Toward an understanding of predictive and protective factors in gambling

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Abstract

Our research examined those motives that could predict or protect from the negative effects of gambling. Motivational constructs (risk factors) and the five dimensions of resilience (protective factors) were considered. 879 participants completed the following questionnaire: Socio-anagraphic data, South Oaks Gambling Screen, Resilience Scale for Adults, Gambling Motivation Scale. Causal analysis assessed the relationships between the variables. ANOVA indicated that gambling groups differed on social competence and family cohesion (resilience), and on gambling intrinsic motivation, extrinsic motivation, and amotivation. Logistic regression models showed that protective factors had an indirect effect on gambling outcomes. More complex analysis models are required.

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1. Introduction

Economic crisis, unemployment, legalized and online gambling are some of the social factors that are causing the exponential increase of gambling behaviour. Over the course of the last 15 years and referring to Jacobs’ (1986) “general theory of addictions” as a framework for conceptualizing addiction, much attention has been focused on the youth gambling problem and on the profile of adolescent gamblers. As a matter of fact, in the late 1990s and early 2000s adolescent pathological gamblers were characterized by lower self esteem, higher rates of depression (Gupta & Derevensky, 1998, 2000, 2004), poor general coping skills (Nower, Gupta, & Derevensky, 2004; Bergevin, Gupta, & Derevensky, 2006)), higher anxiety (Gupta & Derevensky, 1998; Vitaro, Ferland, Jacques, & Ladouceur, 1998), and heightened risk for suicide ideation and attempts (Gupta & Derevensky, 1998; Dickson, Derevensky, & Gupta, 2008). In addition to this profile, other studies dealt with the predictive factors related to increased delinquency and crime, disruption of familial relationships and decreased academic performance (Fisher, 1993;
Ladouceur & Mileault, 1998; Stinchfield, 2004). Within these empirical investigations, Jessors adolescent risk behaviour model (Jessors, 1998; Jessors et al., 1995; Jessors, Turbin, & Costa, 1998) was useful to conceptualize gambling behaviour, hypothesizing that protective factors valid for other addictions can also provide a buffer against the acquisition, development, and maintenance of youth gambling problems (Dickson et al., 2002). Consequently, this perspective could suggest the design of “general mental health prevention programmes that aim to foster resilience” (Dickson et al., 2008, p. 26).

Resilience has been differently defined. Fergus and Zimmermann (2005) have identified three models, i.e., compensatory, protective, and challenge in reference to those protective/promotive factors that can alter the trajectory from risk exposure to negative outcome (Garmezy, Masten, & Tellegen, 1984; Rutter, 1985; Zimmerman & Arunkumar, 1994; Bastianoni & Taurino, 2012a). Albeit family cohesion, mentorship, school connectedness, achievement motivation, involvement in conventional activities, and coping strategies have been examined singularly as protective factors for youth high-risk behaviours (e.g., Dickson, Derevensky, Gupta, 2008), only two empirical studies have sought to identify the psychological construct of resilience as a protective/promotive factor related to the specific adolescent problem of gambling (Lussier et al. 2007; Goldstein et al., 2013).

One of the specific aims of the current paper was then to further highlight the role of resilience as an individual’s capacity to avoid pathological gambling despite the exposition and the easy access to various forms in which it is offered. To this purpose, a multidimensional construct of resilience was considered the most suitable. It includes various factors (Personal Competence, Social Competence, Family Coherence, Social Support, and Personal Structure) regarding both internal resources, i.e. psychological skills, and external ones, i.e. the possibilities for the individual to take advantage of family, social and external support systems in order to cope better with stress (Friborg et al., 2003; Bastianoni & Taurino, 2012b).

Another little explored area of research on gambling concerns the relationship between resilience and the construct of motivation conceptualized as a risk factor, i.e., a key determinant of gambling involvement. The second purpose of the paper was to analyze this relationship.

Regarding the utilization of the concept of motivation applied to gambling, the Self-determination theory was chosen as a valid starting point of the research. This theory focuses on those internal and external forces that trigger, direct, intensify, and lead to the persistence of a behaviour (Vallerand & Thill, 1993). On the basis of Deci and Ryans theory (1985; 2000), seven types of gambling motivation have been identified: a tripartite taxonomy of intrinsic motivation (toward knowledge, toward accomplishment, and toward stimulation), a tripartite taxonomy of extrinsic motivation (due to identified regulation, due to external regulation, and due to introjected regulation), and, finally, amotivation (Vallerand et al., 1989; Vallerand & Bissonnette, 1992). Further tripartizations were: self-determined motivation, non self-determined motivation, and amotivation (Chantal & Vallerand, 1994, 1996). The first, which supports the needs of competence, autonomy, and relatedness, includes the three above mentioned intrinsic motivations, as well the first type of extrinsic motivation (i.e., identified regulation). Within the gambling context, people are driven by the desire of acquiring information about new games (for knowledge), by the want of improving skills in their betting activities (for accomplishment), by the craving for fun and excitement (for stimulation), and by additional values connected to the gambling activity, e.g., relaxation and socialization with friends (identified regulation).

With regard to non self-determined motivation, there are two types: external regulation and introjected regulation (Chantal & Vallerand, 1996; Ryan & Deci, 2000). The former is implied when gambling behaviours are regulated by external rewards like the hope of becoming rich. Monetary reward is the most frequently cited reasons for gambling in various age and ethnic groups (e.g., Giacopassi, Nichols, & Stitt, 2006; Lee et al. 2007; Neighbors et al. 2002). The reasons for extrinsically motivated behaviours may become internalized. This introjection like ego involvement (i.e., introjected regulation) involves internalized beliefs rooted from past external contingencies (e.g., winning games or making a large bet promote one’s status in the eyes of other people) (Chantal et al., 1994). The internalized beliefs may become a source of tension/stress and “force” people to gamble.

The last third type of gambling motivation, i.e., amotivation, refers to people who do not perceive contingencies between an outcome and their gambling participation and fail to experience the sense of choice/control over their gambling. Since the absence of perceived contingencies between one’s actions and outcomes characterizes a loss of control over the actions, amotivation has been often associated with problem gambling (Carruthers et al. 2006; Oei & Raylu, 2010).
The general purpose of the paper was then to investigate the relationship between risk and protective factors and their effects on gambling behaviour. In details, we examined: 1. whether each dimension of resilience and gambling motivation differed as a function of gambling severity, and 2. the direct/indirect effects of predictors on gambling outcomes. It was expected that resilience dimensions would contrast the effect of gambling motivation as hypothesized by Fergus and Zimmermann’s compensatory model (2005).

2. Methods

2.1. Participants

The sample was initially composed of 903 subjects. 24 participants were excluded because they did not complete the questionnaire. Out of 879 participants, 347 were males and 532 were females. The mean age was 26.58 ± 10.63.

2.2. Procedure and measures

The four instruments were integrated into a single questionnaire. The data were collected by psychologists in the Universities of Southern Italy, in three therapeutic communities, and in casino gaming and slot machine rooms. Written informed consent was obtained from all participants before the data collection. Participation was voluntary and it was assured total anonymity and confidentiality. Administration of the instruments required approximately 45 min. 1. Demographics. Participants were asked to provide information on their age, gender (Male = 1; Female = 2), marital status (1 = Single, 2 = Married, 3 = Separated/Divorced, 4 = Widowed), education, and work status. 2. South Oaks Gambling Screen (SOGS). This 20-item scale (Lesieur & Blume, 1987, 1993) is based on a self-report diagnostic tool. According to the Diagnostic and Statistical Manual (DSM-IV; American Psychiatric Association, 2000) the diagnostic characteristics include a continuous or periodic loss of control over gambling, a preoccupation with gambling and in obtaining money with which to gamble, and a continuation of involvement despite adverse consequences. Subjects with five or more gambling symptoms (out of 20) have been classified as “probable pathological gamblers”, while subjects with three or four symptoms are considered “at-risk gamblers” (Erickson et al., 2005; Wiebe & Cox, 2005). Participants are asked to respond to the items with “yes” or “no”. The affirmative responses were summed to form a total score. The internal consistency of the scale was found to be satisfactorily high (Cronbach’s alpha = .827). 3. Gambling Motivation Scale (GMS; Chantal et al., 1994). This 28-item scale includes the seven sub-scales corresponding to the above mentioned three types of motivation: 1. Intrinsic Motivation (IM) toward Knowledge, toward Accomplishment and toward Stimulation, 2. Extrinsic Motivation (EM) involving External Regulation, Introjected Regulation and Identified Regulation, and 3. Amotivation. Participants are asked to rate each item on a 7-point Likert scale ranging from Does not correspond at all to Corresponds exactly. The internal consistency of the scale was found to be satisfactorily high (Cronbach’s alpha = .962). 3. Resilience Scale for Adults (RSA; Friborg et al. 2003). This tool assesses the presence of those influential protective factors that maintain mental health and promote adult resilience. It uses a 33-item, 5-point semantic differential scale in which each item has a positive and a negative attribute at each end of the scale continuum. The positive attributes are keyed to the right for half of the items to reduce acquiescence biases. The RSA contains five factors: personal competence, social competence, family coherence, social support, and personal structure. The internal consistency of the scale was found to be satisfactorily high (Cronbach’s alpha = .830).

2.3. Data analysis

Participants were divided into three groups based on gambling severity as measured by the SOGS, i.e., non-gamblers (SOGS score = 0-2), at-risk gamblers (SOGS score = 3-4), and probable pathological gamblers (SOGS score > 5).

Chi-square test of independence was used to test the relationship between gender and SOGS categories. A multivariate analysis of variance (MANOVA) was involved in the original research design in order to determine if there were significant differences within gambling groups on the dependents variables. Unfortunately, exploratory
analyses indicated that the data did not adequately meet the assumptions of MANOVA. One way analysis of variance (ANOVA) was then run to determine whether there were significant differences in the means of each dimension of resilience and motivation between gambling groups. Finally, a series of logistic regressions were run to test the effects of protective factors, i.e., the dimensions of resilience, in the presence of gambling motivation influencing problem gambling. Analyses were performed by using SPSS 20.0.

3. Results

Analyses of the data revealed that 84.5% of the respondents were single, 75.7% had a high school degree, and 63.0% were students. Moreover, 90.6% of participants were classified as non-gamblers (NPGs), 3.4% as at-risk gamblers (RGs), and 6.0% as probable pathological gamblers (PPGs). The most common gambling activities were bingo (48.2%), lotteries (45.9%), cards for money (37.2%), and bets on sports (30.4%), while the least practiced were dice games for money (2.6%), stock market betting (2.7%), and bets on horse or dog races (3.9%). Chi-square test of independence showed a statistically significant relationship between gender and SOGS categories, \( \chi^2 (2, n = 879) = 81.24, p < .000 \): males are more likely to be classified as PPGs (14.1%) and RGs (6.1%) than females (0.8% and 1.7% respectively).

ANOVA analysis indicated that the means between gambling groups were significantly different on two dimensions of resilience, i.e., social competence, \( F(2/878) = 7.703, p < .01 \), family cohesion, \( F(2/878) = 8.227, p < .01 \), and on three dimensions of gambling motivation, i.e., intrinsic motivation, \( F(2/878) = 73.703, p < .01 \), extrinsic motivation, \( F(2/878) = 70.748, p < .01 \), and amotivation, \( F(2/878) = 74.414, p < .01 \). Post hoc analyses showed that NPGs obtained higher mean score (\( M_{NC} = 17.02 \)) on social competence than PPGs (\( M_{NC} = 15.89 \)), while PPGs obtained higher mean score (\( M_{AM} = 15.87 \)) on family cohesion than NPG (\( M_{AM} = 14.39 \)). No significant differences between at-risk gamblers and both NPGs and PPGs were found in the dimensions of resilience. As for the dimensions of gambling motivation, significant differences resulted among the three groups: RGs and PPGs obtained a higher mean score in intrinsic motivation (\( M_{IM} = 14.58 \) and \( M_{IM} = 13.66 \) respectively), extrinsic motivation (\( M_{EM} = 12.08 \) and \( M_{EM} = 12.83 \) respectively), and amotivation (\( M_{AM} = 13.93 \) and \( M_{AM} = 15.98 \) respectively) than NPGs (\( M_{IM} = 7.25 \), \( M_{EM} = 6.96 \), \( M_{AM} = 7.86 \)).

The stepwise logistic regression was performed using risk factors, i.e., the three gambling motivation dimensions, and protective factors, i.e., the dimensions of resilience, as independent variables. The gambling severity was entered as dichotomous dependent variable with NPGs (SOGS scores \( \leq 2 \)) receiving a value of 1 and at-risk/PPGs (SOGS scores \( \geq 3 \)) receiving a value of 2. Three models were computed: (1) all risk factors entered as independent variables; (2) all protective factors entered as independent factors; and (3) all risk and protective factors retained in the previous models were entered. The backward stepwise likelihood-ratio method was used because it examines the overall predictive capability of the model rather than the significance of independents alone (Tabachnick & Fidell, 2001), and it identifies significant variables holding constant the other variables. The strength of association between each risk or protective factors and the outcome of at-risk/pathological gambling was estimated by an odds ratio (OR) with a 95% confidence interval.

| Variable          | B    | E.S. | df | Sig.  | Exp(B)       | 95% CI      |
|-------------------|------|------|----|-------|--------------|-------------|
| Gender            | -1.641| .345 | 1  | .000  | .194         | .098 - 3.81 |
| Age               | .030 | .011 | 1  | .005  | 1.031        | 1.009 - 1.053 |
| Intrinsic Motivation | .087 | .035 | 1  | .012  | 1.091        | 1.019 - 1.168 |
| Extrinsic Motivation | .033 | .042 | 1  | .434  | 1.034        | .951 - 1.123 |
| Amotivation       | .109 | .027 | 1  | .000  | 1.116        | 1.058 - 1.176 |

Notes: B = Parameters, Exp(B) = odd ratio. Gender codification: 1 = male, 2 = female

The first model, including all risk factors as the covariates along with age and gender, showed that only the extrinsic motivation was removed because of its non significant p value (Table 1). The second model with protective factors, gender and age as covariates revealed that only two dimensions of resilience, i.e., family cohesion (OR = 1.097, CI = 1.006, 1.195) and social competence (OR = 0.885, CI = 0.797, 0.982), were statistically significant. Finally, the last model indicated that when risk factors were entered together with protective factors, the latter had an indirect effect on the other variables. In details, the odds of becoming an at-risk/PPGs for those individuals with
one-unit increase both in intrinsic motivation (OR = 1.10, CI = 1.051, 1.16) and amotivation (OR = 1.12, CI = 1.06, 1.18) were not substantial, although these last variables were retained in the model because they increased the model’s overall predictive ability. Females had decreased odds of becoming at-risk/PPGs by 0.20 times (CI = 0.10, 0.40) (Table 2).

### Table 2. Model 3

| Variable          | B    | E.S. | df | Sig. | Exp(B) | 95% CI         |
|-------------------|------|------|----|------|--------|----------------|
| Gender            | -1.591| .346 | 1  | .000 | .204   | 0.103 – 0.401  |
| Age               | .028 | .011 | 1  | .010 | 1.029  | 1.007 – 1.051  |
| Social competence | -.084| .060 | 1  | .161 | .920   | 0.818 – 1.034  |
| Family cohesion   | .055 | .048 | 1  | .255 | 1.057  | 0.961 – 1.162  |
| Intrinsic motivation | .101 | .026 | 1  | .000 | 1.107  | 1.051 – 1.165  |
| Amotivation       | .114 | .026 | 1  | .000 | 1.120  | 1.065 – 1.179  |

Notes: B = Parameters, Exp(B) = odd ratio. Gender codification: 1 = male, 2 = female

### 4. Discussion and conclusion

The present study has analyzed both the differences between the means of each dimension of resilience and gambling motivation among the three severity gambling groups, and the direct/indirect effects of predictors on gambling outcomes. The findings indicated a direct effect of risk and protective factors on gambling outcomes (Models 1 and 2). More specifically, as for risk factors, higher levels of intrinsic motivation and amotivation were positive associated with higher probabilities of pathological risk. That is, regarding intrinsic motivation participants are driven by the needs of competence, autonomy and relatedness, and regarding amotivation they lose the control over their actions showing lower levels of self-awareness about gambling motivations. As a matter of fact, ANOVA demonstrated that at-risk gamblers obtained higher scores on the intrinsic motivation subscale, while PPGs obtained higher scores on the amotivation subscale. As for protective factors, both external (only family cohesion) and internal (only social competence) resilience factors had a direct effect on gambling outcomes. Family cohesion was negative associated with higher probabilities of pathological risk, i.e., the perception of a good family support seemed to be a valid protective factor. The dimension “Social competence” of resilience was positive associated with pathological gambling, i.e., it seemed to be no longer a protective factor. This last contradictory result could be due to the presence of the needs of relatedness considered as a specific feature of intrinsic motivation. Further analyses should investigate the interaction effect of these two variables on gambling behavior. In Model 3, the above mentioned resilience factors (social competence and family cohesion) were found to be associated to gambling severity, although their predictive influence was indirect. As a matter of fact, in that model protective factors lose their predictive power (suggested by Model 2) when added to the risk factor model (Model 1).

Further investigations should include a wider pathological sample from higher risk contexts (community organizations, detention centers and other non-educational settings). From a methodological point of view, more complex analysis models are required to examine the specific paths in which the identified protective and risk factors operate according to the three models of resilience, i.e., compensatory, protective, and challenge (Fergus & Zimmerman, 2005).

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