ROMANIAN NATIONAL PREVALENCE STUDY – PROBLEM AND PATHOLOGICAL GAMBLING IN CHILDREN AND ADOLESCENTS

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Abstract

Background and aims. The purpose of the present study was to measure the prevalence of problem and pathological gambling in children and adolescents at a national level, given that previous studies at regional level had demonstrated high rates of prevalence.

Methods. After designing the sample (2006 children and adolescents aged 11-19 years) we used two validated instruments for measuring the prevalence of problem and pathological gambling in children and adolescents – South Oaks Gambling Screen –Revised for Adolescents (SOGS-RA) and 20 Questions of Gamblers Anonymous Revised for Adolescents (20 GA-RA).

Results. The following data have been found: gambling at risk is 7.1% and problem and pathological gambling is 4%, when results were analyzed by SOGS-RA; prevalence of problem gambling is 10.1% and pathological gambling is 2.6% when results were analyzed by 20 GA-RA.

Conclusions. High rates of prevalence are noticed in Romania, similar to other European countries. This rates are based on self-reported questionnaires, meaning that real rates may be higher than reported, being known that children and adolescents tend to give socially expected response. An important issue is that we found pathological gambling at the age of only 11 years. Our results compared to those of other studies from Romania are very similar to those from other European countries.

Keywords: Romania, national prevalence, problem gambling, pathological gambling, children, adolescents

Background and aims

Children and adolescents represent the target population with the highest risk for developing impulse control disorder. This disorder can have devastating consequences because of the rising availability of places for gambling, easy access and diversity of games on the market. Pathological gambling is nowadays one of the most dangerous problems children and adolescents are confronted with[1].

It is obvious that children and adolescents play more because of the availability and diversity of games of chance. Studies indicated that 10% of adolescents have problems with games of chance and their consequences: lying about gambling, damage of social relationships, excessive concern with the impossibility to stop gambling, repeated borrowing and/or thefts of money to continue playing, school absenteeism because of gambling [1,2].

Lupu, 2009 [3] reviewed the empirical evidence on gambling and problem gambling in Romania. To date there have been no national gambling prevalence surveys although some regionalized research has been carried out. Although there has been little research into adult gambling in Romania, there has been some research on adolescents. Lupu et al. [4] examined the prevalence of problem gambling using the GA-20 scale in three Romanian counties on 500 high-school students with ages between 14 and 19 years (57% female and 43% male). They reported that 34 schoolchildren (6.8%) were identified as problem gamblers (scoring 7 or more out of 20 on the gambling scale). Of these 34 individuals, the majority were male (n=28). The most frequently played
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The GA-20 was again used to assess problem gambling. The results showed that 73% gambled at a recreational level and 3.5% at a pathological level. Males were more likely to be pathological gamblers than females. The mean age of pathological gamblers was 16.5 years [6]. The games most played by pathological gamblers were sports betting/slot machines (36% of players) and lottery/internet casino/pool bets (25%). Moreover, pathological gambling was associated with alcohol (66.7%), illegal drugs (13.9%), legal drugs (19.4%), and smoking cigarettes (16.7%). Another representative dataset concerning adolescent gambling [7] was found by another study on 2770 Romanian students aged 16 years derived from the 2011 ESPAD study and the rate of probable problem gambling was 4.9% using the Lie/Bet Scale.

Establishing the prevalence and comparative studies are difficult to conduct because of the differences referring to age, location, sample size and type of measurement.

The aim of the present study was to measure the national prevalence of problem and pathological gambling in children and adolescents (11-19 years).

Methods

Participants

The minimum number of participants and for a level of confidence of 95% the sample has to be at least 1067. The pupils were chosen from schools in Romania based on a randomized sample [1]. The number of the participants all students was 2006 aged 11 to 19 years. The Mean age was 15.04 ±2.3; 48.3% were males and 51.7% were females; 21.2% were from the rural zone and the majority 78.8% from urban zone.

The sample was made up of students from big regions of Romania: North-West, North-East, South-East, South-West, South, Centre and Bucharest. For each region we had to choose students from: College, Secondary, School groups, High school or other type from the fifth grade to thirteenth, observing the age span and the distribution of rural versus urban location. In each school we randomly chose the year groups (Tables I, II).

Table I. Sample distribution according to region.

| Region           | Frequency | Percentage | Cumulative percentage |
|------------------|-----------|------------|-----------------------|
| North-East       | 858       | 42.8       | 42.8                  |
| South-East       | 558       | 27.8       | 70.6                  |
| South            | 254       | 12.7       | 83.3                  |
| South-West       | 26        | 1.3        | 84.5                  |
| North-West       | 87        | 4.3        | 88.9                  |
| Centre           | 24        | 1.2        | 90.1                  |
| Bucharest        | 199       | 9.9        | 100.0                 |
| Total            | 2006      | 100.0      |                       |

Table II. Distribution by school years according to environment.

| Years | Urban | Rural | Total |
|-------|-------|-------|-------|
| 5-8   | 22    | 22    | 44    |
| 9-13  | 41    | 4     | 45    |
| Total | 63    | 26    | 89    |
**Procedure**

The first step was to establish the sample according to some criteria – children and adolescents aged 11 to 19 years attending schools all over Romania. We had a list of all schools in Romania (from the Minister of Education) and according to the regions presented above we randomly selected schools and year groups to apply questionnaires. We initially set up the working group (we had a team working on applying questionnaires in each school from the sample designed) and collecting the data and then we also introduced it in data bases (those operators who applied questionnaires had to introduce data in SPSS) and finally we analysed the data. All data were obtained after having the informed consent of the participants and their parents (as they are minors).

**Instruments**

We applied questionnaires that target demographic data (school, class, city, county, age, gender, nationality); family characteristics, socio-cultural and individual traits of gambling; other risk behaviors (substance abuse); types of favorite games; questions regarding the way they perceive gambling and its control and 2 questionnaires for the screening of problem and pathological gambling: South Oaks Gambling Screen –Revised for Adolescents (SOGS-RA) and the 20 Questions of Gamblers Anonymous Revised for Adolescents –(20 GA-RA), described and validated in previous studies [1].

SOGS-RA has 16 items which assesses gambling behavior in the last 12 months adapted for childhood and adolescence. with a good reliability (.80) and validity [8,9,10,11,12,13]. The new instrument focuses on the frequency of gambling and on other behaviors that accompany gambling while SOGS focuses on the matter of money.

20 GA-RA, used for measuring the intensity of pathological gambling among children and adolescents has 20 questions with “yes or no” answers. The sum of these twenty items was the total 20 GA score which served as the criterion for assessing the severity of gambling with a high internal consistency coefficient-.94. [1,6,14,15,16].

**Results**

**Prevalence of problem and pathological gambling according to SOGS-RA**

Gambling is on a continuum from absence of any behavior related to gambling, to gambling as a social activity and practiced for amusement from time to time, to gambling at risk when the behavior starts to be more frequent, to problem gambling when the behavior becomes obsessive and much of the time and money are dedicated to this activity and to pathological gambling when entire functionality of the individual is affected.

4% from the sample are problem or pathological gamblers and 7.1% are at risk to develop pathology (Figure 1).

32.6% of respondents from 2006 participants declared they had gambled at least once in their life and 22.6% that they gambled in the last year. 653 participants gambled at least once in their life and were asked what their age at the first game was. They started at 11 years of age (105 participants).

Scores at SOGS-RA ranged between 0 and 11 points. That means that they gamble at risk (2 to 3 points) and they are problem and pathological gamblers (above 4 points at SOGS-RA).

From the entire sample (N=2006) 52.69% were female and 16.9% declared they gambled at least once in their lives. From the male participants 49.3% gambled at least once.

11.3% from the female participants and 34.8% from males declared they participated in gambling activities in the last year. Mean age of the onset was 13.34±2.80 years in female and 13.64±2.45 years in male.

29.4% drank alcohol, 6.0% did drugs and 17.3% smoked. Gambling at this age span is accompanied by alcohol and smoking. For an explanatory model studies of moderation and mediation must be conducted.

7.0% declared that at least one parent gambled. It is well known that parents of gamblers gamble more than those of the children who do not gamble at all. This behavior is better manifested when learnt throughout vicariate learning.

**National prevalence according to SOGS-RA**

![Figure 1. Problem and pathological gambling according to answers given at SOGS-RA.](image-url)
79% of the problem and pathological gamblers considered they gambled more than they planned. 3.8% considered that they determined the game. This percentage is almost equal to the percentage of problem and pathological gamblers. 55% of those who had more than 2 positive answers considered that they controlled the output of the game.

**Gambling prevalence according to answers given at 20 GA-RA**

Scores were distributed from 0 to 20. For a diagnostic of problem gambler one had to positively answer 2 to 6 questions and for pathological gambling they had to give more than 7 answers (Figure 2).

2.6% were pathological gamblers and 10.1% were problem gamblers. That means that 12.7% from the school population aged 11 to 19 years should be referred to a special health service for prevention or intervention. This instrument compared to SOGS-RA considers problem and pathological gamblers as different categories.

Data has to be very carefully analyzed because SOGS-RA gives information about gamblers at risk on the one hand (7.1%) and problem and pathological gamblers on the other hand (4%). 20 GA-RA gives information about problem gamblers on one hand (10.1%) and pathological gamblers on the other hand (2.6%).

Mean age of problem gamblers was 16.32 years and of pathological gamblers 16.83.

85.2% from pathological gamblers felt like going back to regain what they had lost and 20.4% thought of suicide because of problems caused by gambling. This percentage is also found in literature too: one in 5 pathological gamblers attempt suicide.

Their parents were in 67.9% of cases married while the non-gamblers' parents were married in 72.5% of cases. 52.8% of pathological gamblers' families have good and very good incomes. Their grades for the previous semester are of a mean of 7.8±1.10.

The following Table combines the results obtained in the national prevalence study comparing the answers to the two instruments validated (Table III).

**National prevalence according to 20 GA-RA**

![National prevalence according to 20 GA-RA](image)

**Figure 2.** Prevalence of problem and pathological gambling according to answers at 20 GA-RA

**Table III.** Results according to SOGS-RA and 20 GA-RA.

| Dimension analyzed                  | SOGS-RA                                      | 20 GA-RA                                      |
|-------------------------------------|----------------------------------------------|-----------------------------------------------|
| Sample                             | 2006 children and adolescents, 11-19 year, school population from all types of schools 7 geographical zones: NE, SE, NW, NE, S, Centre, Bucharest, 48.3% male, 51.7% female |                                  |
| Gamblers                           | - 4.0% (81) problem or pathological gamblers - 91.4% were male from the above category - 7.1% (142) at risk | - 2.6% (53) pathological gambling - 90.4% were male from the above category - 10.1% (203) problem gambling |
| Preferred games                    | Scratch cards – 23.2%                        |                                              |
|                                    | Lotto – 22.9%                                |                                              |
|                                    | Tickets with prizes – 21.2%                  |                                              |
|                                    | Dices for money – 19.5%                      |                                              |
| Way of gambling                    | Individual - 31.2%                           |                                              |
|                                    | In group – 68.8%                             |                                              |
| School results of pathological gamblers | From 6 to 10                                |                                              |
|                                    | 7.48±1.10                                   |                                              |
| Absenteeism of pathological gamblers | 32.1% declare that absenteeism will affect their evolution in academic preparation |                                              |
| Incomes of pathological gamblers   | Moderate and above medium incomes - 52.8%   |                                              |
| Perception of control of the gamblers | Can control the outcome of the game - 55%   |                                              |
| Mean age of onset                  | 13.56±2.55 years                            |                                              |
Discussion
The present study investigated 11-19 years old children and adolescents from schools all over Romania, a sample which permits the generalization of the data obtained. We followed all the rules to make a national prevalence study and we collected the data.

According to our study the national prevalence of at risk gambling is 7.1% and of problem and pathological gambling is 4% when results were analyzed by SOGS-RA; prevalence of problem gambling is 10.1% and of pathological gambling is 2.6% when results were analyzed by 20 GA-RA. An important issue is that we found pathological gambling of the age of only 11 years.

Our results compared to those from other studies from Romania are much similar to those from other European countries. A growing number of researches indicate a rising in the prevalence of pathological gambling in the last period and most of the cases are diagnosed during adolescence especially in countries from the Western Europe [7,17] (Table IV).

An analysis of European studies on pathological gambling in children and adolescents evidenced that Olason, [25] using SOGS-RA on 3511 teenagers 13-15 years old found risk gamblers at a prevalence of 4,1% and problem gamblers at 2.8%.

In Lithuania, Skokauskas [26] using the same questionnaire on 835 teenagers 10-18 years old found for at risk gamblers a prevalence of 10.5% and for problem gamblers of 5.2%.

As a general observation – it is difficult to compare results as each country uses different instrument to assess the same problem.

According to Espad report, 2015 [27] values similar to those found in Romania (6%) were found in countries like Bulgaria, Estonia, Macedonia, Hungary, Italy, Lithuania, and Monaco. In Finland (13%), Greece (16%), Ireland (11%) and Nederland (9%) average were higher than the average (7%). In countries like Albania (3%), Georgia (4%), Island (4%), Moldava (3%) prevalence is under the average. In this report too it is underlined that boys gamble more than girls do.

The limits of the present study were that the questionnaire was self-reported, data could be influenced by the participants lying, the sample was formed exclusively from the school population, while children and adolescent pathological gamblers usually renounce to school. The sample distribution given by experts in sociology was pretty much unequal.

| Year   | Authors             | Country   | Instrument | Problem/Pathological Gambling Number of participants /Age | Prevalence |
|--------|---------------------|-----------|------------|----------------------------------------------------------|------------|
| 2014   | Molinaro et al.    | Albania   | Lie/Bet Scale | 3189 students Aged 16 years Problem gambling | 5.3%       |
| 2014   | ESPAD study 2011   | Cyprus    | Lie/Bet Scale | 4243 students aged 16 years | problem gambling witch was 4.4% |
| 2013   | Dodig et al. [18]  | Croatia   | CAGI       | 1948 students aged between 14 and 20 years | 16.9% - low to moderate problematic gamblers 12.3% -severe gambling |
| 2014   | ESPAD study 2011   | Denmark   | Lie/Bet Scale | 2181 16 years | 1.6% problematic gambling |
| 2014   | ESPAD study 2011   | Finland   | Lie/Bet Scale | 3744 participants | 4.8% -problem gambling |
| 2011   | Duven [18]         | Germany   | DSM-IV-MR-J | 3967 students aged between 12 and 18 years. | 2.2%       |
| 2014   | Molinaro et al.    | UK        | Lie/Bet Scale | 1712 students | 2.2%       |
| 2015   | Floros [20]        | Greece    | Lie/Bet Scale | 2017 students between 12 and 19 years of age | 4.1% - problem gambling |
| 2011   | Olason [21]        | Iceland   | DSM-IV-MR-J | 1537 students aged 13–18 years | 2.7% - at-risk gamblers 2.2% - problem gamblers |
| 2014   | Molinaro et al.    | Italy     | Lie/Bet Scale | 4837 16 years | 2.6% - problem gambling |
| 2014   | Molinaro et al.    | Lithuania | Lie/Bet Scale | 2476 participants | 4.2% - problem gambling |
| 2015   | Hanss et al.[22]  | Norway    | PGSI       | 2055 adolescents aged 17 yea | 0.2% - problem gambling |
| 2014   | Molinaro et al.    | Serbia    | Lie/Bet Scale | 6084 participants | 3.1% - problem gambling |
| 2015   | Miquez et al. [23] | Spain     | SOGS-RA    | 1447 students from Galicia (aged 11–16 years) | 4.6% - problem gambling |
| 2015   | Froberg [24]       | Sweden    | PGSI       | 2318 of youth aged 16–24 years | 2.3% had a first episode of problem gambling |
A future perspective should include primary prevention programs for all population above 10 years because the age of onset was very close to this age.

Recent studies reviewed literature regarding prevalence studies in problem gambling [3]. Countries like USA, Denmark, Finland, and Iceland used SOGS-RA to investigate problem and pathological gambling in children and adolescents. Their prevalence rates are similar to the rates found in Romania.

Conclusions
National prevalence (sample 2006 children and adolescents aged 11-19 years) was established by using two assessment instruments validated on Romanian population: SOGS-RA and 20 GA-RA. According to the first scale gambling at risk is 7.1% and of problem and pathological gambling is 4%; prevalence of problem gambling is 10.1% and of pathological gambling is 2.6% when results were analyzed by 20 GA-RA. Pathological gambling was found as early as the age of 11 years. Our results compared well with other studies, Romania is much similar to European countries.

References
1. Todirita (Lupu) Izabela Ramona Pathological gambling in children and adolescents measuring instruments, prevalence and prevention - summary – PhD Thesis. Babeş-Bolyai University Faculty of Psychology and Educational Sciences Department of Psychology Cluj-Napoca 2014
2. Gupta R, Derevensky J. Reflections on underage gambling. Responsible Gambling Review. 2014;1:37–50.
3. Lupu V. Gambling in Romania. In Meyer G, Hayer T, Griffiths MD (Eds.). Problem Gambling in Europe: Challenges, Prevention, and Interventions. New York: Springer; 2009: 229-241
4. Lupu V, Onaca E, Lupu D. The prevalence of pathological gambling in Romanian teenagers. Minerva Med. 2002;93:413–418.
5. Lupu V, Boros S, Miu A, Iftene F, Geru A. Factori de risc pentru jocul patologic de noroc la adolescenti români. [Risk factors in pathological gambling in Romanian adolescents]. Revista SNPCAR. 2001;4(4):33-38.
6. Lupu V, Todirita IR. Updates of the prevalence of problem gambling in Romanian teenagers. J Gambl Stud. 2013;29:29–36.
7. Molinaro S, Canale N, Vieno A, Lenzi M, Siciliano V, Gori M, et al. Country- and individual-level determinants of probable problematic gambling in adolescence: a multi-level cross-national comparison. Addiction. 2014;109:2089–2097.
8. Winters KC, Stinchfield RD, Fulkerson J. Toward the development of an adolescent problem severity scale. Journal of Gambling Studies. 1993;9:63-84.
9. Wiebe JM, Cox BJ, Mehmel BG. The South Oaks Gambling Screen Revised for Adolescents (SOGS-RA): further psychometric findings from a community sample. J Gambl Stud. 2000;16:275-288.
10. Hambleton RK. Guidelines for adapting educational and psychological tests. A progress report. European Journal of Psychological Assessment. 1994;10:229-244.
11. Hambleton RK, Patutsa L. Adapting tests for use in multiple languages and cultures. Social Indicators Research. 1998;45:153-171.
12. Geisinger KF. Cross-cultural Normative Assessment: Translation and Adaptation Issues Influencing the Normative Interpretation of Assessment Instruments. Psychological Assessment. 1994;6:304-312.
13. Lupu IR, Opre AN, Lupu V. Validation of the Romanian version of South Oaks Gambling Scale Revisited for Adolescents (SOGS-RA). The Romanian Journal of Child and Adolescent Neurology and Psychiatry. 2015;21(2):19-27.
14. Derevensky JL, Gupta R. Prevalence estimates of adolescent gambling: a comparison of the SOGS-RA, DSM-IV-J, and the GA 20 questions. J Gambl Stud. 2000;16(2-3):227-251.
15. Todirita IR, Lupu V. Gambling prevention program among children. J Gambl Stud. 2013;29(1):161-169.
16. Lupu IR, Lupu V. Gambling prevention program for teenagers. Journal of Cognitive and Behavioral Psychotherapies. 2013;13(2a):575-584.
17. Calado F, Alexandre J, Griffiths MD. Prevalence of adolescent problem gambling: a systematic review of recent research. J Gambl Stud. 2017;33(2):397-424.
18. Dodig D. Assessment challenges and determinants of adolescents’ adverse psychosocial consequences of gambling. Kriminologija i Socijalna Integracija. 2013;21:1–29.
19. Duven E, Giralt S, Muller KW, Wolfling K, Dreier M, Beutel ME. Problematisches Glücksspielverhalten bei Kindern und Jugendlichen in Rheinland-Pfalz [Problem gambling in adolescents in Rhineland-Palatinate]. Mainz: Ambulanz für Spielsucht der Klinik und Poliklinik für Psychosomatische Medizin und Psychotherapie, Universita "tsmedizin der Johannes-GutenbergUniversitat Mainz, 2011.
20. Floros G, Paradisioti A, Hadjimarcou M, Mappouras DG, Karkanioti O, Siomos K. Adolescent online gambling in Cyprus: associated school performance and psychopathology. J Gambl Stud. 2015;3:367-384.
21. OIason DT, Kristjansdottir E, Einarsson E, Haraldsson H, Bjarnason G, Derevensky JL. Internet gambling and problem gambling among 13 to 18 year old adolescents in Iceland. International Journal of Mental Health and Addiction. 2011;9:257–263.
22. Hanss D, Mentzoni RA, Blaszczynski A, Molde H, Torsheim T, Pallesen S. Prevalence and correlates of problem gambling in a representative sample of Norwegian 17-year-olds. J Gambl Stud. 2015;3:659-678.
23. Miguez Varela Mdel C, Becoña E. Do cigarette smoking and alcohol consumption associate with ayercannabis use and problem gambling among Spanish adolescents? Adicciones. 2015;27:8–16.
24. Fröberg F, Rosendahl IK, Abbott M, Romild U, Tengström A, Hallqvist J. The incidence of problem gambling in a representative cohort of Swedish female and male 16–24 year-olds by socio-demographic characteristics, in comparison with 25–44 year-olds. J Gambl Stud. 2015;31:621–641.
25. Olason DT, Skarphedinsson GJ, Jonsdottir E, Haraldsson H, Bjarnason G, Derevensky JL. Gambling among 13- to 15-year-old adolescents in Reykjavik: An examination of correlates of problem gambling and different accessibility to electronic gambling machines in Iceland. Journal of Gambling Issues. 2006;18:39-56.
26. Skokauskas N, Sakaleivcute R. Adolescent pathological gambling in Kaunas, Lithuania. Nord J Psychiatry. 2007;61:86-91.
27. ESPAD Report 2015 Results from the European School Survey Project on Alcohol and Other Drug (2015). Available from: http://www.espad.org/sites/espad.org/files/ESPAD_report_2015.pdf.