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Problem gambling and gaming in elite athletes

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ABSTRACT

Background: High-level sports have been described as a risk situation for mental health problems and substance misuse. This, however, has been sparsely studied for problem gambling, and it is unknown whether problem gaming, corresponding to the tentative diagnosis of internet gaming disorder, may be overrepresented in athletes. This study aimed to study the prevalence and correlates of problem gambling and problem gaming in national team-level athletes.

Methods: A web-survey addressing national team-level athletes in university studies (survey participation 60%) was answered by 352 individuals (60% women, mean age 23.7), assessing mental health problems, including lifetime history of problem gambling (NODS-CLIP) and problem gaming (GASA).

Results: Lifetime prevalence of problem gambling was 7% (14% in males, 1% in females, $p < 0.001$), with no difference between team sports and other sports. Lifetime prevalence of problem gaming was 2% (4% in males and 1% in females, $p = 0.06$). Problem gambling and problem gaming were significantly associated ($p = 0.01$).

Conclusions: Moderately elevated rates of problem gambling were demonstrated, however with large gender differences, and interestingly, with comparable prevalence in team sports and in other sports. Problem gaming did not seem more common than in the general population, but an association between problem gambling and problem gaming was demonstrated.

1. Introduction

In recent years, mental health issues specific to athletes, including addictive disorders, have been highlighted. In general, it has been suggested that the prevalence of mental health problems in elite sports seems to mirror society as a whole (Rice et al., 2016), however, although a sparsely studied area, participation in team sports has been described as a particular risk factor of addictive behaviour (Grunseit et al., 2012). More specifically, higher prevalence of risky drinking in athletes was explained by higher rates of risk-taking and sensation-seeking behaviour (Mastroleone et al., 2013). Furthermore, the context of high-level sports has been described as a potential risk situation for hazardous use of alcohol and other substances (Veliz et al., 2016, 2017). Participating in youth sports has been associated with increased alcohol problems among adolescents, although associations are complex and may be related to other characteristics in a young individual's life (Martin, 1998; Mays et al., 2010). Somewhat in contrast to this notion, data has demonstrated a healthier life-style and less substance use in high school students participating in sports, compared to non-

participants (Pate et al., 2000). Altogether, it has been suggested that the context of competitive sports increases vulnerability to addictive behaviours, however data is so far limited and inconsistent.

Gambling and problem gambling, a condition associated with financial consequences and severe mental health complications (Ronzitti et al., 2018), may intuitively have an association with a typical competitive mind-set that is fostered and seen as a normal and desirable part of sports. This potential link between sports and gambling has frequently been reported in media revealing sports stars and their addictive gambling, such as the Swedish multiple Olympic and world champion medallist in table tennis, Jan-Owe Waldner (Moldovan, 2011). Altogether, several factors suggest that the context of competitive sports may be a potential risk factor for problem gambling. More recently, there has been an increasing involvement of gambling marketing in sports (Lopez-Gonzalez and Griffiths, 2018); gambling operators have been reported to represent some of the most common sponsorships in national and club level sports (Maher et al., 2006), and this includes the involvement of well-known athletes in gambling-related marketing. Also, the age span of elite level athletes (i.e., the years

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they compete at national or international level) typically corresponds well to the age where problem gambling has been found to be the most pronounced (Allen & Hopkins, 2015; Abbott et al., 2014), and personality traits of competitiveness have been suggested to be a risk factor of problem gambling (Harris et al., 2015).

However, despite this potential link between sports and gambling, studies in the area have been few. Stillman and co-workers reported that problem gambling may be more prevalent in athletes than in the general population (Stillman et al., 2016), and higher in male athletes than in their female counterparts (Huang et al., 2010). Grall-Bronnec and colleagues reported 8.2% of lifetime prevalence of problem gambling in European professional athletes in a number of team sports (Grall-Bronnec et al., 2016), and this can be compared to the prevalence of problem gambling in the general population, reported to be between 0.7 and 6.5% world-wide, although definitions and instruments have varied across studies (Calado and Griffiths, 2016). However, no research has studied whether problem gambling differs between team sports and individual sports, a relevant research question based on the large involvement of gambling marketing in particularly team sports (Maher et al., 2006).

In the Diagnostic Systematic Manual (DSM-5), in 2013, internet gaming disorder was introduced as a tentative disorder added to a list of disorders requiring more research (American Psychiatric Association, 2013), and the recent inclusion of gaming disorder in the International Classification of Diagnoses (ICD-11, World Health Organization, 2018) further calls for an increased attention on problem gaming in epidemiological and clinical research. Problem gaming has been demonstrated to be associated with negative health outcomes (Mentzoni et al., 2011; Vadlin et al., 2016). Limited research indicates that problem gaming may occur in roughly 3–4% in adolescents and young adults, although probably with large age differences within that group (Mentzoni et al., 2011; Thoresen Wittek et al., 2016). While the study of problem gambling in athletes has been sparse, no studies have addressed whether elite athletes' gaming and problematic gaming may be more common than in the general population.

Based on the research gaps in this area, we aimed to study the prevalence of both gambling and gaming in elite athletes, and whether these problem behaviours may be related to the type of sport, as well as to other potential risk factors, including gender, treatment seeking for mental health problems and hazardous drinking.

2. Materials and methods

The present study was part of a larger project addressing mental health in elite athletes. An online survey was sent to individuals who applied for a student scholarship for university studies and have a history of elite sport and national team participation; thus, subjects addressed in the present study are athletes in sports included in the Swedish Sports Federation, participate on national team level, and conduct post-high school studies. The study and its questionnaire were completely separated from the application process, and only used this for the selection of e-mail addresses for recruitment. The definition of an elite athlete has been under debate (Swann et al., 2015). In the present study elite athletes are defined by a history of representing the national team in their sports.

The study was distributed electronically as a web survey. In total, 60.2 (n = 352) percent of subjects who received an e-mail invitation (N = 584) participated in the survey. The overall project addressed psychological distress and mental health problems in a number of aspects. The present study focuses on problematic gambling and gaming, and their correlates, including treatment seeking for mental health problems and hazardous drinking, representing the measure of substance-related addictive behaviour assumed to be the most common in the present setting. The present study included the following assessments:

Problem gambling, measured with the NODS-CLiP (Toce-Gerstein

et al., 2009). Problem gambling was defined as the endorsement of one or more of the three items. The NODS-CLiP has been described to have high sensitivity (0.94–0.99) and specificity (0.88–0.95) for the detection of problem gambling (Toce-Gerstein et al., 2009).

Problem gaming was measured with the Gaming Addiction Scale Adolescents (GASA, Lemmens et al., 2009), which in its present version includes seven items, theoretically addressing seven aspects of the tentative diagnostic criteria for the internet gaming disorder (American Psychiatric Association, 2013). Relatively few studies have reported an established cut-off separating problem gaming from non-problematic gaming. In the present study, we used both the absolute value of the added item scores, and a suggested cut-off for problem gaming, i.e. the endorsement of four or more criteria (at least 3 out of 5 on a Likert scale). A more concise definition of a probable gaming disorder has been applied in the literature, comprising the fulfilment of all seven items, but due to the low number of subjects with a problematic gaming behaviour in the present study, this narrower definition was dropped. The GASA has demonstrated high construct validity (Lemmens et al., 2009) and an internal consistency of 0.72–0.86 in different samples (Festl et al., 2012; Lemmens et al., 2009), and the scale has been used for the screening of problem gaming in a number of studies (Festl et al., 2012; Lloret Irlas et al., 2017; Mentzoni et al., 2011).

Hazardous alcohol drinking was measured with the AUDIT-C (Bush et al., 1998), the three-item short version of the Alcohol Use Disorder Identification Test (Saunders et al., 1993), describing three aspects of consumption. In the present study, we applied established cut-off values for hazardous drinking from these three consumption items; five points or more for men and four points or more for women. AUDIT-C has demonstrated an internal consistency of 0.80 and predictive value for the detection of alcohol use disorders comparable to that of the full AUDIT (Rumpf et al., 2013).

One item included in the study described whether an individual had sought treatment for a mental health problem. In addition, age, gender, and the type of sport were included. Type of sport was intended to separate team sports from individual sports, thereby comparing the type of athletes assessed in a previous study (Grall-Bronnec et al., 2016) to athletes who compete individually.

The study was approved by the regional ethics committee, Stockholm, Sweden (file number 2017/270-31/4).

3. Results

A total of 352 subjects responded to the questionnaire and were included in the study (60% female, n = 211). Respondents had an average age of 23.7 years (std dev 3.18 years, median 23 years, inter-quartile range 21–26, range 18–36 years). In total, 95% of participants reported to be currently active in their sport (n = 333), whereas the remaining participants terminated their activity earlier in 2017 or in 2016. A majority (77%, n = 271) reported representing an individual sport and the remaining represented a team sport. Participants represented a very wide range of sports; among the most common types of sports represented were athletics (11%, n = 38), cross-country skiing (5%, n = 17), martial arts (5%, n = 16), handball (4%, n = 15), canoeing (4%, n = 14), and alpine skiing (4%, n = 13). Eleven percent (n = 37) represented an aesthetic sport (e.g. gymnastics), and 3% (n = 11) represented a Paralympic sport.

Twenty-nine percent (n = 103) had ever sought treatment for any kind of mental health problems. Median AUDIT-C score in the data set was 3 (inter-quartile range 1–4, range 0–8), and 26% (n = 91) reached the cut-off for hazardous drinking.

Seven percent (n = 23) were problem gamblers, with a significant gender difference (p < 0.001, Fisher's exact test); 14% of men (n = 20) and 1% of women (n = 3). Among the 23 subjects endorsing at least one of the CLiP criteria, 11 endorsed only one criterion, 10 endorsed two criteria, and two individuals endorsed all three criteria. Problem gamblers did not differ from the rest of the sample with respect to age

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