Germany = 30) provided BIAT data. On average, the D-score of the total sample is negative (mean=-0.34, SD=0.49), overall indicating indirect negative attitudes towards doping across all sites. The following graph 4.3 shows the differences in the D-score with regard to the three countries. Italian athletes showed less negative attitudes (mean=-0.16, SD=0.51), as compared to Greek athletes (mean=-0.48, SD=0.41) and to German athletes (mean=-0.48, SD=0.45). These country differences were statistically significant ($F_{(2,113)}=6.82$; $p<.01$).

Graph 4.3. European differences in BIAT indirect doping attitudes



Conclusions

According to the Single Sample Count model, it is important to note that doping behavior is prevalent but somewhat different between the participating countries. Greek

athletes obtained the highest estimated prevalence, followed by Italian and German athletes, in the order. With regards to the BIAT measurement of athletes' indirect doping attitudes, the D-score is negative in each country, indicating more negative than positive attitudes towards doping. Compared to Greek and German athletes, however, the Italian subsample revealed lesser negative attitudes towards doping-related stimuli. These results might contribute to the above-mentioned minor differences between the countries with respect to efficacy beliefs, moral disengagement and team appraisals. Given that doping is a sensitive and socially delicate behavior, both indirect measures could provide further insights into the relations among social-cognitive and appraisal processes in future research.

Rome 19/11/2014

The Principal Investigator
Prof. Fabio Lucidi

Partners' Meetings

- November 5-6, 2012 –University of Rome “Sapienza”. Meeting to organize the research activities of the first year of the research program (i.e. focus groups) .
- October 31- November 2, 2013- University of Thessaloniki. Meeting to organize the research activities of the second years of the research program (i.e., data collections of the “psychometric” and “validity” samples)
- September 10-12, 2014- University of Potsdam. Meeting to analyze the data collected during the second year of activities and to discuss the results in order to draft the WADA final report.

Dissemination of the results

SEMINARS

Past Seminars:

- National Seminar of Sport Psychology titled “ SportivaMente” (Sports-Mind)-Topics on Sport Psychology - November 2012 -Rome. During this national seminar all the investigators of the project have presented the project plan and activities.
- 13th World Congress of Sport Psychology (ISSP)- July 21-26 2013, Beijing, China. The results of the first year of activity were been presented during the contribution titled “Social-Cognitive Mechanisms Related to Doping Use in Individual and Team Sport Athletes”, included in the invited Symposium “Doping and Social Psychological Issues”, organized by Derwin King Chung Chan(Curtin University, Australia) & Fabio Lucidi (Sapienza-University of Rome, Italy).
- 28th International Congress of Applied Psychology- July 8-13 2014, Paris, France. Was presented the contribution titled Social-cognitive mechanisms related to doping use in individual and team sport athletes”.
- SFPS 's (Société Française de Psychologie du Sport) International Congress of Sport Psychology- May 12-14 2014, Nice- France.

Next Seminars:

We have organized specific symposia in international meetings, where the final results of the present research program will be presented. Specifically, we have organized symposia on different issues related to doping in the next:

- 50° Anniversary of the International Society of Sport Psychology. April 19-20, Rome, Italy.
- European Congress of Psychology (ECP)- July 7-10, 2015- Milan, Italy.
- FEPSAC (European Federation of Sport Psychology) Congress- 14-19 July 2015- Bern, Switzerland.

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Appendix 1

The specific themes emerged by the inductive thematic content analysis of the focus groups data.

1) Elements and circumstances that could favorite or elicit doping use in a young team athletes:

- The **persons/professionals** the team athletes are in contact with, such as **coach, teammates**, as well as those persons who, despite being outside of the team context, might influence team athletes, such as relatives, friends and physicians.
- The specific **places** in which solicitation to use doping substances might occur, such as a **dressing rooms** or **gyms**
- The specific **circumstances** that could contribute or elicit team athletes' consideration of using doping substances, such as the **competitive level or time of the sport season** (i.e. the beginning of a new training season, the end of a long and hard competitive season), the anticipation of a **big/important game**, the **possibility** for team athletes **to play** during a game or to **compete with other teammates**, as well as **joining a new team** or a **team of higher competitive level**, attempting to **obtain a new contract** or **passing to a higher competitive sport level**.
- There also are **psycho-physical conditions**, such as **personal physical growth and condition** (e.g., the possibility of using doping substances to improve the personal physical conditions and align it to other teammates), **sport injuries, poor physical conditions** (e.g., tiredness) or **difficulties in following training schedules and intensity, as compared to other teammates**. Another condition that could elicit the thought or consideration of using doping substances is athletes' **past use of supplements**.
- The **specific characteristics of the team sport** in which the athlete is involved, such as for instance its endurance component.

2) Elements or circumstances that could help a sport team athlete to resist to the temptation of using doping substances:

- The **persons/professionals** the team athletes are in contact with, such as **coach, teammates**, as well as those persons who, despite being outside of the team context, might positively influence team athletes, such as relatives and friends.
- Specific aspects concerning the athletes' experience with the sport they practice, such as being in a team, or playing in a specific team role or position, etc.

3) The set of beliefs, motives and/or situations that could encourage/invite a team athlete to consider using doping substances or that could **decrease athletes' capacity to resist** to the pressure toward their use. Some of these beliefs are **referred specifically to team athletes**. For instance, team athletes **could consider the use of doping substances because they wish to:**

- help their team
- continue to be part of the team / not to be excluded
- be similar to (play as) their teammates
- follow / emulate other teammates who use doping substances

Other belief components may, instead, **refer to more general sport contexts and also be valid for individual sport athletes**. For example, young athletes might **consider using doping substances in light of believing that:**

- there are no anti-doping controls in the sport they practice.
- it is "easy" to access and obtain doping substances

- there is a lack of correct information about the side effects of doping use
- doping use has beneficial effects
- the expectation and approval of significant others is important
- doping use can help overcoming personal fears and weaknesses
- doping use can help winning and gaining social status in a sport context

4) The set of beliefs, motives and/or situations that could prevent or dissuade team athletes of considering doping use or **that could improve athletes' capacity to resist** to social pressure toward its use. As to team sport contexts, these beliefs may be concerned with team athletes' wish to:

- avoid to be excluded or sanctioned by the team/teammates
- avoid to put the team in trouble.

Other beliefs may, instead, refer **to more general sport contexts**, and athletes might, for instance, **dismiss the possibility of using doping substances or resist the temptation of using them in light of:**

- having correct information about the side effects of doping use
- having difficulty in finding doping substances and/or considering the cost of these substances too high
- being aware of anti-doping control protocols and sanctions
- having health concerns related to doping use
- having high Moral/Competence values (Sportspersonship)

Appendix2) The new set of measures

In the following pages, you will find situations that anyone could encounter.

Please, imagine to be the protagonist of each situation and, for each, answer the questions that are listed.

1_APC_AC

You have been playing with your team for years. It is the end of a long and hard competitive season. During the season, you worked very hard both in training and during the games. Now, you are tired and struggling. You realize that, despite all your efforts, you do not keep up with your teammates. You know well that you are not of much help to your team at this time of the season. At the end of a training session, **your coach** who has been following you for many years with competence, comes over to you and tells you that in your condition you cannot be playing. He tells you that your team needs you, but in better shape. He then shows you some substances which may help you get back in shape and sustain the effort needed for the last part of the season. Your coach then suggests using these substances at least in the coming days.

- 1 To what extent do you think that your coach suggested using substances because he cares about the team?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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- 2 To what extent do you think that your coach suggested using substances because he cares about you?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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- 3 To what extent do you think that your coach suggested using substances because he wants something out of it for himself?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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- 4 To what extent do you think that your coach suggested using substances because he wants to get you into trouble?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
--------------------	---	---	--------------------	---	---	------------------

- 5 If you really were involved in this situation, would you do what your coach suggested?

1 Definitely No	2	3	4 I am not sure	5	6	7 Definitely Yes
--------------------	---	---	--------------------	---	---	---------------------

6. How willing would you be to use a substance in that situation?

1 Not Willing at all	2	3	4	5	6 Extremely willing
-------------------------	---	---	---	---	------------------------

You and your teammates have arrived at the evening before a big game that is critical for your career. You have all learned that representatives of top teams will be there at the game. Your teammates rely on you for the game, as they know that without you they would not be good enough to show their skills and be noticed. Their future, as well as yours, depends on this one game. At the end of the last pre-game training session, **one of your teammates** comes over to you and starts talking about "teamwork" and "team values," and goes on to say how important it is that everyone gives his best for the team. Your teammate then tells you that if you are ready to contribute to the team, you could use some substances that could easily help you to do your best during this key game. In the locker room, your teammate offers you a packet with some substances that you can try.

1 To what extent do you think that your teammate suggested using substances because he cares about the team?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
--------------------	---	---	--------------------	---	---	------------------

2 To what extent do you think that your teammates suggested using substances because he cares about you?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
--------------------	---	---	--------------------	---	---	------------------

3 To what extent do you think that your teammate suggested using substances because he wants something out of it for himself

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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4 To what extent do you think that your teammate suggested to use substances because he wants to get you into trouble?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
--------------------	---	---	--------------------	---	---	------------------

5 If you really were involved in this situation, would you do what your teammate suggested?

1 Definitely No	2	3	4 I am not sure	5	6	7 Definitely Yes
--------------------	---	---	--------------------	---	---	---------------------

6. How willing would you be to use a substance in that situation?

1 Not Willing at all	2	3	4	5	6 Extremely willing
-------------------------	---	---	---	---	------------------------

You are at the beginning of a new training season. Finally, after the off-season break, you are reunited with your teammates with whom you have been playing for years, and with whom you are very close. However, after the first training session of the new season, you realize that things are not the same as they were before. Indeed, you realize that most of your teammates have physically changed!! Their bodies seem bigger and stronger while you seem to be exactly the same as before. You quickly realize that you won't be able to truly contribute to the success of the team. At the end of the training session, **one of your teammates** comes over to you and says that he/she has noticed your concern. Your teammate goes on to tell you that, if you would like, he/she can easily give you some information about some substances that other teammates have already used and that can quickly give you the body that nature has not yet provided!!

1 To what extent do you think that your teammate suggested using substances because he cares about the team?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
--------------------	---	---	--------------------	---	---	------------------

2 To what extent do you think that your teammate suggested using substances because he cares about you?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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3 To what extent do you think that your teammate suggested using substances because he wants something out of it for himself?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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4 To what extent do you think that your teammate suggested using substances because he wants to get you into trouble?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
--------------------	---	---	--------------------	---	---	------------------

5 If you really were involved in this situation, would you do what your teammate suggested?

1 Definitely No	2	3	4 I am not sure	5	6	7 Definitely Yes
--------------------	---	---	--------------------	---	---	---------------------

6. How willing would you be to use a substance in that situation?

1 Not Willing at all	2	3	4	5	6 Extremely willing
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You have been playing with your team for years. A very important game for the season is coming up. You and your teammates have worked very hard to be where you are and you know very well that your teammates rely on you. Unfortunately, you get hurt during a training session. You realize that it is something serious and that you won't be able to play in those conditions. After the first treatment, the team **athletic coach** confirms that you won't be able to contribute to your team's win at the game. He then goes on to tell you that he heard about some substances that could help you, at least, be able to play for the big game. He then tells you that, if you would like, he could get some more information about this and let you know.

1 To what extent do you think that your athletic coach suggested to use substances because he cares about the team?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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2 To what extent do you think that your athletic coach suggested using substances because he cares about you?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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3 To what extent do you think that your athletic coach suggested to use substances because he wants something out of it for himself?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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4 To what extent do you think that your athletic coach suggested to use substances because he wants to get you into trouble?

1 Very unlikely	2	3	4 I am not sure	5	6	7 Very likely
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5 If you really were involved in this situation, would you do what your athletic coach suggested?

1 Definitely No	2	3	4 I am not sure	5	6	7 Definitely Yes
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6. How willing would you be to use a substance in that situation?

1 Not Willing at all	2	3	4	5	6 Extremely willing
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Team-Regulative Efficacy Scale

<p>Below, there are statements that refer to situations concerning Doping in which sport teams might get involved. Your team may have not experienced these situations. However, read them carefully and answer them while thinking about yourselves as a member of your team.</p> <p>For each statement, indicate to what extent YOU WOULD BE ABLE TO RESIST the temptation to use substances.</p> <p><i>I would be able to resist the temptation to use doping substances:</i></p>	Not at all Capable							Completely capable
13. ...even in the case in which all my teammates are using these substances.	1	2	3	4	5	6	7	
14. ...even if this would mean to lose my starter position on the team.	1	2	3	4	5	6	7	
15. ...even when my team captain is the one asking me to do so.	1	2	3	4	5	6	7	
16. ...even when my coach is the one asking me to do so.	1	2	3	4	5	6	7	
17. ...even in the case in which I realized that my teammates are becoming better than me because of doping use.	1	2	3	4	5	6	7	
18. ...even if I thought that it was the only way to step up for the team.	1	2	3	4	5	6	7	
<p>Please continue to think about you and your team in situations concerning doping.</p> <p><i>In my team, we would be able to:</i></p>								
19. ...avoid using doping substances, even if we believed or knew that other teams were using them	1	2	3	4	5	6	7	
20. ...to recognize our limits and avoid overcoming them by the use of doping substances	1	2	3	4	5	6	7	
21. ...to discourage those teammates who would be willing to use doping substances to win	1	2	3	4	5	6	7	
22. ...to protect each other against the risk to use doping	1	2	3	4	5	6	7	
23. ...to make clear to everyone that our team is against any form of doping	1	2	3	4	5	6	7	
24. ...to face difficult times without taking shortcuts such as doping	1	2	3	4	5	6	7	

Team- Moral Disengagement Scale

<p>Read the following sentences and indicate to what extent you agree with each sentence using the available response scale ranging:</p>	<p>I do not agree at all</p>						<p>I completely agree</p>
<p>1. In a team, doping use is better than betraying your teammates' effort and pursuit for victory</p>	1	2	3	4	5	6	7
<p>2. In a team, doping use is just another good way to "keep the group together"</p>	1	2	3	4	5	6	7
<p>3. In a team, a player cannot say "no" to doping use when the coach or the teammates ask him/her to do it</p>	1	2	3	4	5	6	7
<p>4. In a team, the responsibility of using doping substances or not is up to the group and not the individual</p>	1	2	3	4	5	6	7
<p>5. A player who uses doping substances to help his or her team can be justified</p>	1	2	3	4	5	6	7
<p>6. In a team, doping use does not ruin other teams' chances to win, as other teams also use doping</p>	1	2	3	4	5	6	7
<p>7. In a team, a player who is not willing to use doping substances to help his or her team in a difficult moment, does not deserve to be in the team</p>	1	2	3	4	5	6	7