

Religiousness as a Protective Factor for Substance Use in Dance Sport

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Abstract Although religiousness is found to be a significant protective factor in substance use, there is an evidential lack of studies of such in athletes. The aim of the study was to identify the predictive value of the religiousness and some social, educational, and sport factors on substance use in 43 sport dancers. An originally developed questionnaire for studying substance use and precipitation factors was applied. The Chi-square showed male dancers as more religious than females. Using the Spearman's correlation, religiousness was found to be a significant protective factor in cigarette smoking, sport nutritional supplementation, and the likelihood of doping. Data were interpreted emphasizing the previous findings from the literature.

Keywords Substance use · Religion · Sport dance · Prediction · Gender differences

Introduction

The number of individuals participating in sports has increased considerably in the last few decades, and the health authorities have encouraged this trend due to the widely recognized benefits of physical activity on the health status of sport participants (Miles 2007). Along with the increasing number of individuals involved in sport activities, however, substance use in sport has emerged as a crucial public health issue (Felter and Fitzgibbon 1989; Hart and Pipe 1997). In short, drinking alcohol and cigarette smoking are already recognized as a way of dealing with the characteristic sport stress in athletes, as a consequence of the intensive training and competition dynamics the usage of pain killers (analgesics) is

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regularly reported, while doping is a definitive and a most serious problem (Felter and Fitzgibbon 1989; Hart and Pipe 1997; Pipe and Ayotte 2002; O'Brien et al 2007; Baron et al. 2007). Meanwhile, a wide consensus has been reached regarding the most effective approaches in preventing substance use. Briefly, the data regarding substance use habits and frequency, the type of substances used, differential characteristics of some sport-specific, demographic, and/or cultural-religion subsamples are highly important in recognizing and preventing the problem (see for example Piko and Fitzpatrick 2004).

Religiousness and spirituality are known to be a protective factor for substance use. The protective effect of religiousness is already demonstrated against drinking alcohol, cigarette smoking, and/or opiates consumption (Menagi et al. 2008; Piko and Fitzpatrick 2004; VonDras et al. 2007; Nagel and Sgoutas-Emch 2007; Klein et al. 2006). Although previous findings indicate that athletes reported higher levels of religious faith than non-athletes (Storch et al. 2004), it is interesting that we found no empirical investigations where the potential protective effects of religiousness had been studied in athletes. The main explanations for such inconsistency will be presented briefly in short. First, it is known that precipitation factors (including protective factors) of substance use are gender and sport-specific, meaning that male and female athletes from different sports are differently oriented toward substance use, and consequently—as predictors of substance use. Therefore, the substance predictors should be studied separately in male and female athletes for each sport and sport discipline. Second and probably more important is the fact that religiousness was regularly underestimated as a potential predictive factor, while some other factors (social, educational, cultural, ethnic, etc.) were considered as more important in previous studies.

The aims of the present study were to study substance use in male and female athletes involved in sport-dance (sport dancers), and to identify factors which could correlate and define substance use in sport dancers.

The main focus was on religiousness as the potential protective factor against substance use, but we also studied different social, cultural, educational, and sport predictors as precipitation factors.

Sport dance we judged as particularly interesting for the purpose of studying substance use since it is one of the rare sports where male and female athletes are sport partners, and therefore their workout intensity, training schedule and finally sport commitments are equal. Consequently, that male and female sport achievement in sport-dance is equally appreciated, we considered as particularly important.

Methods

Using the questionnaire originally developed for studying substance use (Questionnaire of Substance Use—QSU), we analyzed two sets of variables. The first set consisted of socio-demographical, educational, cultural, and sport factors (predictors) that may be related to substance use (SU). The second set consisted of Criteria questions where we asked the subjects about their SU (consumption and habits with: alcohol, cigarettes, drugs, nutritional supplements, analgesics, and doping), as well as about some factors directly related to SU (e.g., recommendations, beliefs, potential use, etc). Although in a somewhat shortened version than originally applied, the QSU is more precisely presented in Tables 1–3, and the authors are at the reader's disposal for further details.

Since anonymity is one of the most important issues in studying substance use, we paid particular attention to it. First, in the QSU we avoided any question where the answer could be directly related to an individual. Therefore, multiple-choice answers were offered, and

Table 1 Social, cultural and educational characteristics of sport dancers (counts: *N*; percentage: %) and Chi-square significance (*P*) of the differences between males and females

	Females		Males		<i>P</i>
	<i>N</i>	%	<i>N</i>	%	
Age (years)					
19–22 (1)	12	57	9	41	0.03
22–25 (2)	8	38	2	9	
25–28 (3)	1	5	6	27	
>28 (4)	0	0	5	23	
City where born					
More than 100,000 residents (2)	18	85	18	82	0.48
50–100,000 (1)	3	15	4	18	
Religiousness					
Christian Orthodox—regular Church attendance (3)	6	30	12	55	
Christian Orthodox—no/rare Church attendance (2)	11	50	8	36	0.03
Nonreligious (1)	4	20	2	9	
Education level					
High school (1)	3	14	5	22.5	0.06
Student (2)	17	80	12	55	
Undergraduated/Graduated (3)	1	6	5	22.5	

Notes: Bracketed numbers present ordinal value (results) for each answer of the ordinal variables; Age—four categories of subject's age; City where born—population of the city where the subject was born; Religiousness—religiousness of the subjects; Education level—level of the education

no personal data were asked (e.g., date and/or exact place of birth, sport club, etc.). At least seven persons were tested at the same time. For more details about testing procedure see Sekulic et al. (2008).

In this study we sampled 43 Latin and standard coupled dancers from the Republic of Serbia. The total sample consisted of 21 female and 22 male dancers. All the subjects were 19 years of age and older. Their average body weight (kg) and body height (cm) were (mean \pm standard deviation): 56.27 ± 6.41 kg, 169.93 ± 5.94 cm; and 76.91 ± 8.60 kg, 183.91 ± 6.71 cm; for females and males, respectively. One of the authors explained the purpose and the protocol of the study (see previous text) and the subjects gave their informed consent.

Initially, frequency tables, including counts and proportions of each variable, were carried out. The Chi-square test was applied for comparison of the proportions between the males and females (see Results for more details). Spearman's correlation was calculated to establish the relationships between the ordinal predictors and SU. The statistical level of significance of 95% ($P < 0.05$) was applied.

Results

All of the subjects were single and had no children, while more than 90% of them were born in former Yugoslavia. Since there was practically no variance, although measured using the QSU, those variables were not included in the analysis of the differences (Tables 1–3) and correlation analysis (Table 4).

Table 2 Sport characteristics of sport dancers (counts: *N*; percentage: %) and Chi-square significance (*P*) of the differences between males and females

	Females		Males		<i>P</i>
	<i>N</i>	%	<i>N</i>	%	
SP-D involvement:					
Less than 5 years (1)	1	5	–	–	0.30
5–9 years (2)	11	52	9	42	
10–14 years (3)	8	38	8	36	
15 years and more (4)	1	5	5	22	
SP-D status					
Amateur—no financial income from SP-D (1)	16	76	17	77	0.97
Semi-professional—some financial income from SP-D (2)	3	14	3	14	
Full professional—SP-D as the only financial income (3)	2	10	2	9	
SP-D achievement					
Competing at local level (1)	1	5	–	–	0.13
Local competition success (2)	4	19	2	9	
Competing at a national level (3)	1	5	2	9	
National competition success (4)	6	28	3	14	
Competing at an international level (5)	2	10	6	27	
International success (6)	7	33	9	41	

Notes: Bracketed numbers present ordinal value (results) for each answer of the ordinal variables; SP-D involvement—time of involvement in sport dance; SP-D status—amateur, semiprofessional, or professional status in sport dance; SP-D achievement—the highest level of the subject's result in sport dance competition

Most of the subjects were born in cities larger than 100,000 residents. The subjects are mostly religious (Christian Orthodox), students and/or highly educated, while males are significantly older and more religious than females. More than 70% have achieved some success at a national competition (1st to 3rd place on the highest level National Competition), while a significant proportion of the females and more than 40% of male dancers had competed and succeeded at an International level.

There is practically no heavy alcohol consumption, while almost half of the dancers studied do not drink at all. Most of the subjects do not smoke, while two female dancers (10%) smoke cannabis and/or hashish rarely. If nutritional supplements are used, isotonic drinks are consumed. Balm and tablet analgesics (pain-killers) are used rarely in 20–23% of subjects. The females would consider use of doping with less anxiety than their male colleagues.

Sport status and sport achievement in females, and religiousness in males, are the most significant predictors of the substance behaviors. In the females use of pain killers is naturally related to age.

Discussion

There are several important findings in our results. First, the female dancers were found to be less religious than their male colleagues, and for the female dancers religiousness was not significantly related to any of the substance-use factors we studied. Second, in the male

Table 3 Substance use in sport dancers (counts: *N*; percentage: %) and Chi-square significance (*P*) of the differences between males and females

	Females		Males		<i>P</i>
	<i>N</i>	%	<i>N</i>	%	
Alcohol					0.30
1–2 drinks per day (4)	1	5	–	–	
Less than 1 drink per day (3)	2	10	2	9	
Rarely (2)	6	29	5	23	
I don't drink alcohol (1)	12	57	15	69	
Cigarettes					0.79
Less than 10 per day (4)	–	–	1	5	
From time to time (3)	3	14	5	23	
Quit smoking (2)	1	6	1	5	
I don't smoke (1)	17	80	15	68	
Drugs (opiates):					0.52
Never (1)	19	90	22	100	
Cannabis and hashish—rarely (2)	2	10	–	–	
Nutritional supplements					0.29
I don't use nutritional supplements I (1)	16	76	19	86	
Isotonics (2)	5	24	2	9	
Carbohydrates (3)	–	–	1	5	
Pain killers					0.60
Never (1)	16	76	17	77	
Rarely (2)	4	20	5	23	
Often (3)	1	5	–	–	
Doping likelihood (I'll use doping if...)					0.04
... it will assure sport success (1)	–	–	–	–	
... sport success + nonhealth hazard (2)	6	29	2	10	
Never (3)	15	71	20	90	

Notes: Bracketed numbers present ordinal value (results) for each answer of the ordinal variables; Alcohol—alcohol consumption; Cigarettes—cigarette smoking; Drugs—consumption of the opiates; Nutr Suppl—consumption of the nutritional supplements; Pain killers—usage of the analgesics; Doping likelihood—possibility of the subject's doping usage

dancers, religiousness was an evident protective factor against cigarette smoking, nutritional supplementation, and possibility of doping. Third, we found no significant relationship between religiousness and the consumption of alcohol.

These findings are discussed below, emphasizing the characteristics of the subjects we studied and the results obtained in previous investigations.

Religiousness in Male and Female Sport Dancers

In previous studies, females were found to be more religious than males (Wallace and Forman 1998). Even more, some studies discussed higher substance use in males as a result of the greater religiousness of females, as well as the greater willingness of females to act in accordance with their religious beliefs (VonDras et al. 2007). On the contrary, in our

Table 4 Spearman's correlation coefficients between predictors and substance use criteria in females and males (* denotes significant correlation; $P < 0.05$)

	Alcohol	Cigarettes	Drugs	Nutr Suppl	Pain killers	Doping likelihood
Females						
Age	-0.08	0.03	0.34	0.17	0.45*	0.18
City where born	-0.23	-0.10	-0.06	0.14	0.03	0.14
Religiousness	0.09	-0.12	-0.17	0.00	0.26	0.29
Education level	0.48*	-0.34	0.20	0.27	0.05	0.08
SP-D involvement	0.43	-0.04	0.46*	0.02	0.26	-0.13
SP-D status	0.60*	-0.41	0.59*	-0.22	0.27	-0.37
SP-D achievement	0.51*	-0.05	0.26	-0.02	-0.14	-0.44*
Males						
Age	0.38	0.02	-	0.00	0.08	-0.05
City where born	0.29	-0.02	-	0.40	-0.25	-0.17
Religiousness	0.38	-0.44*	-	-0.58*	0.02	-0.69*
Education level	-0.02	0.24	-	0.11	0.18	0.34
SP-D involvement	0.28	0.13	-	-0.05	0.13	0.05
SP-D status	0.54*	0.16	-	0.30	0.27	0.21
SP-D achievement	0.36	-0.09	-	0.17	0.07	-0.09

Notes: Age—four categories of the subject's age; City where born—population of the city where the subject was born; Religiousness—religiousness of the subjects; Education level—level of education; SP-D involvement—time of the involvement in sport dance; SP-D status—amateur, semiprofessional, or professional status in sport dance; SP-D achievement—the highest level of the subject's result in sport dance competition; Alcohol—alcohol consumption; Cigarettes—cigarette smoking; Drugs—consumption of opiates; Nutr Suppl—consumption of nutritional supplements; Pain killers—usage of analgesics; Doping likelihood—possibility of the subject's doping usage

study, we found male dancers: (1) were more religious and (2) were less oriented toward substance use (doping likelihood for example). In explaining this contradiction, the following explanations can be offered. First, in our study the male dancers are significantly older than the females. Previous studies found that religious belief is significantly more frequent in older than in younger subjects, and/or that religiousness is positively correlated with age (Jose and Alfons 2007; Argue et al. 1999). Therefore, the differences in the religious beliefs between the genders in our sample of subjects could be very probably related to their differences in age. One can argue that we could additionally support such a consideration by studying the differences in religiousness between males and females while statistically controlling the differences in age (statistical procedure of such a kind is known as the *analysis of co-variance*), but such a statistical approach will be applicable for the variables measured on the interval scale. Regrettably, due to the anonymity of the subjects, we had to observe religiousness and subjects' age on an ordinal scale as specified in the Methods section. Therefore, it did not allow us to use the analysis of the co-variance. The second explanation we found was also intriguing. The female sport-dancers today are regularly dressed provocatively, and throughout the sport-dance-routine their image is clearly sexualized. It is obviously incompatible with religious beliefs, and therefore a significant barrier for practicing sport dance in those women who are more religiously committed (for more details see for example Arthur 1999 where interesting considerations regarding where religion and dress are emphasized). As a result, we have found male

dancers as more religious, and accordingly less oriented toward substance use than their female colleagues.

Religiousness as a Protective Factor Against Substance Use in Sport Dancers

Smoking is one of the most important health-compromising behaviors today (Sekulic and Tocilj 2006) while religiousness is found to be a protective factor against smoking in different ethnicities (Marsiglia et al. 2005; Nonnemaker et al. 2003; Francis and Mullen 1993). One certain novelty is the fact that we found no study where the protective effects of religiousness against cigarette smoking were found in the Serbian Orthodox religion. This is especially important given the high frequency of cigarette smoking in the Republic of Serbia (according to Cerovic and Bundalo 2005 up to 48% and 36% for males and females, respectively). Also, there are practically no studies dealing with relationships between religiousness and cigarette smoking in athletes, and therefore the results of our study are pioneering.

In sport, the outcome of a competitive event—and with it the achievement of a status for which the performer will typically have invested many years and many thousands of hours of practice—often comes down to executing a skill successfully at a given moment. Given all the negative repercussions of smoking, the protective effects of religious against smoking that we have found must be welcomed in dance sport society.

According to the predictor analysis religiousness is negatively related to nutritional supplementation. In sport nowadays, the consumption of nutritional supplements is widely accepted (Maughan et al. 2007). Athletes who use various nutritional supplementations are differentially motivated. They are looking for rehydration (isotonic and electrolyte drinks), protein synthesis, and recovery enhancement (protein, amino acid, and recovery supplements), or to increase body fuel and energy potential (mostly by carbohydrate blends). But nutritional supplementation is often believed to be an immoral and dishonest use of nutritional technology in sport, not very different from doping (Pipe and Ayotte 2002; Hart and Pipe 1997). Although not correct, such beliefs are understandable knowing the recent problems of the contamination of the commercial nutritional supplements by different doping agents (Van der Merwe and Grobbelaar 2005). Since religiousness is a manifestly significant protective factor against potential doping use (see Table 4), it is clear why religiousness is related to nutritional supplements in the same way.

Although none of the subjects used doping, one of the crucial conclusions in our study is related to the evident protective effects of religiousness against potential (future) doping habits in male sport dancers. Although important and promising, this finding has to be precisely studied in some future study and herein we will not discuss it in more detail.

Religiousness and Drinking Alcohol in Sport Dancers

Despite the fact that drinking alcohol in our subjects was rare, and more than 50% of the subjects do not drink alcohol at all, the higher the sport achievement, sport status, and educational level, the greater the alcohol consumption. In a recent study O'Brien et al. (2007) studied drinking issues in New Zealand athletes, and found that the elite athletes placed more emphasis on drinking, and explained it as a way of coping with the stresses of participating in their sports. Similar observations were previously offered by Bray et al. (2000). Very probably the same explanation can be found in sport dancers too. For the purposes of this study, the more interesting fact is that although one might expect it,

religiousness was not found as a significant protective factor against drinking alcohol. Moreover, a certain (although not significant) positive correlation is found between religiousness and alcohol consumption. The main explanation for this positive correlation can be found in the natural limitations of the statistical analysis applied for establishing relationships between variables (in this case—religiousness and alcohol). Briefly, the statistical analysis used (Pearson's correlation) “recognized” answers of “drinking 1–2 alcoholic drinks per day” as numerically higher values than “drinking less than one drink per day”, and/or “rarely”. In Christian religious traditions, one or two glasses of wine daily are a routine practice. Furthermore, according to Hanson (1995), the Church asserts that wine is an inherent gift of God, and to be enjoyed moderately. In contrast, excessive or abusive use of alcohol is declared as a sin. Since drinking one or two glasses of wine can not be considered as any kind of “excessive use,” the positive (although not significant) correlation we found between religiousness and drinking alcohol is logical.

Conclusion

The study presented here targeted the potential protective effects of religiousness for substance use in sport dance. The study found religiousness to be a significant protective factor against potential doping use and cigarette smoking. Both protective effects are highly encouraging and from our point of view it must be presented to sport authorities in sport dance. Finally, in some future study it will be important to investigate the relationships between religiousness and substance use factors in other sports and sport disciplines.

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