

GAMBLING ADDICTION IN A COHORT OF UNIVERSITY STUDENTS OF SOUTHERN ITALY: A CROSS SECTIONAL STUDY

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ABSTRACT

In recent years, gambling addiction has become a serious public health problem, so much so that pathological gambling was included by Diagnostic and Statistical Manual of Mental Disorders in the “Dependency category”. In some gamblers this behavior becomes problematic and pathological, with negative consequences not only for players themselves but also for their families and the community. The aims of the present study are: a) to evaluate the prevalence of gambling behavior in a sample of young students of the Southern Italy b) to assess the impact of sociodemographic variables to the gambling phenomena c) to identify possible impact on psychological, social, behavioral, and financial status of the gambling. The study was conducted from April 2016 to August 2020 through the administration of a survey based on DSM-V to students at University of Messina. The sample comprised 620 students of these 34% played at least one time, but the prevalence of gambling addiction is low (score over 4 was detected only in 3% of the sample). According with other studies in terms of engagement in or frequency of gambling, men gambled more than women. The main reason for play is to win (14%), followed by have an easy way of earning money (10%) or for fun (35%). Gambling addiction is a dangerous condition that affects even the youngest: in modern times, the growing social and mass pressure pushes towards consumerism; likewise, the growing availability of access to gambling at low prices and the lack of social contacts, the isolation of behind electronic screens, could bring a growing number of gamblers with serious national and international public health overcomes.

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1. Introduction

In recent years, gambling addiction has become a serious public health problem, so much that pathological gambling was included by Diagnostic and Statistical Manual of Mental Disorders (DSM-5) in the “Dependency category”, as a form of “non-substance” addictions. (1)

Due to the global expansion of the gambling industry, it is unavoidable that the prevalence of problem gambling is significantly increasing (2), although the majority of people play recreationally, considering it as an innocuous form of entertainment.

In some gamblers this behaviour becomes problematic and pathological, having negative consequences not only for players themselves but also for their families and the community, because the gamblers had damages or losses of social relationships and financial resources, labor and legal difficulties, physical problems and social behaviours impairment (3; 4).

In Italy the prevalence of this phenomenon is growing, and today it is estimated that 54% of the Italian adult population (from 18 to 74 years old) plays at least once a year; moreover, the problematic gambling was estimated to be 1.3%-3.8% of the general population, whereas the estimation of pathological gamblers varies from 0.5% to 2.2% (5).

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The prevalence of problem gambling is higher among adolescents than adults: in fact, a recent review of the available literature reported that 0.2-12.3% of young people meet gambling diagnostic criteria (6) on the five continents evaluated; this fact has a particular concern, given the higher prevalence of some risk factors for gambling during adolescence, due to the transition moment that adolescents live. (7) Although gambling is an illegal activity in Italy at the age of 18, some studies relating to Italian teenagers have shown that 16-17% of high school students are at risk of developing gambling and 7-8% have pathological gambling problems (8). The results of the Espad 2019 study showed that gambling has become a widespread activity among students in Europe, 22% of them saying that they gambled at least once in the past 12 months (mainly in lotteries and scratch cards). Espad also estimates that 7.9% of students gambled online in the reported period. The screening test used to detect problem gambling revealed that, on average, 5% of students who gambled in the past 12 months belonged to "online" category.

The Italian scenario is clearly above the European average, with 32% of students gambling at least once during the year. 3.9% of them has a gambling profile at risk, a percentage in this case lower than the European scenario. In our country, students who gamble seem to prefer sports betting (9).

Gambling frequency is one of the strongest predictors of gambling addiction. (10; 11) and although it is not enough to diagnose problematic gambling, adolescents who gamble more frequently show more adverse gambling consequences and problems. Similarly, those ones who exhibit more gambling problems also seem to be involved in a wider array of gambling activities (12).

Many factors could be implicated in the onset in various ways and different levels; they together contribute to the development and maintenance of gambling-related problems (e.g., biological, psychological, or social ones). Some epidemiological studies showed that problem gambling is often associated with mood disorders (13) as well as pathologic players in therapy frequently coming from clinical depression (14).

Adolescents' gambling problems are also frequently associated with poor family cohesion and low parental supervision. There is an association between societal inequality and many different negative health and social outcomes, such as sexual promiscuity, teenage pregnancy, violence, substance abuse, crime, psychological and physical disorders, and life satisfaction (15).

Another study hypothesized that gambling contributes to alleviate negative emotional states or boredom (16).

Thus, it is possible that when young people perceive themselves as unfairly deprived, they may also engage in maladaptive behaviours to advance their financial position and to reduce quickly their perceived financial disadvantage (17). About this statement, it is important to analyze problem gambling in Italy, characterized by rising levels of inequality and poverty. A recent Italian study shows that students in regions of high-income inequality were significantly more at risk to be problem gamblers than those in regions of low-income inequality (18).

Furthermore, the Higher Institute of Health- Department of Drug Addiction and Doping - implemented the National Surveillance System on Gambling Disorder, with the aim of experimenting with a national surveillance system to take cognitive, corrective, exhaustive and propose useful tools for the prevention and care of gambling disturbance (19).

The negative effects resulting from gambling disorders during adolescence (such as disrupted relationships, poor school performance, school drop-out, criminal records) often seriously affect young people's adult life (20).

The aims of this study were a) to evaluate the prevalence of gambling behavior in a sample of young students of the Southern Italy b) to assess the impact of sociodemographic variables to the gambling phenomenon c) to identify the possible impact on psychological, social, behavioural and financial status of gambling.

2. Material and methods

The study was conducted from April 2016 to August 2021. The questionnaire was administered by public health residents through Computer Assisted Personal Interview method to students of University of Messina. The questionnaire took ~ 5 min to be completed. The questionnaire was made up of 30 questions divided into 3 main sections: a) sociodemographic characteristics b) questions about gambling addiction according to DSM-5 c) questions about other addictions, knowledge, attitude and perception of the phenomenon.

Participants and diagnostic tools were previously described in an article already published. (21)

The minimum sample size was defined considering the prevalence of the gambling of 3% in the Italian population (considering a 95% confidence interval and an absolute accuracy of 5% with Italian resident population as of 1 January 2015 of 574389). We enrolled subjects with random selection and interviews took place in the studies of general practitioners, at university and in waiting rooms of healthcare facilities, safeguarding always protection of privacy.

Questionnaire description

Currently, several tools are available for screening, diagnosis and the assessment of the level of problematic gambling, but most of them still refer to the classification of the DSM (the SOGS, the Questionnaire DSM-IV proposed by Ladouceur, Fisher DSM-IV Screen18, Beaudoin-Cox19 and the Short Questionnaire on Gambling Behaviour [Kurzfragebogen zum Glückspielverhalten - KFG] by Petry). The instruments that are not based on DSM-IV refer to the classification of the disorder in addictions (Addiction Severity Index - ASI) or obsessive-compulsive disorders (pathological gambling, Yale Brown Obsessive Compulsive Scale and pathological gambling Clinical Global Impression Scale). We have chosen to use the SOGS and to focus the research only on the last year for three reasons: to have data that reflect the current moment, since some studies indicate that the SOGS extended to lifelong gambling behaviours can give false positives and therefore overestimates; to allow a comparison with international data. Moreover, in the majority of studies aimed at evaluating the prevalence of pathological gambling disorders, the most commonly used assessment tool, as standardized and internationally validated, is the South Oaks Gambling Score (SOGS), developed by Lesieur H.R. and Blume S.B. in 1987, based on the diagnostic criteria of the DSM. Precisely for this reason, it was decided to adopt it for this research by inserting it in a broader questionnaire.

This is a screening test that is simple and quick to be completed, composed of 16 multiple-choice questions, not all to be counted for scoring purposes. In addition to determining a final evaluation on three levels, "social", "excessive" and "pathological" of the subject's gambling behaviour, it allows to obtain valuable qualitative information on individual modalities and on family and social implications. The questions that contribute to the determination of the score are used to assess how the individuals relate to the game, if they are aware of playing excessively, if they try to hide this behaviour, if they have sense of guilt, if they want to quit but they feel unable, if gaming influence their social life and what is the source of the money used to play.

In this study, the final score can be between 0 and 20; the American authors have shown cut-off scores; according to the editors of the Italian version (Guerreschi, 2004, Capitanucci and Carlevaro, 2004) these scores can also be transposed into our socio-cultural reality, determining the following categories:

- "Social" players: those ones who play without losing control of their behaviour (score 0-2);
- "Excessive" players: those ones who begin to highlight some signs of loss of control and are at risk (score 3-4);
- "Pathological" players: those ones who have lost control (play more often, with more money and more frequently than budgeted) (score equal to or greater than 5);
- Players "with a serious problem": those ones who have a serious problem with gambling (score equal to or greater than 9).

The study was approved by the Department of Biomedical Sciences and Morphological and Functional Images of University of Messina.

Statistical analysis

Frequency distributions were prepared to summarize the results of all statistical variables provided by the respondents. Chi square test was used to detect any statistically significant correlations. Values of $p < 0.05$ were considered statistically significant. All analyses were carried out using EPI INFO software (version 7)

3. Results

The sample was made of 620 students, of which 25% females, 74% males and 1% not responding. The socio-demographic characteristics are described in Table 1.

In case of loss, 58% of the study sample did not return to play, 17% did it less than 50% and 2% more than 50%; 1% did it always. 22% did not answer. Moreover, 5% did not declared to worse to their family and 14% did not answer.

In particular, 7% less than 50% of the times, 3% more than 50% (90% did not answer)

Only 3 people declared to have or to having had problems with their bets and 11% declared to have bet more they want (10% did not declared). For 5% other people criticize their bets (12% did not declared). However only 2% declared to feel guilty, to can't stop however they would like and to hide receipts for a bet, a lottery, money or anything else for the game from its partner, family or people important to your life.

In 2% of cases, they had debate with people they love, 5% took away time from work or study and ask money to do it; 3% used their money unbeknownst to their family.

1% of interview had problem with he/she reputation

Administrative Italian Region of residence	n (%)
Sicily	461 (74)
Calabria	161 (19)
Other region	7 (1)
Not declared	31 (5)
Age classes	
18-22	525 (85)
23-27	38 (6)
28-32	15 (2)
33-37	3 (0)
Not declared	
Playing habits	
Not play	389 (63)
Not declared	18 (3)
Play in the last year	112 (34)
Less than once a month	22 (18)
More than once a month	30 (4)
1-2 times a week	8 (5)
3-4 times a week	5 (1)
Every day	2 (1)
Playing expenditure	
Not declared	272 (44)
5 euros	271 (44)
6-20 euros	57 (9)
21-100 euros	2 (1)
100-1000 euros	7 (1)

Table 1. Socio-demographic characteristics of subjects enrolled in the study (n=620).

	Do you play lotto, superenalotto and/or 10 and lotto?*	Other types of paid online games	Sports betting	Do you play at the casino (not online)?	Do you play at bingo?	Do you play with cards?	Play with slot machines, video poker or other	Play billiards/bowls or other games with cash bet
Hardly ever	61% (381)	83% (513)	65% (404)	85% (530)	65% (403)	32% (197)	24% (518)	66% (412)
Sometimes	26% (161)	4% (26)	17% (107)	2% (14)	22% (135)	44% (272)	4% (23)	19% (115)
Usually	0% (3)	1% (4)	5% (29)	0% (1)	1% (7)	8% (52)	0% (3)	2% (11)
Frequently	0% (3)	0% (2)	1% (8)	0% (2)	0% (2)	2% (12)	0% (2)	1% (7)
Always	0% (2)	0% (1)	1% (5)	0% (0)	0% (1)	2% (13)	0% (0)	0% (2)
did not answer	11% (70)	12% (74)	11% (67)	12% (73)	12% (72)	12% (74)	12% (74)	12% (73)

* Italian lottery variants. All may be played in any authorized bar/tobacconist

Table 2. Type and frequency of gambling

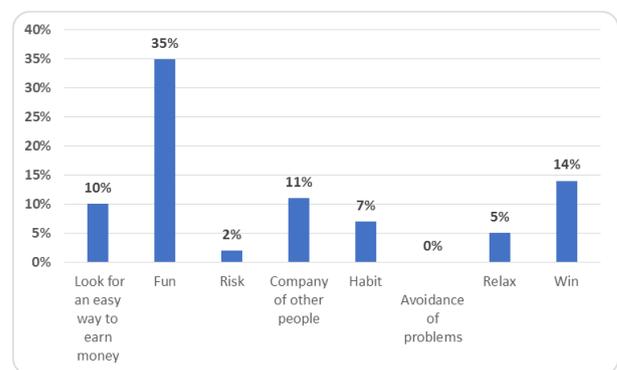


Figure 1. Main reasons for betting declared by the study sample (n=620; ^ possible multiple answers)

25% of the interviews thought that the superstition affects the game (12% did not respond) and 14% thought that is important to play any probabilities numbers. 15% drunk alcohol (8% did not answer); 9% drunk alcohol one time a month, 10% more than once a month, 1% more times a week, 1% every day, 79% did not answer. 5% did not have a good childhood and did not agree with parents (3% did not answer).

24% thought that gambling addiction is a problem in their country and 61% did not know where find help. 4% had a relative with gambling addiction of which 10 for father, 4 for mother, 5 for brother and sister, 2 for their children or for mother relative. 96.3% were "Social" players according to definition (22).

	Gender	Age	Did you play in the past year?	How easy was it?	Answered player?	Have you ever chased to have more money and lost more?		Do you feel you have problems with gambling?		Have you ever asked to have money?		Have you ever thought about using money without your family's knowledge?		Have you ever felt guilty about your use of money?		Did it ever occur to you that you could get into legal trouble if you played more?		Have you ever had a family member with a gambling problem?		Have you ever had arguments with people you know because of gambling?		Has the game compromised your work or school?		Has the game compromised your health?		
						Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Score 5-6 (n%)																										
Female	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Male	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Score 4-5 (n%)																										
Female	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Male	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Score 3-2 (n%)																										
Female	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Male	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Score 1-0 (n%)																										
Female	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Male	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Score 0 (n%)																										
Female	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Male	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Sum																										
Female	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Male	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Sum																										
Female	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Male	15(22)	4(6)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	1(1)	
Sum																										

Table 3. Type and frequency of gambling

4. Discussion

Several gambling preventions programs have been developed to address the arising prevalence of Problem Gambling among adolescents. As prevention outcomes are based on the content and the targeted audience, risk and protective factors related to gambling are essential components in designing preventions.

In our study we found: 34% of people that played but luckily the prevalence of gambling addiction is low; a score over 4 was detected only in 18 people (3%; n=18/620). These rates are similar to those ones of the Espad study performed in 2019. The lowest rates were found in Ukraine (2.8%) in Georgia, in the Faroe Islands, in Bulgaria and in Italy (4-5%) (9).

According with other studies in terms of engagement or frequency of gambling, men gambled more than women; nevertheless we didn't detect any statistical difference (23).

However, we have to remember that to define the level of addiction, it is important to evaluate how much money is spent because behaviours of strong dependence can also manifest themselves in the case of lower daily amounts where other criteria indicated by the DSM-5 are also present (1). As showed in a study we conducted regarding general population the main reason for playing is to win (14%), followed by to have an easy way of earning money (10%) or for fun (35%), as described elsewhere in the literature (24). In fact, targeted promotional campaign together with the widespread opinion that one cannot become rich without a stroke of luck played a fundamental role for gamblers playing to win, so they can spend little and earn a lot (25-27).

It is also interesting to signal that one of the main motivations for playing is "fun" as described in a previous study (28).

In this study authors detected that players begin playing using "fun money", i.e. without real money; when they feel comfortable and become successful participants in the platform, depositing money and transitioning into real-world currency seem to be relatively easy (8).

Children of active compulsive gamblers experience strong feelings such as being very angry with the gambler (9%), feeling confused (7%), being depressed (6%), and another 7% feel isolated, guilty, helpless, or suicidal (29).

In our study the financial situation of respondents appears to be somewhat on the bleak side for 3%, with same results reported in other studies (30).

In gambling a fundamental role is played by the dopaminergic system. In addition to this many areas of brain are also implicated: the ventral striatum, located deep inside the brain, has been termed the brain's reward centre, and it's been implicated in reward processing as well as substance abuse. Moreover, the nucleus accumbens is activated at most during gambling (31). According to a study, both problem gamblers and cocaine addicts watched videos related to their addictions while in a functional magnetic resonance imaging (fMRI) scanner. Both groups showed reduced activation in the ventral striatum compared to healthy control participants (32). Reductions in right prefrontal activity during decision-making appear to be modulated by the presence of gambling problems In our sample, 4 % of subjects had a relative with the same problems, as it is supported by numerous research that has highlighted the presence of familial factors for addictive behaviours, with a positive correlation between parents with addiction problems (alcohol and or games of chance) and children with gambling addiction problems [33-34].The last objective was to investigate the subjective perception of each person about the phenomenon in their territory. In this study, only 24% considered it a problem. However, despite this concern only about 61% of respondents know where a person could turn for help. In literature, commonly reported barriers to seeking help were a wish to handle the problem by oneself, shame/embarrassment/stigma, unwillingness to admit the problem and issues with treatment itself [35]. We must underline the high percentage of players of online gambling. Limitation of the study are that observational epidemiologic studies such this one is a type of nonexperimental research in which exposure is not controlled by the investigator (?). Bias, confounding, and issues with validity are more common in observational studies. We did not investigate adolescent gambling and moreover drug abuse (for moral reasons) or psychoactive substance abuse; we did not distinguish between the various type of online games.

5. Conclusions

Gambling addiction is a dangerous condition that affects even the youngest: in modern times, the growing social and mass pressure pushes towards consumerism; likewise, the growing availability of access to gambling at low prices and the lack of social contacts, the isolation behind electronic screens, could bring a growing number of gamblers with serious national and international public health overcomes.

The legalization of gambling will favor the phenomenon, while it will not prevent criminal associations from carrying out illegal activities. Gambling, in fact, together with drug trafficking, appears today to be the most profitable business.

It is therefore imperative to establish structured forms of primary and secondary prevention at local, in an attempt to prevent the spread of this phenomenon.

In Italy several law decrees try to fight this problem, i.e. the Law Decree of the Minister of Health in agreement with the Minister of Economy and Finance of 12 August 2019, the Observatory for combating the spread of gambling and the phenomenon of serious addiction was reconstituted at the Ministry of Health, having these functions: monitoring gambling addiction; monitoring the effectiveness of the treatment and prevention actions undertaken; updating, on the basis of scientific evidence, the lines of action to ensure prevention, treatment and rehabilitation services for

people affected by pathological gambling; evaluating the most effective measures to fight the spread of gambling and the phenomenon of serious addiction; expressing opinions on the activity plans to fight gambling disorders presented by the Regions and the Autonomous Provinces of Trento and Bolzano and performing the functions assigned by law. Promotion programs, such as vaccination, water potabilization, prevention of HAIs remain the most important weapons in the hands of public health.:

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