Received for publication: 20.12.2013.
UDK: 613.8: 794.9-053.6

Original scientific paper

ASSESSMENT CHALLENGES AND DETERMINANTS OF ADOLESCENTS' ADVERSE PSYCHOSOCIAL CONSENQUENCES OF GAMBLING

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SUMMARY

This paper discusses a segment of results of the research project titled "Habits and characteristics of adolescent gambling in Croatian urban areas". The research was conducted in 2011 in four regional centers (Zagreb, Osijek, Rijeka, and Split) and has had a reach of 1948 students, which make a representative sample of the population targeted in the project. The respondents' age ranges from 14 to 20, with a mean of 16.56 (SD=1.164). The aims of this paper are as follows: 1) to offer a review and comparison of leading measures used for assessing the risks of youth gambling; 2) to determine the extent to which the damaging consequences of youth gambling appear in Croatian high-school students, especially with regard to gender; 3) to investigate the way in which certain personality traits, ways of thinking and behaving, beliefs, motivations and behaviors related to gambling, and frequency of gambling contribute to the intensity of gambling-related adverse psychosocial consequences. In order to achieve these aims, an extensive battery of instruments has been used. The paper finds that a substantial proportion of high-school students (12.3%) already feel serious psychosocial consequences of gambling, and that these consequences are unequally distributed across genders, with young men being the population that is more greatly affected. This finding led to a testing of the third hypothesis on the sample of young men only, using hierarchical regression analysis. The results indicate that the best predictors of more severe gambling-related problems include the frequency of gambling, continuation of gambling in the wake of winning, the experience of winning a larger amount of money, and specific motivation for gambling. Finally, the results were interpreted in relation to relevant research and in relation to social circumstances.

Keywords: *gambling, adolescents, risk assessment, problem gambling, psychosocial consequences, youth*

INTRODUCTION

Gambling is an extraordinarily popular activity among adults and youth alike (Derevensky and Gupta, 2000; Gupta and Derevensky, 1998; National Research Council, 1999; Volberg, 2002). However, most of the research thus far has been focused on adults, because of the assumption that gambling is a marginal activity among adolescents (Dodig and Ricijaš, 2011), since it is not legal for underage persons in Croatia, as in most countries, to take part in gambling (Republic of Croatia, Games of Chance Act, 2009). However, contemporary research shows that the rates of problem gambling among adolescents are two to four times higher than of adult populations, moving between 4 and 8%. There is also a significant proportion (10 to 14%) of youth who are at a high risk of developing problems in psychosocial functioning as a result of gambling (Shaffer and Hall, 1996, in Hardoon, Derevensky and Gupta, 2003). In Croatia, problem gambling rates among youth are even higher, reaching 12% (Dodig and Ricijaš, 2011). A methodological issue that needs to be taken into account is that of a thus far common practice of adapting the research instruments constructed for adult gambling assessment for the purpose of studying and assessing risks among adolescents. This approach reduces the reliability of research, and makes for a potential limit for interpretation and for planning of interventions aimed at those in the youth population who are at risk of, or already affected by adverse gambling-related consequences.

It is precisely for that reason that the aims of this paper are both theoretically-analytical and empirical in nature as we try to contribute to acquisition of a deeper insight into advantages and pitfalls of various instruments by means of comparison of their content first, and then through study of prevalence of adolescent gambling in Croatia and determinants of adverse psychosocial consequences of gambling.

ASSESSMENT OF PROBLEM GAMBLING AMONG ADOLESCENTS

In international research of adolescent gambling, and with the aim of assessment of gambling-related problems, the following measures are most commonly used: (1) The South Oaks Gambling Screen, adjusted for adolescents; SOGS-RA (Winters, Stinchfield and Fulkerson, 1993), (2) Pathological/ problem gambling measure of the Diagnostic statistical manual- adjusted for adolescents, DSM-IV-J (Fisher, 1992) and DSM-IV-J-MR, followed by (3) Massachusetts gambling screen - MAGS (Shaffer et al. 1994), and (4) Twenty questions of the Gambling Anonymous - GA20. These measures have been used in research that provided the bulk of data on prevalence of problem gambling among adolescents. Though these measures are considered the gold standard in determining the proportion of the population developing harmful psychosocial consequences of gambling, they also suffer from problems that cannot be ignored. The key difficulties in assessing problem gambling among adolescents are as follows: (1) all of the above measures stem from the medical model - they have all been developed in the context of clinical psychiatry, which makes them based on the problem, but not aimed towards potential solutions; (2) the above measures have been constructed based on samples of adult pathological gamblers, and have only subsequently been modified for the adolescent population; (3) they are all aimed at measuring personal dysfunction, emotional and behavioral problems, and not on the descriptions of actual behaviors; (4) they are based on a one-dimensional construct of the concept of gambling behavior, and do not see gambling behavior as a continuum; (5) they ignore the specificities of gender, ethnicity, and culture; (6) comparability of results is impaired by the differing score scales.

Due to reasons listed above, there is an understandable need for a wide-reaching measure that would bring us closer to a single definition of problem gambling in the youth population. Thus far, the development of such a measure has been disrupted predominantly by issues of nomenclature and terminology. What this new measure is expected to do is to provide a tool that is sensitive to other factors relevant to understanding the underlying problem. Existing assessment measures have been designed to be simple, quick, and efficient, and are by no means expected to provide a large measure of subtlety and complexity that are characteristics of the multidimensional behavioral problem at hand. Much empirical research has shown us, however, that this approach fails in the important tasks of discerning the main characteristics of problem gambling in the youth population and the main areas in which damaging consequences have appeared, in addition to failing to take developmental specificities into account, which carries relevant implications for preventive and treatment interventions.

The measure that aims at overcoming all of the deficiencies listed in the paragraphs above is the Canadian Adolescent Gambling Inventory (CAGI) (Tremblay, Stinchfield, Wiebe and Wynne, 2010), which is also the first measure designed specifically for assessing youth problem gambling. With the aim of acquiring a deeper insight into the characteristics of this measure, we continue by comparing it with the measures thus far considered the gold standard, DSM-IV-MR-J, and the South Oaks Gambling Screen (SOGS).

COMPARISON OF ADOLESCENT PROBLEM GAMBLING ASSESSMENT INSTRUMENTS

The South Oaks Gambling Screen – Revised for Adolescents, SOGS-RA (Winters, Stinchfield and Fulkerson, 1993) is an adjusted and revised version of the original screen for adults (SOGS), as authored by Lesieur and Blume (1987). The screen was originally constructed with the aim of diagnosing pathological gambling and was based on research of a clinical sample of the adult population. It was subsequently modified for use in the adolescent population. The screen consists of 16 elements (four of which are not used in the sum of points but provide a descriptive insight into the characteristics of a young person's gambling), and is aimed at the activity of gambling and the psychosocial harm caused by gambling in the preceding year, while defining problematic gambling itself as a one-dimensional construct. In order to adjust the scale for young people, the scoring had been adjusted, and the questions have been adjusted to that age group in terms of content (Derevensky and Gupta, 2004). The answers' format is dichotomous (yes/no), with the exception of one question that

provides the option of answering with one of the offered options on a scale (never - some of the time - most of the time - every time). The SOGS-RA measure is the most commonly used one in assessing adolescents gambling problems, providing much of the prevalence data that can be found in the literature. A meta-analysis of 120 studies of gambling found that 55.1% of them used the SOGS scale or one of its derivatives (e.g. SOGS-RA) with the purpose of determining the proportion of problem gamblers in the population (Shaffer, Hall and Vander Bilt, 1997).

Pathological/problem gambling measure of the Diagnostic statistical manual, adjusted for adolescents (DSM-IV-MR-J), was created on the basis of diagnostic criteria defined in the DSM-IV manual (1996), which were subsequently modified to be made easier to understand for adolescents and to fit the specificities of the target population (regular student population). The adjusted version offers multiple options for responses (never - once or twice/less than half the time - sometimes/more than half the time - often), which contributes to the measure's sensitivity.

Canadian adolescent gambling inventory (CAGI) (Tremblay, Stinchfield, Wiebe and Wynne, 2010) is the first instrument created specifically for assessing adolescent problem gambling and as a result of research conducted on samples of the youth population. This measure's authors expect that it increases the reliability of gathered data, thus allowing for a realistic assessment of the problems related to adolescent gambling, and for comparison of data acquired in different studies. The composite measure is made up of individual measures of the adverse psychosocial consequences in various areas of functioning (financial, social, psychological, preoccupation and impaired control) along with a general problem severity subscale (GPSS), which consists of 9 items distributed through the four concepts composing CAGI. This final score gives us a degree of global severity of gambling and classifies the respondents into three categories: (1) no problem ("green light"), (2) low to moderate severity ("yellow light"), and (3) high severity ("red light"). Respondents in surveys utilizing CAGI provide replies on a four-element scale, with the format of the offered answer depending on the content of the question (never – sometimes - most of the time - almost always, or never - one to three times - four to six times - seven or more times).

Table 1 lists the items that each of these measures (SOGS-RA, DSM-IV-J-MR, GPSS subscale of CAGI) consists of. These items are listed in order that makes it easier to compare them across measures. They are thematically grouped by areas in which gambling disrupts an individual's psychosocial functioning, first those that are common to all the instruments, then those that are found in two of them, and finally those that are unique to the measures.

Just a glance at Table 1 makes it clear that all instruments have unique features, but that there are also elements of gambling's adverse consequences that are common to all. All three instruments look into "chasing losses", a type of behavior that is characterized by repeated and insistent engagement in gambling in spite of continuous losses, with the aim of recovering losses and to get even. This sort of behavior is specific to problem gambling and is one of the key elements in differentiating those at high risk from those whose likelihood of developing a gambling problem is lower. It is thus not surprising that "chasing losses" is considered a central feature of problem gambling (DSM-IV, 1996). Furthermore, all three composite measures are aimed at discerning the hiding of gambling activities from persons important to the respondent, such as family members or friends. However, it is obvious that the item concerning this element is differently formulated in the DSM-IV-MR-J measure, where it is aimed at lying about the extent of involvement in gambling, while CAGI-GPSS and SOGS-RA focus on the behavioral aspect, e.g. concrete behaviors such as hiding of gambling activity, money, or other items related to gambling (e.g. receipts or tickets). Furthermore, all three measures question the intensity of participation in illegal activities related to gambling, but with some specificities pertaining to each of the measures. SOGS-RA is focused on theft and borrowing of money, CAGI-GPSS asks about theft of other valuables, while DSM-IV-MR-J integrates a claim on using money intended for other purposes along with theft (taking money without permission).

It is important to point out that the CAGI element concerning spending money and/or pocket money for the purpose of gambling is the only one that is considered separately from similar activities and provides the best insight into particular behaviors. It is clear that illegal activity and non-planned spending of money are not problem behaviors that carry the same weight and consequence, nor do they carry the same level of risk for further development of the problem.

By observing the remaining claims included as elements of the DSM-IV-MR-J measure, it becomes obvious that it overlaps in terms of content with two

Table 1 *Content comparison of elements of various composite measures of assessment of adolescent gambling risk: SOGS-RA, CAGI.GPSS, and DSM-IV-MR-J.*

No	SOGS-RA	CAGI (GPSS subscale)	DSM-IV-MR-J
1.	How often have you gone back another day to try and win back money you lost gambling?	How often have you gone back another day to try to win back the money you lost while gambling/betting?	In the past year, after losing money gambling, have you returned another day to try and win back money you lost?
2.	Have you ever hidden from family or friends any betting slips, I.O.U.'s, lottery tickets, money that you won, or any signs of gambling?	How often did you have you hidden your gambling/betting from your parents, other family members, or teachers?	In the past year has your gambling ever led to: Lies to your family?
3.	Have you borrowed money or stolen something in order to bet or cover gambling activities?	How often have you stolen money or other things of value in order to gamble/ bet or pay off your gambling/betting debts?	I have taken lunch money or parents' money without permission or have stolen money in order to gamble.
4.	Has your betting money ever caused any problems for you such as arguments with family and friend, or problems at school or work?		In the past year has your gambling ever led to: Arguments with family or friends or others? Missing school?
5.	Have you ever gambled more than you had planned to?		In the past year have you ever spent much more than you planned to on gambling?
6.		How often have you planned your gambling/betting activities?	In the past year how often have you found yourself thinking about gambling or planning to gamble?
7.	Have you ever felt bad about the amount of money you bet, or about what happens when you bet money?	How often did you felt bad about the way you gamble/bet, or what happens when you gamble/bet?	
8.	Have you ever skipped or been absent from school or work due to betting activities?	How often have you skipped practice or dropped out activities (such as team sports or band) due to your gambling/betting?	
9.	When you were betting, have you ever told others you were winning money when you were not?		
10.	Have you ever felt like you would like to stop betting, but didn't think you could?		
11.	Have you had money arguments with family or friends that centered on gambling?		
12.	Have you borrowed money to bet and not paid it back?		
13.		How often have you skipped hanging out with friends who do not gamble/bet to hang out with friends who do gamble/bet?	
14.		In the past three months, how often have you felt that you might have a problem with gambling/betting?	
15.		How often have you taken money that you were supposed to spend on lunch, clothing, movies, etc., and used it to gamble/bet or to pay off your gambling/ betting debts?	
16.			During the course of the past year have you needed to gamble with more and more money to get the amount of excitement you want?
17.			In the past year have you felt bad or fed up when trying to cut down or stop gambling?
18.			In the past year how often have you gambled to help you to escape from problems or when you are feeling bad?

more elements of the SOGS-RA measure. This concerns the problems in relationships with important persons which have appeared as a result of gambling and participating in gambling-related activities to an extent that is greater than the respondent originally intended, which indicates an inability to control one's behavior. This is an important element of problem gambling, as suggested by its inclusion in the definition of problem gambling (Korn, 2000), and its designation as impulse control disorder by leading classifications of mental illnesses (DSM-IV, 1996). Furthermore, DSM-IV-MR-J and CAGI-GPSS are, unlike SOGS-RA, aimed at discerning the extent of planning of gambling activities, or a general preoccupation by gambling activities, which is also an important element in identifying the problem.

The remaining elements of the DSM-IV-MR-J composite measure are focused on tolerance (the need for ever larger stakes and risks), withdrawal symptoms (negative emotions in attempts to stop gambling), and using gambling as "escape" from negative states (gambling as factor that decreases feelings of helplessness, anxiety, guilt, and depression). These are psychological symptoms and symptoms of pathological gambling as diagnosis, which is not surprising given that the measures have stemmed from the context of psychiatric work. However, we know that adolescent gambling, given the developmental age and specificities of adolescence, is less likely to bring about those types of difficulties. Furthermore, it is likely that such emotional states are less familiar and less close to the young population, which contributes to their lesser understanding of questions/statements, giving of false positive responses and, indirectly, problems in classification. For these reasons precisely, CAGI and SOGS-RA put less of an emphasis on these symptoms and focus more on negative emotions exhibited by the young person and related to the means of gambling and/or the amount of time and money spent on gambling. Additionally, SOGS-RA focuses on the inability to cease gambling activities, but in a much more concrete way than DSM-IV-MR-J does (the latter is focused on negative emotions and withdrawal symptoms) in its use of the item "Have you ever felt like you would like to stop betting, but didn't think you could?"

Regarding the particularities of content of the SOGS-RA composite measure, these are mostly related to placing a greater emphasis on disrupted interpersonal relationships. Along with the element focusing on hiding of gambling, which is, as demonstrated, common to all measures, the SOGS-RA composite measure is the only one that evaluates the extent to which the problem appears in an individual, basing the measure on the presence of arguments/conflict with significant others about gambling and the acceptance of criticisms of their extensive gambling. Furthermore, SOGS-RA provides more detail regarding hiding through the following statement "When you were betting, have you ever told others you were winning money when you were not?" which is not found with the remaining two composite measures.

The particularities of the general problem severity subscale (GPSS) on CAGI instrument are seen in its' focus on relations with important persons in respondents' lives, but also in their tackling of avoidance of these relationships as a result of gambling. Additionally, the GPSS-CAGI measure gives a developmentally-adjusted evaluation of financial consequences of gambling. Because of specificities of youth gambling (life in parents' household, outside permanent employment, not gambling with own money) the consequences are also very specific to the youth population, and thus cannot be measured in the same way as they are measured among adults. CAGI takes these specificities into account, and investigates behaviors such as gambling using money intended for food and snacks, entertainment, and the like. As has already been mentioned, it differentiates between illegal activity and spending pocket money on games of chance. Along with that, its great advantage is that it includes relationships with peers, which is not the case with the remaining two measures. More specifically, it focuses on socializing with groups that more intensely partake in games of chance. Taking into consideration the importance of groups of peers in adolescent age, this is a crucial criterion. Generally, we can conclude that CAGI's GPSS and SOGS-RA are more similar in content, which is primarily seen in their specific focus on characteristics of the youth population. CAGI, however, takes its elements a step further by discerning behaviors and adequately focusing their content, as is only expected from a measure created specifically for a young population. This focus on concrete behaviors, relationships and emotions, it is safe to assume that this measure makes for an inventory that is more understandable to the young respondents. Along with this major advantage, it also covers nearly all areas of psychosocial functioning that may be disrupted by gambling, and does not neglect particular adolescence-specific behaviors nor does it neglect particular psychological consequences.

These arguments notwithstanding, the CAGI also displays favorable metric characteristics and high correlation with the "gold standards" in risk assessment (.89 and .94) (Tremblay et al., 2010), which leads us to conclude that it is the most acceptable measure for use in the regular youth population. For these reasons, it is the measure that we used in this research. Of course, we are taking the potential limits of this inventory into account, such as its potential to fail to overcome the main problems of existing measures of assessment (e.g. overestimating the proportion of problem gamblers) and the fact that, being a relatively new measure, it has not been tested on a full variety of samples. In relation to the latter, this paper is, among others, a contribution to overcoming the difficulties in identifying this complex phenomenon and improvement of our knowledge in the area of assessment of extent of gambling-related problems.

RISK FACTORS FOR PROBLEM GAMBLING AMONG YOUTH

Numerous factors, from individual to environmental, must be taken into account when trying to answer the question of why people gamble, and why some individuals develop gambling-related problems. This approach is in line with the contemporary integrative theories of problematic gambling that place an emphasis on biopsychosocial approach to the issue (Blaszczynski and Nower, 2002; Sharpe, 2002). In that sense, the precondition for developing a gambling problems is the availability of gambling, in terms of existence of particular content (in this case, places where games of chance are played) in an area. There is much evidence supporting the relationship between increased availability and increased prevalence of problem gambling (Campbell and Lester, 1999; Ladouceur et al., 1999). However, nearly all of us are exposed to these circumstances in modern societies, and yet, just a small number of people develop problems, which indicates that there are other factors contributing to their development, such as personality traits, thoughts and behaviors. Early involvement in gambling activities is considered an important risk factor (Fisher, 1992), especially if accompanied by (subjectively measured) large winnings, parents or other significant persons who gamble (Abbott, 2001). Furthermore, a specific motivation to gamble is emphasized (Gupta and Derevensky, 1998; Rockloff and Dyer, 2006), suggesting that the risk is not the same for those whose main motivation is entertainment, and those for whom gambling is a way to handle other problems (Getty, Watson and Frisch, 2000). We also know that cognition is exceptionally important, and that there is a strong relation between problem gambling and specific patterns of thinking, primarily the illusion of control, superstition, and an incorrect understanding of probability (Moore and Ohtsuka, 1999). When it comes to personality traits, those whose positive correlation with development of gambling problems is continually confirmed are impulsiveness (Nower, Derevensky and Gupta, 2004), sensation seeking (Breen and Zuckerman, 1999; Kuley and Jacobs, 1988, in McDaniel and Zuckerman, 2003), and neuroticism (Bagby et al., 2007). Furthermore, much of wide-reaching research confirms that problematic behaviors (such as substance abuse and delinquency) often appear in co-morbidity in the youth population (Jessor, 1997, in Welte et al., 2009), and in that sense there is an indubitable relation between gambling and involvement in other high-risk and delinquent behaviors (Gupta and Derevensky, 2000; Mishra et al., 2011).

Given the relative lack of research in this area, especially in this region of the world, one of the aims of this paper is to gain an insight into the risk factors related to gambling, and their contribution to the development of adverse psychosocial consequences.

AIMS AND HYPOTHESIS

The empirical aims of this paper are to determine the extent of adverse psychosocial consequences of gambling in the population of Croatian high school students, along with eventual gender differences, and to investigate the way in which personality traits, time perspective, behaviors, beliefs, experiences and behaviors while gambling, and the frequency of gambling contribute to adverse gambling-related psychosocial consequences.

H1: Most of adolescents do not have developed gambling-related problems, the next largest group is that of youths whose gambling brings about low to moderate severity of the problem, while those for whom gambling seriously damages psychosocial functioning constitute the smallest group.

H2: There are differences in the extent to which adverse psychosocial consequences are exhibited with regard to gender, with young men exhibiting more of these adverse consequences.

H3a: Personality traits, delinquent behavior, beliefs about gambling, motivation for gambling, experiences and behaviors while gambling, and the frequency of gambling significantly contribute to adverse gambling-related psychosocial consequences.

H3b: Time perspective, delinquent behavior, beliefs about gambling, motivation for gambling, experiences and behaviors while gambling, and the frequency of gambling significantly contribute to adverse gambling-related psychosocial consequences.

METHODS

Sampling strategy

This research project included the selection of a probability sample with total N of 1948 students (53% female, 47% male), from the first to the final year of high school in four urban regional centers in Croatia: Zagreb (N=447), Osijek (N=509), Rijeka (N=455), and Split (N=537). The sample was consisted of randomly selected schools (conducted by a computer program), while a die was cast for selection of classes within schools, and questionnaires were handed out randomly to students. The sample consists of all students in selected classes who were in class on the day the survey was administered, and who agreed to take part. The age range is 14 to 20, with a mean of 16.56 and standard deviation of 1.174. The proportion of students in 4-year vocational schools (37.8%) and grammar schools (38.9%) is similar, while the proportion of students in three-year vocational schools is expectedly smaller and makes up 23.3% of the sample. The proportion of students in first, second, and third year of high school is similar (29%, 25.2%, and 25.4%, respectively), while the proportion of students in their fourth year of high school is lesser (19.5%) due to selection of vocational schools with three-year programs.

Instruments

Given that the purpose of this paper is the acquisition of better insight into the extent to which adverse psychosocial consequences of gambling appear in the adolescent population, a battery of measures has been used.

Basic socio-economic characteristics were measured using several questions, such as those on gender, age, type of school, and similar.

The gambling activities questionnaire contained questions on the types and frequency of engaging in games of chance, in parallel form. Respondents replied with "yes" or "no" to questions about playing particular games of chance, and if they replied affirmatively, they were asked about frequency ("every day", "several times a week", "about once a week", "about once a month", "once a year or less"). The extent of adverse psychosocial consequences was measured using the Canadian Gambling Inventory (Tremblay et al., 2010) as described in the previous chapter.

With the aim of gaining an insight into the motivation for gambling, we used the Gambling Motivation Check-List, construed particularly for this research project, and based on clinical experience and the Gambling Motivation Scale (Chantal, Vallerand, and Vallieres, 1994). We provided a list of 10 potential answers to the question of "Why do you gamble or bet?", (e.g. "for fun/thrill", "for money"), and along with it a four-degree scale for respondents to choose from, in relation to each of the answers (never for this reason - sometimes for this reason - mostly for this reason - always for this reason). The gambling beliefs scale was construed specifically for this research project as well, based on our review of the literature and the existing measures of The Gamblers Beliefs Questionnaire (Steenbergh et al., 2002), Gambling Related Cognition Scale (Raylu and Oei, 2004), and a series of myths about gambling we acquired from online sources. The scale is made up of 18 items classified in two factors: (1) superstition and incorrect understanding of probability (e.g. "Gambling in several games of chance increases the probability of a win in at least one of them.") and (2) illusion of control (e.g. "Focusing thoughts on winning makes it more likely to happen."). The respondents filled in the questions on this scale by choosing one of the offered replies on an agreement scale (I completely disagree - I mostly disagree - I neither agree nor disagree - I mostly agree - I completely agree).

We also used the risk and delinquent behavior questionnaire (Atlanta et al., 2005) for the purpose of checking and controlling for other high-risk behaviors. This questionnaire is made up of 24 claims sorted in six categories: (1) vandalism, (2) theft, (3) physical aggression, (4) cutting class and school problems, (5) disturbances of public order, (6) drug abuse. Participants answered questions about the number of times they engaged in a particular behavior.

For the purpose of testing personality traits, we used the Croatian version of the International Personality Item Pool Scale, containing 50 items (IPIP50) (Mlačić and Goldberg, 2007). The 50

items are aimed at measuring five major personality dimensions (Goldberg, 1992): (1) extraversion, (2) agreeableness (3) conscientiousness, (4) emotional stability, (5) intellect/imagination. The respondents' task was to indicate for each statement whether it is very inaccurate, moderately inaccurate, neither accurate nor inaccurate, moderately accurate or very accurate as a description of them.

Further, we used the Zimbardo Time Perspective Inventory (Zimbardo and Boyd, 1999) to research the time perspective as an individual variable that gives us information about the individual's temporal horizons. This variable has recently become commonly used in research of risky behaviors. The measure contains five factors of time perspective: (1) "past-negative", (2) "present-hedonistic", (3) "future", (4) "past-positive", (5) "present-fatalistic", and the participants' were offered responses on a five-point scale (very untrue – untrue – neutral – true - very true).

Along with the above described measures, the questionnaire contains several independent questions that provide important information for explaining and understanding the phenomenon of youth gambling, which refer to experiences and behaviors during the act of gambling itself: (1) "How many times have you won large amounts of money by gambling/betting?", (2) "When I win a larger amount of money by gambling/betting, it encourages me to gamble/bet more." and (3) "When I lose money gambling/betting, I lose the will to gamble".

Given the extensive nature of the used measures, and the realistic chances for its application, we randomly chose half of participants (the questionnaires were handed out randomly) who filled in the questionnaire with the IPIP-50 measure, while the other half were given a questionnaire containing the Zimbardo Time Perspective Inventory (ZTPI). There were also two different versions differentiated by gender-specific questions, making for a total of four versions of the questionnaire.

The implementation of the survey

The project survey was implemented in the March - May 2011 period. The students filled in the questionnaire in groups, in their own classrooms, for the duration of a 45 minute class period (paper-pencil principle).

All participants were orally informed on the basic aim of the research project. The survey was anonymous and was implemented in accordance with the Ethical Code on Research Including Children (Ajduković and Kolesarić, 2003). The participants provided oral consent for participation, and were allowed to end their participation at any point while filling in the questionnaire.

RESULTS AND DISCUSSION

The extent of adverse psychosocial consequences of gambling

When describing the measures we stated that the severity of adverse psychosocial consequences of gambling would be measured using the Canadian Adolescent Gambling Inventory (Tremblay et al., 2010). This measure's General Problem Severity Subscale (GPSS) classifies the respondents into three categories: (1) no gambling-related problems ("green light", 0-1 point), (2) low to moderate gambling-related problems ("yellow light", 2-5 points), and (3) high severity of gambling-related problems ("red light", 6 or more points). Prior to determining gender-related differences, we checked the categorization of the sample according to the results on CAGI's GPSS subscale. As expected, hypothesis one finds support in the data. Most of the participants (70.8%) gamble socially and this activity is not detrimental to their psychosocial functioning. However, 16.9% of high school students feel low to moderate harmful psychosocial consequences of gambling ("yellow light"), and 12.3% of them satisfy the criteria for the category authors refer to as "red light", i.e. they are exhibiting a high level of severity of gambling-related problems. We note that this is a significantly larger proportion than found in research in other countries, and assume that the reason for that may be the extraordinarily accessible and available games of chance in Croatia (Dodig and Ricijaš, 2011; Dodig, 2013), and the organizers' lack of respect for legal provisions regarding games of chance.

Regarding the differences in relation to gender, they are statistically significant (Image 1), with young men dominating the group of adolescents who have developed gambling problems. Among young men (N=915), 49% do not have significant gambling problems ("green light"), while among young women this proportion is 90%. As a consequence, fewer young women are found in the group of students with a serious gambling problem (2.1%).

Given such large gender differences and in order to get a better insight into the areas of psychosocial functioning that are disrupted by gambling, we

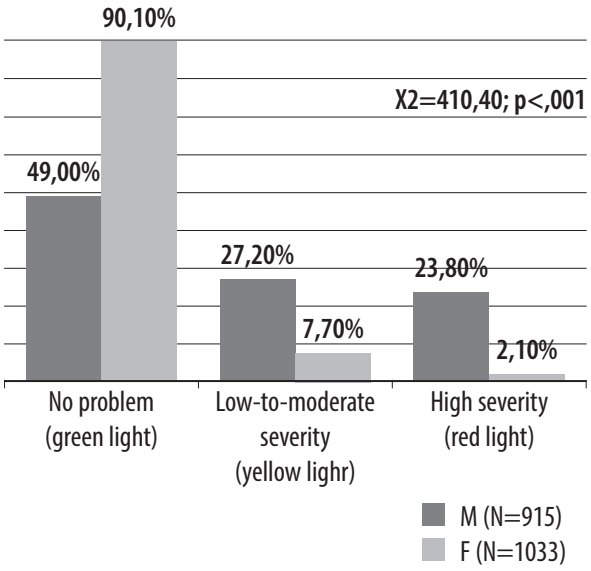

Image 1 *Graphical representation of results – prevalence of gambling related problems among Croatian high-school student, gender differences, N=1948, chi-squared test.*

checked the frequency of replies on different GPSS items as well as gender differences on those items (Table 2)

At the level of individual items, we also see the differences between young men and women, insofar as young men see more gambling-related consequences and problems. The frequencies of replies of "most of the time" (3) and "almost always" (4) show that the young women do not show any of the elements in a proportion larger than 5%, while that is not the case with young men, for several items. Furthermore, the effects sizes of these differences are the greatest for items focused on planning of gambling activities, chasing losses, hiding gambling activities, and spending pocket money on gambling. These are behaviors that are characteristic of those individuals whose gambling is seriously disrupting their every-day functioning. As a result, we may accept H2, and this finding is completely in line with research in other countries which confirm, with no exceptions, that young men start gambling at an earlier age, and gamble with more intensity, and are, as such, more at risk of developing serious gambling-related problems (Desai et al., 2005; National Research Council, 1999). This is supported by other prevalence research as well (Dodig and Ricijaš, 2011). In that sense, such considerable gender differences are important information that ought to be taken into account when planning interventions. With the different gambling patterns, a different path of development of the problem, differences in age at which gambling commences, it is unrealistic to expect that the same intervention program would have the same effects on both genders.

Table 2 *Frequencies of replies to GPSS items, by gender; (N=1.948), Mann-Whitney test*

No.	GPSS item		0 %	1 %	2 %	3 %	Mean rank	MWU	r
1.	How often have you skipped practice or dropped out activities (such as team sports or band) due to your gambling/betting?	**M**	88.4	9.2	1.5	0.9	(effect size)	429425.000**	.18
		F	97.6	1.6	0.6	0.2			
2.	How often have you skipped hanging out with friends who do not gamble/bet to hang out with friends who do gamble/bet?	**M**	85.1	11.9	2.2	0.8	1038.79	413776.000**	.22
		F	97.6	1.9	0.5	0.0	917.56		
3.	How often have you planned your gambling/betting activities?	**M**	51.3	36.7	**8.6**	**3.4**	1169.84	293858.500**	**.41**
		F	88.3	10.5	0.9	0.4	801.47		
4.	How often did you felt bad about the way you gamble/bet, or what happens when you gamble/bet?	**M**	72.6	21.0	**4.2**	**2.3**	1084.05	372357.000**	.28
		F	93.6	5.5	0.5	0.4	877.46		
5.	How often have you gone back another day to try to win back the money you lost while gambling/betting?	**M**	68.3	20.3	**5.6**	**5.8**	1117.93	341355.000**	**.36**
		F	95.9	3.0	0.7	0.4	847.45		
6.	How often did you have you hidden your gambling/ betting from your parents, other family members, or teachers?	**M**	64.2	15.4	**7.4**	13.0	1136.08	324755.000**	**.39**
		F	95.4	2.3	0.7	1.6	831.38		
7.	In the past three months, how often have you felt that you might have a problem with gambling/betting?	**M**	85.4	11.1	2.4	1.1	1042.22	410636.500**	.24
		F	98.5	1.3	0.3	0.0	914.52		
8.	How often have you taken money that you were supposed to spend on lunch, clothing, movies, etc., and used it to gamble/bet or to pay off your gambling/ betting debts?	**M**	68.7	20.4	**4.6**	**6.2**	1112.37	346442.500**	**.35**
		F	95.3	3.6	0.8	0.4	852.38		
9.	How often have you stolen money or other things of value in order to gamble/bet or pay off your gambling/betting debts?	**M**	94.1	3.7	0.8	1.4	1000.95	448398.500**	.14
		F	99.2	0.4	0.1	0.3	951.07		

M – male, F – female; 0 – never 1 – sometimes 2 – most of the time 3 – nearly always, MW U – Mann-Whitney's U statistic, r – effect size; *p<.05, **p<.01

Determinants of the adolescents' general gambling severity

As seen above, significant gender-related differences have been found among the respondents, which, along with the need to gain a deeper insight into etiology and correlates of significant gambling-related problem, suggest a further analysis and testing of the final two hypotheses on the subsample of young men only.

We tested the contribution of various characteristics and constructs on the general gambling severity measure by utilizing hierarchical regression. Before conducting the analysis, we conducted the necessary pre-tests, such as criterion correlation of predictors (only those variables with a correlation criterion value of .200 or higher have been included in the analysis, and only if they are not collinear). The normalcy of the distribution was tested for, and a divergence was found. As suggested by Tabaschnik and Fidell (2007), one of the variables was transformed as logarithm of gross results, at which time the reflecting of the results was done ("I gamble to earn money" motivation) so that the distributions of all variables may be asymmetrical in the same direction. Furthermore, based on the condition index (Blesley, Kuh and Welsch, 1980) we determined that multicollinearity does not appear in significant measure.

The remaining two hypotheses in this paper state that there is a significant contribution of personality traits/time perspective, risk and delinquent behavior, beliefs about gambling, motivation for gambling, experiences and behaviors while gambling, and the frequency of gambling to adverse, gambling-related psychosocial consequences. In order to test these hypotheses with two sets of predictors for the GPSS, two hierarchical regressions were conducted.

Results indicate that, when all blocks of variables are included (with a differing first block across the two models in two subsamples), the following are statistically significant predictors of general severity of gambling problems: all three motives for gambling ("to make me feel better", "to be better at gambling", "to earn money"), continuation of gambling in the wake of a large winning, the experience of winning a large amount of money, and frequency of gambling. Further, the models explain 50.2% and 63.2% of total criterion variation, respectively. These findings provide partial support for H3. Motivation for gambling is the most successful predictor, which alone explains 19% of recorded variation of severity of gambling-related problems. Research that has focused motivation for gambling does show that motivation is a large part of the answer to the question on reasons why some persons develop gambling problems, while for others it remains a source of occasional entertainment. Specific motivation allows us to differentiate between various categories of people, with regard to seriousness of their problems (Gupta and

Table 3 *Hierarchical regression of the independent variables (emotional stability (IPIP-50), risky behavior, cognitive distortions, motivations, experiences and behaviors while gambling, frequency of gambling) on the GPSS measure; Boys (N=433)*

	Step 1		**Step 2**		**Step 3**		**Step 4**		**Step5**		**Step 6**	
	B	***t***	**β**	***t***	**β**	***t***	**β**	***t***	**β**	***t***	**β**	***t***
Emotional stability	-.19	-3.71**	-.15	-2.94	-.11	-2.17**	-.06	-1.58	-.05	-1.35	-.05	-1.51
Risky behavior			.37	7.54**	.33	6.85**	.18	4.04**	.12	3.19**	.05	1.5
Illusion of control					.07	1.36	-.05	-1.06	-.09	-2.17*	-.06	-1.62
Superstition					.23	4.47**	.08	1.83	.02	.63	.01	.38
To make me feel better							.23	4.97**	.18	4.49**	.10	2.60*
To get better at gambling							.20	4.17**	.15	3.51**	.10	2.53*
To make money							.29	6.45**	.13	3.07**	.09	2.42*
Encouraged by larger winnings									.26	5.73**	.23	5.53**
Large winnings									.26	6.31**	.13	3.29**
Total frequency of gambling											.39	8.69**
Total model												
R	.199		.423		.500		.666		.748		.802	
Adjusted R^2	.037**		.174		.241		.432		.548		.632	
ΔR^2			.140**		.071**		.193**		.116**		.083**	

* p<.05; ** p<.01; in cursive – transformed variables; β – standardized regression coefficient; R – multiple correlation coefficient; R^2 – coefficient of multiple determination; ΔR^2 – change in R^2

Derevensky, 1998; Rockloff and Dyerova, 2006) insofar as those individuals that have a higher risk of developing problems are also those for whom the most common motive is attempting to escape problems, dealing with depression, relaxation, and socialization. Our results point to a similar trend - block of predictors containing motivation for gambling explains the largest proportion of criterion variation, and the "I gamble to feel better" motive carries the largest beta ponder, which points to it being the strongest predictor. Furthermore, as it was mentioned, only those motives that significantly correlate with the criterion have been included in the analysis, which adds more weight to the claim that specific motivation is crucial for understanding gambling-related problems. It is again confirmed that the risks are not the same for those who gamble for entertainment as they are for those who gamble to affect negative emotions, to make money, or to gain gambling prowess. Rather expectedly, continuing to gamble in the wake of winning, and after experiencing large winnings, are shown to be significant predictors of general severity of the problem, explaining around 11% of criterion variation. Much of existing research confirms a major role of the experience of large winnings, especially if it happens at an early age (Turner, Zangeneh and Littman-Sharp, 2006). Such an experience may often trigger a transition from social gambling to problem gambling, and the probability of developing a gambling problem is larger if one's first gambling experience results in large winnings (Orford et al., 2003, in Shaffer, 1999). It ought to be noted that the size of winnings is subjective, and at an early age even a smaller amount may be perceived as large by a child or adolescent. Behavior while gambling, mostly concerning continuation of gambling in the wake of winning or chasing losses, contained in the fifth block of predictors in our model, constitute very important factors in the development of gambling problems. Chasing losses is one of the most important steps in the development of pathological gambling (Lesieur, 1979, in Breen and Zuckerman, 1999). Additionally, the more money is lost, the more intense the chasing of losses becomes. It is hard to imagine that an individual could develop such complex personal, economic, and social problems as the gambling-related ones, without a constant chase, a constant attempt to make up for financial losses by engaging in those activities that brought about losses in the first place (Breen and Zuckerman, 1999). This behavior is closely related to an insistent continuation of gambling, and to problems quitting gambling, regardless of whether the person in question is winning or losing. In the case of losses, more money is spent than

Table 4 *Hierarchical regression of the independent variables (time perspective, risky and delinquent behavior, cognitive distortions, motivation, experiences and behaviors while gambling, and the frequency of gambling) on the GPSS measure; Boys (N=416)*

	Step 1		Step 2		Step 3		Step 4		Step 5		Step 6	
	B	***t***	**β**	***t***	**β**	***t***	**β**	***t***	**β**	***t***	**β**	***t***
Past negative	.16	2.39*	.14	2.13*	.15	2.34*	.17	3.06**	.18	3.71**	.19	3.94**
Present hedonistic	.02	.43	-.02	-.37	-.03	-.56	-.02	-.41	-.01	-.34	-.01	-.08
Present fatalist	.11	1.49	.11	1.57	.04	.56	-.02	-.30	-.05	-.91	-.05	-.99
Risky and delinquent behavior			.21	3.65**	.19	3.50**	.113	2.25*	.08	1.85	.04	.96
Illusion of control					.04	.63	-.06	-1.07	-.09	-1.88	-.08	-1.73
Superstition					.28	4.39	.12	2.03*	.06	1.19	.05	.84
To make me feel better							.17	3.28**	.13	2.63**	.12	2.60*
To get better at gambling							.25	4.80**	.19	3.99**	.16	3.52**
To make money							.26	5.11**	.16	3.37**	.15	3.24**
Encouraged by larger winnings									.25	4.94**	.21	4.36**
Large winnings									.24	5.03**	.17	3.35**
Total frequency of gambling.											.18	3.52**
Total model												
R	.260		.330		.441		.621		.708		.722	
Adjusted R^2	.058		.096		.178		.366		.482		.502	
ΔR^2			.041**		.086**		.192**		.115**		.021**	

* p<.05; ** p<.01; in cursive – transformed variables; β – standardized regression coefficient; R – multiple correlation coefficient; R^2 – coefficient of multiple determination; ΔR^2 – change in R^2

intended, and in the case of winnings, they use them for further gambles. Persons who primarily gamble for entertainment, and whose participation in games of chance is at the level of social gambling, tend to stop gambling when their win (subjectively) large amounts. This sort of behavior has been an important predictor in the sample of Croatian high school students, which is hardly surprising given the importance of this factor, and given the fact that the GPSS contains an element that describes precisely that sort of behavior ("How often have you gone back another day to try to win back money you lost while gambling/betting?").

The final block of predictors, made up of measures of frequency of gambling, have proven to be statistically significant, as expected, though explaining a smaller proportion of variation than motivation and gambling behavior. Even though the contemporary approaches to this problem do not measure the severity of the problem by frequency of behavior but rather by the level to which gambling disrupts everyday functioning, the two are significantly related.

It is only logical that a high frequency of gambling brings about a loss of much time and money, which in turn affects a person's psychosocial functioning. Ultimately, this is supported by definitions of problem gambling which define it precisely as behavior characterized as difficulty in limiting the time and/or money spent on gambling, which leads to negative consequences for the person, their immediate environment, and their community (Neal, Delfabbro and O'Neil, 2005).

Furthermore, it is important to note that the inclusion of behavioral variables that refer to gambling itself in the fifth and sixth block of variables leads to a loss of predictive ability of risk and delinquent behavior (see Tables 3 and 4). We know that the inclination to engage in high-risk behavior is related to problem gambling, and that there are two major explanations for this trend. The first is that gambling and risky behaviors appear in co-morbidity and that they have similar determinants (Jessor, 1977, in Welte et al., 2009), while the second is that an increase in the stakes of gambling increases the need for finances, which in turn leads to a higher likelihood of involvement in delinquent activities (Gupta and Derevensky, 2000). However, our hierarchical regression results make it clear that the development of the gambling problem itself is more related to those behaviors more directly related to gambling such as intensity of gambling, winning a larger amount, and continuation of gambling in the wake of winnings. Furthermore, the relevance of personality traits and individuals' thoughts are confirmed as relevant factors. In the analysis where the first block of predictors is made up of the IPIP-50 factors, risky and delinquent behavior explains 14% of variation, while this is the case for just 4% in the model which includes the ZTPI measures in the first block of predictors.

It is also interesting that, in the sample that had the ZTPI version of the questionnaire, the "past negative" time orientation keeps its predictive ability up to the last stage (Table 4). As far as the time perspective itself is concerned, it is a construct that tries to integrate the concept of time and personality traits, and whose relation to various risky behaviors has recently become an object of researchers' interest. However, in the context of development of high-risk behaviors (e.g. drug abuse, risky sexual behavior), perspectives on present and future have proven to be significant (Henson et al., 2006, Keough et al., 1999, Zimbardo and Boyd, 1997, in Tomaš, 2010). Contrary to those findings, we do not find that those are relevant predictors of gambling-related problems. Time orientation towards the future is not even found to be significantly related to the criterion. On the other hand, the "past negative" time perspective, which indicates a negative attitude towards one's own past (e.g., "Painful past experiences keep being replayed in my mind.") is found to be a significant predictor. It is fair to assume that this finding suggests that, in the context of time perspective, gambling is a phenomenon that is specific in relation to other high-risk behaviors. Given these findings, and the relative lack of research into time perspective in the context of gambling, this is an area that deserves researchers' attention in the future.

CONCLUSION

The results shown above make it clear that gambling causes serious psychosocial functioning problems for a large proportion of Croatian high school students from urban areas. This is indubitably brought about by an easy accessibility of gambling, but the specificities of the population ought to be taken into account as well, with the possibility that the assessment is overestimated and does not fit the real situation. In that context, Jessor (1998, in Dodig, 2013) states that typical youth behavior includes participation in various risky behaviors, which cease as they mature. In line with that, problematic gambling among adolescents is seen as temporary, with the young person seeing a "natural

recovery" (Derevensky, Gupta and Winters, 2003). However, gambling has become a widely accepted and promoted activity, and this generation of youths is the first one growing up in such an environment. Based on that particular circumstance, Derevensky, Gupta and Winters (2003) conclude that we can expect less of this "natural recovery" when it comes to gambling, as opposed to other risky behaviors, most of which are less generally accepted, and some of which have seen decades of systematic prevention programs.

Further, we cannot neglect the problem of measurement, i.e. the possibility that the problems of our assessment tools have not been overcome, that they are still too sensitive and that their classificatory correctness is questionable. Additionally, it is important to pay attention to potential cultural and contextual differences. In that sense, there is no doubt that the current body of prevalence data ought to be interpreted with caution, and that the problem ought to be researched further.

While all adolescents are similarly exposed to ecological factors like accessibility and availability, specific individual traits contribute to the development and maintenance of gambling-related problems. This research has shown that these are frequency of gambling, insisting on and continuing to gamble in the wake of larger winnings, the experience of winning larger amounts, and a specific motivation for gambling (involvement in gambling in order to feel better, to earn money, or to improve the skills in gambling).

There is no doubt that gambling is a phenomenon that requires serious attention, further scientific research, and social policy engagement, along with an increase of public awareness and expert education, and all of those with the aim of creating preconditions for a socially responsible gambling and creation of high-quality prevention and treatment interventions.

REFERENCES

Abbott, M. (2001): What do We Know about Gambling and Problem Gambling in New Zealand? Report Number 7 of the New Zealand Gaming Survey. Department of International Affairs, Wellington, New Zealand.

Ajduković, M. i Kolesarić, V. (ur.) (2003): Etički kodeks istraživanja s djecom. Državni zavod za zaštitu obitelji, materinstva i mladeži. Zagreb.

Atlanta, G.A., Dahlberg, L.L., Toal, S.B., Swahn, M., Behrens, C.B. (2005): Violence Related Attitudes, Behaviors, and Influences Among Youths: A Compendium of Assessment Tools, 2nd edition. Centres for Disease Control nad Prevention, National Center for Injury Prevention and Control.

Bagby, M.R., Vachon, D.D., Bulmash, E.L., Toneatto, T., Quilty, L.C., Costa, P.T. (2007): Pathological gambling and the five-factor model of personality. Personality and Individual Differences, 43, 873-880.

Belsley, D.A., Kuh, E. i Welsch, R.E. (1980): Regression Diagnostics: Identifying influential data and sources of collinearity. John Wiley. New York.

Blaszczynski, A., Nower, L. (2002): A Pathways Model of Problem and Pathological Gambling. Addiction, 97, 487-499.

Breen, R.B., Zuckerman, M. (1999): Chasing in gambling behavior: personality and cognitive determinants. Personality and Individual Differences, 92, 1097–1111.

Campell, F., Lester, D. (1999): The Impact of gambling opportunities on compulsive gambling. Journal of Social Psychology, 139, 1, 126-127.

Chantal, Y., Vallerand, R.J., Vallières, E.F. (1994): On the construction and validation of the Gambling Motivation Scale (GMS). Society and Leisure, 17, 189-212.

Derevensky, J.L., Gupta, R. (2000): Prevalence estimates of adolescent gambling: A comparison of the SOGS-RA, DSM-IV-J and the GA-20 Questions. Journal of Gambling Studies, 16, 2-3, 227-251.

Derevensky, J.L., Gupta, R. (2004): The Measurement of Youth Gambling Problems: Current Instruments, Methodological Issues, and Future Directions. U: Gupta, R., 4. Derevensky, J.D. (ur.): Gambling Problems in Youth – Theoretical and Applied Perspectives. Kluwer Academic/Plenum Publishers. New York.

Derevensky, J.L., Gupta, R., Winters, K. (2003): Prevalence Rates of Youth Gambling Problems: Are the Current Rates Inflated?. Journal of Gambling Studies, 19, 4, 405-425.

Desai, R.A., Maciejewski, P.K., Pantalon, M.V., Potenza, M.N. (2005): Gender differences in adolescent gambling. Annals of Clinical Psychiatry, 17, 4, 249-258.

Dijagnostički i statistički priručnik za duševne poremećaje: DSM-IV- međunarodna verzija s MKB šiframa (1996): Naklada Slap. Jastrebarsko.

Dodig, D. (2013): Obilježja kockanja mladih i odrednice štetnih psihosocijalnih posljedica. Doktorska disertacija. Studijski centar socijalnog rada Sveučilišta u Zagrebu. Zagreb.

Dodig, D., Ricijaš, N. (2011): Obilježja kockanja zagrebačkih adolescenata. Ljetopis socijalnog rada, 18, 1, 103-125.

Fisher, S. (2000): Developing the DSM-IV-MR-J criteria to identify adolescent problem gambling in non-clinical populations. Journal of Gambling Studies, 16, 253-273.

Fisher, S.E. (1992): Measuring Pathological Gambling in Children: The Case of fruit Machines in the U.K. Journal of Gambling Studies, 8, 263-285.

Getty, H.A., Watson, J., Frisch, G.R. (2000): A comparison of depression and styles of coping in male and female GA members and controls. Journal of Gambling Studies, 16, 377-391.

Goldberg, L. R. (1992): The development of markers for the Big-Five factor structure. Psychological Assessment, 4, 26-42.

Gupta, R., Derevensky, J. (2000): Adolescents with Gambling Problems: From Research to Treatment. Journal of Gambling Studies, 16, 2-3, 315-342.

Gupta, R., Derevensky, J.L. (1998): Prevalence Study and Examination of The Correlates Associated with Pathological Gamblig. Journal of Gambling Studies. 14, 4, 319-345.

Hardoon, K., Derevensky, J.L., Gupta, R. (2003): Empirical Measures vs. Perceived Gambling Severity Among youth – Why Adolescents Fail to Seek Treatment. Addictive Behaviors, 28, 933-946.

Korn, D.A. (2000): Gambling expansion in Canada: Implications for health and social policy. Canadian Medical Association Journal, 163, 1, 61-64.

Ladouceur, R., Jacques, C., Ferland, F., Giroux, I. (1999): Prevalence of problem gambling: a replication study 7 years later. Canadian Journal of Psychiatry, 44, 8, 802-4.

Lesieur, H.R., Blume, S.B. (1987): The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. American Journal of Psychiatry, 144, 1184-1188.

McDaniel, S.R., Zuckerman, M. (2003): The Relationship of Impulsive Sensation Seeking and Gender to Interest and Participation in gambling Activities. Personality and Individual differences, 35, 1385-1400.

Mishra, S., Lalumiere, Y., Morgan, M., Williams, R.J. (2011): An Examination of the Relationship Between Gambling and Antisocial Behavior. Journal of Gambling Studies, 27, 409-426.

Mlačić. B., Goldberg, L.R. (2007): An analysis of a cross-cultural personality inventory: The IPIP Big-Five factor markers in Croatia. Journal of Personality Assessment, 88, 168-177.

Moore, S.M., Ohtsuka, K. (1999): Beliefs about control over gambling among young people and their relation to problem gambling. Psychology of Addictive Behaviors, 13, 339-347.

National Research Council (1999): Pathological Gambling: A critical review. National Academy Press. Washington, DC.

Neal, P., Delfabbro, P., O'Neil, M. (2005): Problem gambling and harm: towards a national definition. Melbourne: Ministerial Council on Gambling. www.adelaide.edu.au. Pristupljeno 15.10.2012.

Nower, L., Derevensky, J.L., Gupta, R. (2004): The Relationship of Impulsivity, Sensation Seeking, Coping, and Substance Use in Youth Gamblers. Psychology of Addictive Behaviors, 18, 1, 49-55.

Raylu, N., Oei, T.P.S. (2004): The Gambling Related Cognitions Scale (GRCS): development, confirmatory factor validation and psychometric properties. Addiction, 99, 757-769.

Rockloff, M.J., Dyer, V. (2006): The four „Es" of Problem Gambling: A Psychological Measure of Risk. The Journal of Gambling Studies, 22, 1, 101-120.

Shaffer, H.J. (1999): Strange bedfellows: A critical view of pathological gambling & addiction. Addiction, 94, 1445-1448.

Shaffer, H.J., Hall, M.N. & Vander Bilt, J. (1997): Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A Meta-analysis. Harvard Medical School, Division of Addictions.

Shaffer, H.J., LaBrie, R.A., Scanlon, K.M., & Cummings, T.N. (1994): Pathological gambling among adolescents: Massachusetts Gambling Screen (MAGS). Journal of Gambling Studies, 10, 4, 339-362.

Sharpe, L. (2002): A Reformulated Cognitive-behavioral Model of Gambling: A Biopsychosocial Perspective. Clinical Psychology Review, 22, 1-25.

Steenbergh, T.A., Meyers, A.W., May, R.K., Whelan, J.P. (2002.): Development and Validation of the Gamblers Beliefs Questionnaire. Psychology of Addictive Behaviors, 16, 2, 143-149.

Tabachnick, B.G. i Fidell, L.S. (2007): Using Multivariate Statistics. Allyn & Bacon. Boston.

Tomaš, T. (2010): Vremenska perspektiva, rizična ponašanja i bavljenje sportom kod studenata. Diplomski rad. Odsjek za psihologiju Filozofskog fakulteta u Sveučilišta u Zagrebu. Zagreb.

Tremblay, J., Stinchfield, R., Wiebe, J., Wynne, H. (2010): Canadian Adolescent Gambling Inventory (CAGI) Phase III Final Report. Submitted to the Canadian Centre on Substance Abuse and the Interprovincial Consortium on Gambling Research.

Turner, N.E., Zangeneh, M., Littman-Sharp, N. (2006): The Experience of Gambling and its Role in Problem Gambling. International Gambling Studies, 6, 2, 237-266.

Volberg, R.A. (2002): Gambling and Problem Gambling Among Adolescent in Nevada. Nevada Department of Human Resources. Carson City, NV.

Zakon o igrama na sreću (2009): Narodne novine, 87/2009.

Zimbardo, P.G., Boyd, J.N. (1999.): Putting time in Perspective: A Valid, Reliable Indicidual-Differences Metric. Journal of Personality and social Psychology, 77, 6, 1271-1288.

Welte, J.W., Barnes, G., Tidwell, M.O., Hoffman, J.H. (2009): Association Between Problem Gambling and Conduct disorder in a National Survey of Adolescents and Young Adults in the United States. Journal of Adolescent Health, 45, 396-401.

Winters, K.C., Stinchfield, R.D., Fulkerson, J. (1993a): Toward the Development of an Adolescent Gambling Problem Scale. Journal of Gambling Studies, 9, 63-84.