

## ATTACHMENT RELATIONSHIPS AND INTERNALIZATION AND EXTERNALIZATION PROBLEMS IN A GROUP OF ADOLESCENTS WITH PATHOLOGICAL GAMBLING DISORDER

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### Abstract

**Objective:** The evidence accumulated in the relevant literature suggests that the presence and evolution of gambling could be correlated with the internalizing and externalizing problems and with the attachment style. This paper aims at exploring this perspective further. In particular, it analyses how such risk factors interact within the specific context of adolescent gambling disorder.

**Method:** The sample comprises 91 adolescents, 61 male and 30 female, in the 17-22 age range ( $M = 17.77$ ;  $SD = 0.98$ ). A structural equation model was used to examine the relationship between the Youth Self-Report latent factors and pathological gambling, and the mode of attachment was assumed to act as a moderator.

**Results:** Our results suggest that in the group characterized by a fearful attachment style there was a positive relationship between somatization and propensity to risk ( $p = 0.008$ ), whereas in the dismissing attachment group there was a positive relationship between a greater tendency to delinquent behaviour and gambling risk ( $p = 0.042$ ).

**Conclusions:** The various insecure attachment styles/patterns may contribute in different ways to the development of oppositional-provocative behaviour and problems of conduct in adolescents.

**Key words:** gambling disorder, adolescence, attachment, emotional and behavioral problems

**Declaration of interest:** none

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### Introduction

Gambling among youths has been recognized as a serious public health problem (Bastianoni et al. 2012b, Noel 2014). Most of those who develop a gambling problem have had an early start, with a precocious onset of aggressive and delinquent behaviour, and severance of family relations (Abad et al. 2002, Hanss et al. 2015, Potenza et al. 2011, Stinchfield 2004).

Gambling disorder (GD) is a type of addiction where no external object or substance is involved, but rather a behaviour, that is to say a legalized and socially acceptable activity. The American Psychiatric Association defines GD as persistent and recurrent maladaptive gambling behaviour that leads to clinically significant impairment or distress (APA 2013). The DSM-5 has reclassified the disorder from an otherwise unspecified impulse control disorder to an addiction similar to substance abuse. There is no current consensus among specialists concerning the causes underlying the various degrees of involvement in gambling.

The symptoms encountered by the health services in pathological gamblers in general, and adolescent gamblers in particular, are:

- Craving: gamblers feel an intense and uncontrollable urge to gamble, comparable to that caused by substance abuse (excitation, dysphoria);
- Tolerance: pathological gamblers have lost control of their gambling behaviour; in the course of time, they require increasingly large wagers and devote more time to gambling in order to experience the same rush. They continue gambling despite adverse consequences to their family, their professional career and their social relationships.
- Withdrawal: attempts to reduce or cease gambling are associated with symptoms such as irritability, restlessness, depressed mood, anxiety, insomnia.

The incidence of this clinical disorder among adolescents is worth examining. Adolescents often perceive gambling as a popular form of entertainment, to be enjoyed in the company of friends, just for fun,

in a carefree more or less episodic manner. The risk of addiction is usually associated with daily use rather than a use that is sporadic, limited to the weekend or to particular occasions and events (Scalese et al. 2016, Serpelloni 2013). Youngsters appear to ignore, underestimate or be unaware of the serious and persistent psychological and social-relational problems that pathological addictions such as GD may cause (Currain et al. 2002). Yet adolescent gambling is a high-risk behaviour not to be underestimated. It is often regarded as the point of entry to other deviant behaviours; in fact, the connection between gambling and other types of deviant and aggressive behaviour has often been pointed out (Lee et al. 2012).

Involvement in gambling during adolescence may lead to negative consequences such as problematic relationships, delinquent and aggressive behaviour (Derevensky et al. 2004), depression symptoms (Bonnaire et al. 2009), increased risk of attempted suicide, increased risk of comorbidity with other forms of addiction (Blinn-Pike et al. 2010) and general health conditions: depression, anxiety, loneliness (Chaumeton et al. 2011, Gupta and Derevensky 1998, Hanss et al. 2015, Potenza et al. 2011, Vitaro et al. 2001).

However, it is essential to bear in mind that not all at-risk adolescents will exhibit a pathological behaviour or become pathologically addicted. Given that risk behaviours may possess a functional value in the construction of identity for developmental objectives. In this case the behaviour will be transient and extinguish itself naturally. Only those actions and behaviours above a certain risk threshold may become risk factors leading eventually to problematic conduct and deviance.

Several authors concur in the hypothesis that protective factors effective for other addictions may also shield against the acquisition, development and continuation of youth gambling problems (Bastianoni and Taurino 2012a; Dickson et al. 2002, 2008; Gupta and Derevensky 2006). In fact, a great deal of research carried out in recent years has shown that the syndromic picture, the brain correlates, comorbidity, physiology and treatment of GD are very similar to those pertaining to substance abuse and dependence, even though gambling does not involve the intake of psychoactive substances (Grant et al. 2010, Jacobs 1986, Musetti et al. 2016a, Musetti et al. 2017, Petry et al. 2013).

Adolescent gambling may be regarded not as a specific clinical disorder, but rather as a correlate of the inability to control behaviour as a reflection of an impaired capacity to master internal states. In particular, it is plausible that the propensity to gamble may be stoked by the adolescent's tendency to externalize conflict; thus, it may be understood as the prevalence of acted-out behaviours such as transgression and aggression which arises from the subjects' inability to regulate their emotions and impulses.

Externalizing problems are conceivable in terms of a construct that includes delinquent and aggressive behaviour (Achenbach 1991); it has been shown to be significantly stable from childhood to adolescence, and may be regarded as a predictive factor of antisocial behaviour in later life (Masten et al. 2005). The high incidence and seriousness of externalizing problems underline the importance of investigating those factors and processes that contribute to their development and stability (Guttman-Steinmetz and Crowell 2006).

Furthermore, it is important to note that if, on the one hand, some adolescents may externalize their internal emotional states, on the other there may be adolescents who internalize them (Corsano et al. 2016). In fact,

internalization comprises non-manifest internalized maladaptive behaviours that adolescents develop and keep within themselves; in other words, when faced with intolerable emotional states and suffering, some adolescents attempt to control and regulate their emotions and thoughts autonomously and inadequately (Colins 2016, Lacasa et al. 2015, Tambelli et al. 2012; Terrone and Santona 2012).

Among other factors that play a fundamental role in addictive behaviour, and may also plausibly play a role in adolescent gambling dependency, we may consider attachment styles (Diamond and Marrone 2003, Flores 2004).

From some studies we know that secure attachment has a positive effect in adolescents and is negatively correlated with acting-out behaviours such as theft, drug use, vandalism (Noom et al. 1999), aggressive behaviour (Laible et al. 2000), and internalizing problems such as anxiety and depressive moods (Allen et al. 1998, Nada-Raja et al. 1992), often regarded as risk factors.

In this framework, dependence behaviour may be regarded as an attachment disorder (Flores 2004, Schimmenti et al. 2012) and as an attempt to self-regulate and self-soothe (Khantzian 1997, Schimmenti and Caretti 2010). People who feel unlovable and neglected, who have developed a negative self-image due to negative relationships during their childhood, may attempt to create bonds of closeness and trust by developing a addictive behaviour (Musetti et al. 2016b). In this case, the need for attachment shifts onto a psychoactive substance, an impersonal object, an activity or specific behaviour that the person thus develops dependence for shielding from further pain and rejection (Hofler and Kooyman 1996, Pace et al. 2013).

It should be pointed out, however, that few researchers have specifically analysed the relationship between adolescent gambling and attachment styles. One such study, by Di Trani and colleagues (2016), found a relationship between alexithymia and attachment, and gambling disorder. In another study, by Pace and colleagues (2013), pathological adolescent gamblers exhibited a higher incidence of insecure attachment with respect to non-gambling or at-risk adolescents.

Furthermore, only a few studies in Italy have attempted to establish a relationship between quality of attachment relationships and internalization and externalization problems in adolescents with gambling disorder (Pace et al. 2013).

In short, the evidence gathered so far suggests that the presence and evolution of gambling disorder could be correlated with the internalizing and externalizing problems and with the attachment style. This paper aims at further exploring this perspective, hitherto under-represented in the literature. More specifically, the contribution this paper intends to offer is an analysis of how such risk factors interact in the context of adolescent gambling disorder.

## Objectives

In accordance with the conceptual models described above and the empirical studies explored, this paper will examine:

1. If GD constitutes risk factors for internalizing and externalizing problems.
2. If attachment can play a moderating role for internalizing and externalizing problems.

More specifically, this paper will test the following hypotheses:

- α. internalizing and externalizing problems positively predict GD.
- β. this influence is moderated by the attachment style, and by insecure attachment in particular.

## Method

### Participants

The participant group was comprised of 224 adolescents, chosen from several secondary schools of Rome; all of them took part in the first stage of the study. On the basis of a self-report of their gambling behaviour, the participants were classified into three groups: a) non-gamblers (N = 177); b) at-risk gamblers (N = 30); c) pathological gamblers (N = 17). Since the group of non-gamblers was much larger than the other groups, a balanced sample was drawn from the group of at-risk and pathological gamblers (group B, N = 47) on the basis of gender, age and socioeconomic status (SES). The final sample consisted of 94 adolescents, 62 males and 32 females, in the age range of 16-20 years (M = 17.51; SD = 0.815). Propensity to gambling was evaluated through the South Oaks Gambling Screen (SOGS).

### Measures

**Gambling.** South Oaks Gambling Screen-Revised for Adolescents (SOGS; Lesieur and Blume 1987, Italian version of Colasante et al., 2014); this questionnaire consists of 16 closed, multiple-choice questions – not all compulsory – that deal with the frequency aspect (e.g. When you gamble, how often do you go back another day to win back money you lost?, which may be answered with always or most of the time –1 point – and some of the time or never – 0 points) and with gambling behaviour (e.g. Did you ever gamble more than you intended?, to which the answer can be Yes – 1 point) or No – 0 points). The total score is the sum of all points; higher scores indicate a higher degree of problematic gambling. With this measure participants can be classified into three groups: non-problematic (0-2 points), at-risk (3-4 points) and pathological gamblers (5 points or more).

**Attachment.** The Relationship Questionnaire (RQ, Bartholomew and Horowitz 1991) contains four brief statements describing each of the four attachment styles: a) secure (It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.); b) fearful-avoidant (I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.); c) preoccupied (I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.); d) dismissive-avoidant (I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.) Adolescents are invited to

choose the statement that best describes them, and then rate each of them on a Likert scale (from 1 – disagree strongly to 7 – agree strongly) according to how well or how poorly it fits their self-description. Through the choice of statement, each participant is assigned to an attachment style; through the rating according to how well or poorly each description corresponds to your general relationship style, each pattern is assigned a score.

**Adaptive and maladaptive behaviors.** Youth Self-Report questionnaire (YSR, Achenbach 1991, Achenbach and McConaughy 1997), a self-descriptive instrument, is particularly suited to obtain direct information from the adolescents themselves with respect to their adaptive functions, in several behavioural and emotional dimensions. An advantage of the YSR is that it can be applied in several contexts (educational, psycho-social, health-service related) and for various objectives (prevention, clinical assessment, assessing the efficacy of measures, epidemiologic and longitudinal studies for clinical and research purposes).

The participants completed the 112 items of the Youth Self Report (YSR). The YSR provides both general problem scales (Internalizing, Externalizing, and Other problems) and syndrome scales (Withdrawn, Somatic complaints, Anxious/Depressed; Delinquent behaviour, Aggressive behaviour; Thought, problems, Attention problems and Self destructive/Identity problems). Two items are embedded, one relating to suicidal ideation: "I think about killing myself," and the other to self-harm behaviour: "I deliberately try to hurt or kill myself". Items are rated on a 3-point scale, with responses ranging from 0 for "not true", 1 for "somewhat or sometimes true", and 2 for "very true or often true". Factorial analysis carried out on the translated version of the YSR confirms the original structure with two factors, internalization (37 items; Cronbach's alpha = 0.71) and externalization (33 items; Cronbach's alpha = 0.74). A weighed sum (according to the number of elements in each scale) of problem internalization and externalization was calculated for each participant, with higher scores indicating a higher level of problematic behaviour.

### Data analysis

A preliminary analysis was carried out, including descriptive statistics for all variables.

One-way univariate ANOVA with 'group' (gamblers vs. healthy controls) as the independent variable and the specific roles of the externalizing and internalizing as the dependent variable in order to verify whether internalizing and externalizing problems operate as risk factors for pathological gambling. Univariate analyses were carried out using SPSS 20.0.

In order to verify the relationship, structural equation modelling (SEM) was implemented using the MPLUS software (ver. 1.4, Muthén and Muthén 2004).

The SEM constitutes a powerful statistical technique for testing the mechanism underlying an outcome, through the modeling of the global set of interrelations between the variables implicated in the phenomenon under study (Rabe-Hesketh et al. 2004). Thus it is also possible to use it as an extension of multiple regression modelling for exploratory purposes (Stevens 2002).

SEM also allows for "third-variable" moderators, i.e. variables whose levels can modify the causal effect of an observed relationship (Baron and Kenny 1986).

Cross-validation is used to assess the homogeneity

between one group and another from the same population (nested models). Indeed, if the moderator is a category variable, multi-group SEM may be applied (Byrne 1998, Kline 2005) to verify whether the effect or effects under scrutiny are significantly different between the groups defined by the moderator variable, specifying the same model for each category and ensuring that structural links remain constant across groups. If invariance is obtained, then it cannot be said that the category variable acts as a moderator over the path in question. This is also often called Simultaneous Analysis.

In the following model we applied data collected from the attachment style to the same path model, so we posit a relationship between the adolescent subjects' adaptive functioning and pathological behaviour; nevertheless, we also hypothesized that the attachment style may modify this relationship. Since the dependent variable (propensity to risk) is dichotomic, we have employed the Weighted Root Mean Square Residual (WLSMV, Muthén 1984) as an estimator.

## Results

Univariate analyses (ANOVA) did not show significant effects between groups (gambling vs non-gambling) with respect to internalizing and externalizing problems and their respective subscales.

The first model brought together the YSR latent factors and pathological gambling. The model thus implemented was estimated to have a good fit (chi square test 16.150;  $df\ 7\ p < .05$ ; RMSEA = 0.060, CFI = 0.979, TLI = 0.948), but the path between the latent variables and pathological gambling was not significant; yet, as **figure 1** shows, the observed variables turn out to be significant indicators of the respective internalizing and externalizing latent variables. Hence, the instrument's validity is generally confirmed.

The next analyses posited a moderating effect for the subject-reported attachment style. To this end, analyses were repeated for subject groups defined by attachment patterns. The  $\chi^2$  difference constrained model' (Model for the 'unconstrained model' (Model H1) versus null model H0) was statistically significant (chi square test 12.637;  $df\ 7\ p < .05$ ).

The **figure 2** shows the path between latent factors

and gambling risk once the invariance constraint has been dissolved in order to allow a better adaptation of the initial model. The model's fit is highly significant (RMSEA = 0.000, CFI = 1.000, TLI = 1.172); hence, the model demonstrates a significant link between externalizing factors and gambling, but only for Dismissing group.

In addition, in the Fearful group a trend relationship between the internalizing latent factor and gambling disorder ( $\beta = 0.785$  st.err. = 0.415  $p = 0.058$ ) was observed.

This potentially significant relationship, and the high significant residues in the observed variables for both the Dismissing and Fearful groups, suggest – in the case of these two subgroups – that the YSR scales should be directly related to the independent variable being examined.

In this case too the initial bound model, constant for all groups, was analysed, and then the bounds were relaxed; not all scales, however, had enough subjects to examine the propensity to gambling causation hypothesis. For this reason, the "withdrawn" and "aggression" scales were eliminated.

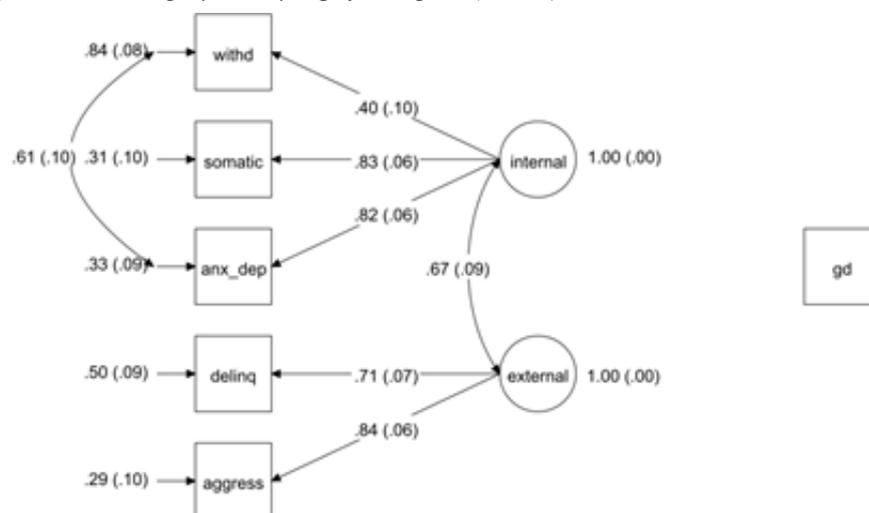
As shown in **figure 3**, the paths between YSR scales and gambling risk are different for the different attachment groups identified through the Relationship Questionnaire, thus confirming the moderator role played by the attachment style (RMSEA = 0.000, CFI = 1.000, TLI = 1.000).

The results show that for the fearful attachment group a relationship exists between somatization and propensity to risk ( $p = 0.008$ ). The relationship has positive sign, and hence a higher tendency to somatization corresponds to a greater propensity to gambling. For the Dismissing group, a positive relationship observed between a higher tendency to delinquent behaviour and gambling risk ( $p = 0.042$ ).

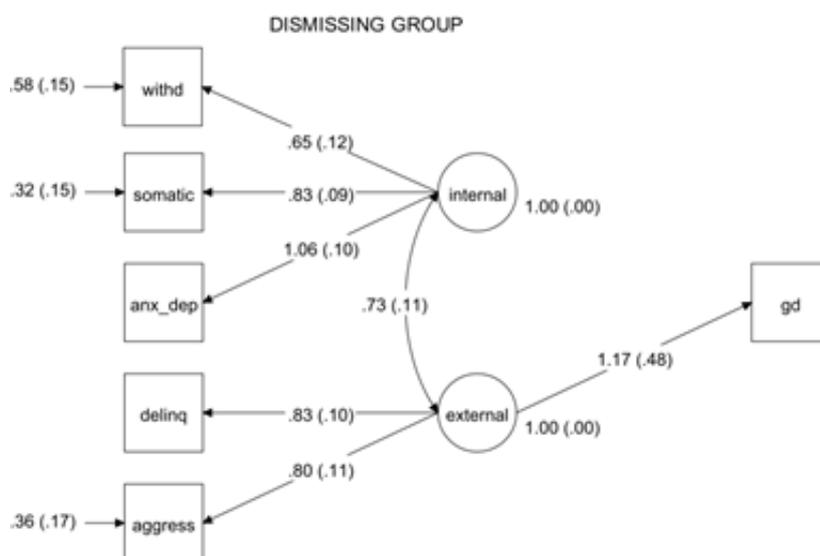
## Discussion

Contrary to our first hypothesis, GD did not constitute a risk factor for internalizing and externalizing problems in the group of adolescents we assessed. This surprising result deserves a particular mention because many studies found a direct link in line with our hypothesis (Milosevic, 2011). However, adolescence is

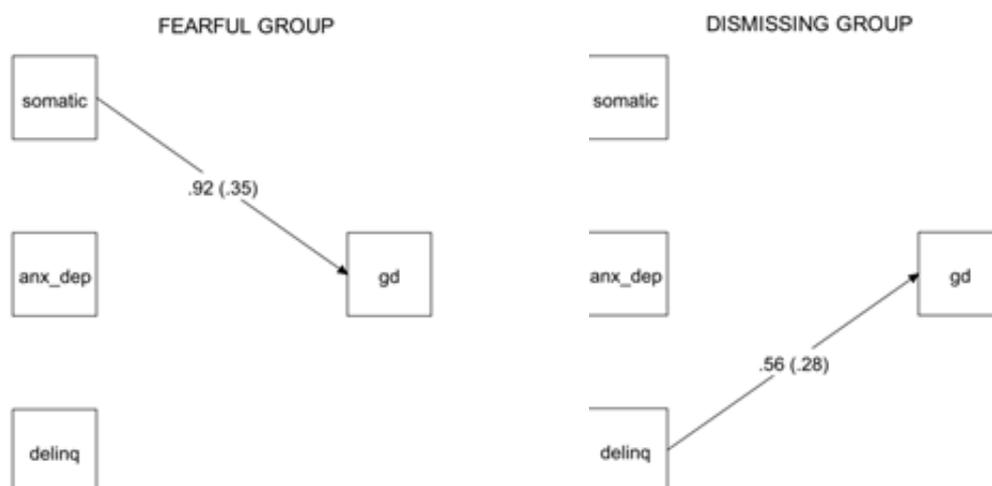
**Figure 1.** Standardized parameter estimates (std. err.) between Youth Self Report (YSR) scales and gambling disorder (GD) outcomes. Displayed only significant path ( $n = 91$ )



**Figure 2.** Moderation role of attachment: standardized parameter estimates (std. err.) between Youth Self Report (YSR) scales and gambling disorder (GD) outcomes. Displayed only significant path for dismissing group (n = 28)



**Figure 3.** Moderation role of attachment: standardized parameter estimates (std. err.) between Youth Self Report (YSR) scales and gambling disorder (GD) outcomes. Displayed only significant path for dismissing (n = 28) and fearful groups (n=11)



a developmental stage which is particularly vulnerable to maladjustment (Corsano et al. 2014). So, one explanation for our result could be that internalizing and externalizing problems are not causally linked to GD since adolescence is per se a critical period (Chambers et al. 2003).

In the present study, adolescents with a dismissing attachment were found to be connected to externalizing problems and propensity to gambling risk. In particular, a positive relation was found between rule transgression, propensity to delinquent behaviour and gambling risk.

Previous studies have found that both the preoccupied (Allen et al. 2002, Allen et al. 1998) and the dismissing/avoiding (Rosenstein and Horowitz 1996) attachment patterns are correlated to externalizing symptomatic behaviours in adolescents, delinquent behaviour and anger (Muri et al. 2003, 2004) in particular. The results of this study concur: the various insecure attachment styles may contribute in different ways to the development

of oppositional-provocative behaviour and problems of conduct in adolescents. Subjects characterized by a dismissing attachment style may exhibit delinquent and anti-social behaviour, devalue the importance of attachment relationships and keep their distance from parents who do not fulfil their attachment requirements (Mikulincer and Shaver 2007).

In addition, a relationship was found between somatization and propensity to risk in the group of fearful attachment adolescents, though not over the whole internalizing scale. This means that for fearful attachment adolescents, a higher somatization corresponds to a greater propensity to gambling.

The fearful attachment entails a hyper-activation of negative emotions and feelings (Shaver and Mikulincer 2002) and of internalizing symptoms, particularly anxiety problems, somatic complaints and affective disorders. These adolescents may activate hyper-vigilant attitudes towards their attachment figures

and exaggerate their emotions, in an attempt to draw the attention of an inconsistent or only sporadically sensitive reference figure (Allen et al. 1998, Dozier and Lee 1995, Kobak et al. 1993, Ronnlund and Karlsson 2006).

Adolescents with a fearful attachment may use their emotional-behavioural symptoms, e.g. somatization, as an extreme and ambivalent means to elicit a response from the caregiver. They may engage in hostile or even self-destructive behaviour, while at the same time expressing anxiety and somatization in order to draw their parents' attention.

Several studies have shown that a positive attachment relationship provides a secure base, enabling distress management through support (Scott Brown and Wright 2001, Shirk et al. 2005), and that a relationship of trust between adolescents and their parents restricts the possibilities of involvement in deviant behaviour (Vieno et al. 2009).

A positive relationship with parents, built on the basis of adequate monitoring and consistent discipline (e.g. positive reinforcement, high levels of support and a good relationship with peers) reduces the incidence of behavioural disorders (Brody et al. 2001, Gaik et al. 2010, Hill and Herman-Stahl 2002, Hilton et al. 2010, Mounts and Steinberg 1995, Sternberg et al. 2006).

A stable and reliable relationship has a protective function on adolescents' deviant and harmful behaviors (Bradford and Lyddon 1993, Corsano et al. 2017, Laible et al. 2004).

## Conclusions

To use a well-known phrase, gambling may be a psychic retreat (Steiner 1993): an opportunity to construct a parallel, alternative reality to everyday life. A mental place, but also a place with well-defined spatial-temporal dimensions in which to seek deliverance from the shackles of everyday life, from toil, from the reality principle, in order to better coexist with it all. In that psychic retreat the distress of everyday life can be neutralized, controlled and elaborated.

Recreational use of some behaviours is one of the most complex problems clinical and dynamic psychology has to face. We are taken aback by these juvenile behaviours that appear to be mostly related to typical adolescent difficulties, but are now compounded by a complex social and cultural context.

Such behaviours have in common the pursuit of immediate pleasure, and the risks associated with loss or lack of control, but they are enacted within a vast territory where the boundary between the healthy and the pathological, between normalcy and deviance is hard to trace.

Sometimes they are a way to express the difficulties experienced when reaching a new developmental stage, such as assuming a new social or sexual identity, or drawing up an interesting, convincing personal life project.

Epidemiological studies do in fact categorize the phenomenon within a moderately transgressive framework of normalcy, and describe at-risk gamblers as a population of young, well-integrated individuals with no particular problems (Bastiani et al. 2011) from a clinical point of view; it can be said, on the other hand, that the apparent stereotyped normalcy hides a complex scenario that constitutes a more or less conscious symptomatic solution. These youngsters express their unease above all through a feeling of inadequacy and inferiority that prevents them from

living social situations naturally. The deep-seated fear that their sexual and social identity might fall short of their own – and their peers' – expectations appears to point to a fragility with respect to the area of narcissistic representations of the self.

The search for one's self, gender and social identity, the future, hope, the relationship with one's body, limits, pleasure, and risk are psychological themes that constantly underpin antisocial behaviour, whether recreational or problematic. It is a search for subjectivization that, as the youngsters themselves clearly reveal, has unawareness as one of its main characteristics, and may therefore become risky, even in the absence of self-harm intentions.

To recognize oneself as the subject of one's actions is the key requisite of all growth and individuation, in circumstances where one of the main risks adolescents have to face is precisely that of living one's life with the deep conviction of being neither its author nor its main character.

## Limitations

The present study contains some limitations with respect to matters of substance and design, as well as restrictive hypotheses in psychometric SEM analysis. The cross-sectional design of the study, the use of self-reported measures to investigate attachment and the use of a screening instrument and not of a diagnostic instrument for gambling disorder limit the generalizability of the findings. Moreover, we have no information on the kind of games of chance participants engage in, nor are participants differentiated by age and sex. Furthermore, in relation to the hypotheses formulated for the statistical analysis, we did not control measure invariance between the age and sex subgroups.

## Further research

This document provides some information on the multi-dimensional nature of gambling disorder, underlining its emotional aspect. Further research is required in order to determine whether protective and risk factors are equally identifiable in different age and sex groups. Furthermore, it is necessary to investigate possible differences related to the preferred games of chance.

## References

- Abad J, Fornis, M & Gómez J (2002). Emotional and behavioral problems as measured by the YSR: Gender and age differences in Spanish adolescents. *European Journal of Psychological Assessment* 18, 2, 149-157.
- Achenbach TM & McConaughy SH (1997). *Empirically Based Assessment of Child and Adolescent Psychopathology*. Thousand Oaks, CA: Sage Publications, Inc.
- Achenbach TM (1991). *Manual for the Youth Self-Report and 1991 Profile*. Burlington: University of Vermont, Department of Psychiatry.
- Allen JP, Marsh P, McFarland C, McElhanev KB, Land DJ, Jodl KM et al. (2002). Attachment and autonomy as predictors of the development of social skills and delinquency during mid adolescence. *Journal of Consulting & Clinical Psychology* 70, 56-66.
- Allen JP, Moore C, Kuperminc, G, Bell K (1998). Attachment and adolescent psychosocial functioning. *Child Development* 69, 1406-1419.

- American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed., text revision. Washington, DC: American Psychiatric Association.
- Baron M, Kenny DA (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology* 51, 6, 1173-1182.
- Bartholomew K, Horowitz LM (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology* 61, 226-244
- Bastianoni P, Taurino A (2012a). Teorie, metodi e strumenti. Clinica e ricerca nelle comunità per minori. *Psicologia Clinica dello Sviluppo* 16, 1, 65-70.
- Bastianoni P, Zullo F, Taurino A (2012b). La ricerca-intervento come processo formativo nelle comunità per minori: l'esperienza in un contesto residenziale per adolescenti. *Psicologia Clinica dello Sviluppo* 16, 133-143.
- Bastiani L, Gori M, Colasante E, Siciliano V, Capitanucci D, Jarre P, Molinaro S. (2011). Complex Factors and Behaviors in the Gambling. *Journal of Gambling Studies* 29, 1-13.
- Blinn-Pike L, Worthy SL, Jonkman JN. (2010). Adolescent gambling: a review of an emerging field of research. *Journal of Adolescent Health* 47, 223-236.
- Bonnaire C, Bungener C, Varescon I (2009). Subtypes of French pathological gamblers: comparison of sensation seeking, alexithymia and depression scores. *Journal of Gambling Studies* 25, 455-471.
- Bradford E, Lyddon W (1993). Current parental attachment: Its relation to perceived psychological distress and relationship satisfaction in college students. *Journal of College Student Development* 34, 256-260.
- Brody GH, Conger R, Gibbons FX, Ge X, McBride Murry V, Gerrard M, Simons RL (2001). The influence of neighborhood disadvantage, collective socialization, and parenting on African American children's affiliation with deviant peers. *Child development* 72, 4, 1231-1246.
- Byrne BM (1998). *Structural Equation Modeling with LISREL, PRELIS and SIMPLIS: Basic Concepts, Applications and Programming*. Mahwah. New Jersey: Lawrence Erlbaum Associates.
- Cammarella A, Mazolini L, Oliviero M, Terrone G, Petrocchi M, Ammaniti M (2006). Indagine sui problemi emozionali e comportamentali dei giovani di scuola media: uno studio di screening. *Infanzia e adolescenza* 5, 3, 149-159.
- Chambers RA, Taylor JR, Potenza MN (2003). Developmental neurocircuitry of motivation in adolescence: a critical period of addiction vulnerability. *American Journal of Psychiatry* 160, 6, 1041-1052.
- Chaumeton NR, Ramowski SK, Nystrom RJ (2011). Correlates of gambling among eighth-grade boys and girls. *Journal of School Health* 81, 374-385.
- Colasante E, Gori M, Bastiani L, Scalese M, Siciliano V, Molinaro S (2014). Italian adolescent gambling behaviour: Psychometric evaluation of the South Oaks Gambling Screen: Revised for Adolescents (SOGS-RA) among a sample of Italian students. *Journal of Gambling Studies* 30, 4, 789-801.
- Collins OF (2016). Psychometric Properties and Clinical Usefulness of the Youth Self-Report DSM-Oriented Scales: A Field Study among Detained Male Adolescents. *International Journal of Environmental Research and Public Health* 13, 9, E932.
- Corsano P, Majorano M, Musetti A, Antonioni MC (2014). Autonomia emotiva e solitudine in adolescenti con abuso di sostanze. *Psicologia Clinica dello Sviluppo* 17, 2, 257-278.
- Corsano P, Musetti A, Gioia S (2016). Tipi di personalità junghiani di estroversione e introversione e solitudine in adolescenza [Extraversion and introversion Jung's personality types, loneliness and aloneness during adolescence]. *Psicologia Clinica dello Sviluppo* 2, 293-304
- Corsano P, Musetti A, Caricati L, Magnani B (2017). Keeping secrets from friends: Exploring the effects of friendship quality, loneliness and self-esteem on secrecy. *Journal of Adolescence* 58, 24-32.
- Curran H, Brignell C, Fletcher S, Middleton P & Henry J (2002). Cognitive subjective dose-response effects of acute oral delta 9-tetrahydrocannabinol (THC) in infrequent cannabis users. *Psychopharmacology* 164, 61-70.
- Derevensky J, Gupta R, Messerlian C, Gillespie M (2004). Youth gambling problems: a need for responsible social policy. In: Derevensky, J., Gupta, R., editors. *Gambling Problems in Youth: Theoretical and Applied Perspectives* (pp. 231-252). New York: Kluwer Academic Publishers.
- Di Trani M, Renzi A, Vari C, Zavattini GC, Solano L (2016). Gambling Disorder and Affect Regulation: The Role of Alexithymia and Attachment Style. *Journal of gambling studies* 33, 2, 649-659.
- Diamond N, Marrone M (2003). *Attachment and intersubjectivity*. Wiley: New York.
- Dickson L M, Derevensky J, Gupta R (2002). The prevention of gambling problems in youth: A conceptual framework. *Journal of Gambling Studies*, 18, 97-159.
- Dickson L, Derevensky JL, Gupta R (2008). Youth Gambling Problems: Examining Risk and Protective Factors. *International Gambling Studies* 8, 1, 25-47.
- Dozier, M, Lee SW (1995). Discrepancies between self- and other-report of psychiatric symptomatology: Effects of dismissing attachment strategies. *Development and Psychopathology* 7, 217-226.
- Flores PJ (2004). *Addiction as an attachment disorder*. New York: Jason Aronson.
- Gaik LP, Abdullaha MC, Habibah E, Jegak U (2010). International Conference on Learner Diversity 2010 Development of Antisocial Behaviour. *Procedia Social and Behavioral Sciences* 7, 383-388.
- Grant JE, Potenza MN, Weinstein A, Gorelick DA (2010). Introduction to behavioral addictions. *The American Journal of Drug and Alcohol Abuse* 36, 233-241.
- Gupta R, Derevensky J (1998). Adolescent gambling behavior: a prevalence study and examination of the correlates associated with excessive gambling. *Journal of Gambling Studies* 14, 319-345.
- Gupta R, Derevensky J, Ellenbogen S (2006). Personality characteristics and risk-taking tendencies among adolescent gamblers. *Canadian Journal of Behavioral Science* 38, 2, 201-213.
- Guttman-Steinmetz S, Crowell JA (2006). Attachment and externalizing disorders: A developmental psychopathology perspective. *Journal of the American Academy of Child & Adolescent Psychiatry* 45, 440-451.
- Hans D, Mentzoni RA, Blaszczynski A, Molde H, Torsheim T, Pallesen S (2015). Prevalence and correlates of problem gambling in a representative sample of Norwegian 17-year-olds. *Journal of Gambling Studies* 31, 659-678.
- Hill NE, Herman-Stahl M (2002). Neighborhood safety and social involvement: Associations with parenting behaviors and depressive symptoms among African

- American and Euro-American mothers. *Journal of Family Psychology* 16, 209-219.
- Hilton JM, Anngela-Cole L, Wakita J (2010). A cross-cultural comparison of factors associated with school bullying in Japan and the United States. *The Family Journal* 18, 4, 413-422.
- Hofler DZ, Kooyman M (1996). Attachment transition, addiction and therapeutic bonding. An integrative approach. *Journal of Substance Abuse Treatment* 13, 511-519.
- Jacobs DF (1986). A general theory of addiction: a new theoretical model. *Journal of Gambling Behavior* 2, 15-31.
- Khantzian EJ (1997). The self-medication hypothesis of drug use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry* 4, 231-244.
- Kline RB (2005). *Principles and practices of structural equation modeling* (2nd edition). NY: Guilford Press.
- Kobak RR, Cole HE, Ferenz-Gillies R, Fleming WS, Gamble W (1993). Attachment and emotion regulation during mother-teen problem solving: A control theory analysis. *Child Development* 64, 231-245.
- Lacasa F, Mitjavila M, Ochoa S, Balluerka N (2015). The relationship between attachment styles and internalizing or externalizing symptoms in clinical and nonclinical adolescents. *Analés de psicología* 31, 2, 422-243.
- Laible D, Carlo G, Raffaelli M (2000). The differential relations of parent and peer attachment to adolescent adjustment. *Journal of Youth and Adolescence* 29, 45-59.
- Laible D, Carlo G & Roesch S (2004). Pathways to self-esteem in late adolescence: The role of parent and peer attachment, empathy, and social behavior. *Journal of Adolescence* 27, 703-717
- Lee HW, Choi JS, Shin YC, Lee JY, Jung HY, Kwon JS (2012). Impulsivity in internet addiction: A comparison with pathological gambling. *Cyberpsychology, Behavior and Social Networking* 15, 373-377.
- Lesieur HR, Blume SB (1987). The South Oaks Gambling Screen (SOGS): a new instrument for the identification of pathological gamblers. *American Journal of Psychiatry* 144, 1184-1188.
- Masten AS, Roisman GI, Long JD, Burt KB, Obradovic J, Riley JR, Tellegen A. (2005). Developmental cascades: Linking academic achievement and externalizing and internalizing symptoms over 20 years. *Developmental Psychology* 41, 733-746.
- Mikulincer M, Shaver PR (2007). *Adult attachment: Structure, dynamics and change*. New York: The Guilford University Press.
- Milosevic A. (2011). *Internalizing and externalizing psychopathology in problem and pathological gamblers: Factor structure and gambling subtypes* (Doctoral dissertation, University of Windsor (Canada)).
- Molinaro S, Canale N, Vieno A., Lenzi M, Siciliano V, Gori M et al. (2014). Country and individual-level determinants of probable problematic gambling in adolescence: A multi-level cross-national comparison. *Addiction* 109, 2089-2097.
- Mounts NS, Steinberg L (1995). An ecological analysis of peer influence on adolescent grade point average and drug use. *Developmental Psychology* 31, 915-922.
- Muthén BO (1984). A general structural equation model with dichotomous, ordered categorical and continuous latent indicators. *Psychometrika* 49, 115-132.
- Muthén LK, Muthén BO (2004). *Mplus User's Guide* (Third Edition). Los Angeles, CA: Muthén & Muthén.
- Muris P, Meesters C, van der Berg S (2003). Internalizing and externalizing problems as correlates of self-report attachment style and perceived rearing in normal adolescents. *Journal of Child and Family Studies* 12, 2, 171-183.
- Muris P, Meesters C, Morren M, Moorman L (2004). Anger and hostility in adolescents: relationships with self-reported attachment style and perceived parental rearing styles. *Journal of Psychosomatic Research* 57, 3, 257-264.
- Musetti A, Cattivelli R, Giacobbi M, Zuglian P, Ceccarini M, Capelli F, Pietrabissa G, Castelnuovo G (2016a). Challenges in Internet Addiction Disorder: is a diagnosis feasible or not? *Frontiers in Psychology* 7, 842.
- Musetti A, Cattivelli R, Zuglian P, Terrone G, Pozzoli S, Capelli F, Castelnuovo G (2017). Internet addiction disorder o Internet related psychopathology? [Internet addiction disorder or Internet related psychopathology?] *Giornale Italiano di Psicologia* 44, 2, 359-382.
- Musetti A, Terrone G, Corsano P, Magnani B, Salvatore S. (2016b). Exploring the link among state of mind concerning childhood attachment, attachment in close relationships, parental bonding and psychopathological symptoms in substance users. *Frontiers in Psychology* 7, 1193.
- Nada-Raja S, Mcgee R, Stanton WR (1992). Perceived attachment to parents and peers and psychological well-being in adolescence. *Journal of Youth and Adolescence* 21, 471-485.
- Noel X (2014). Why adolescents are at risk of misusing alcohol and gambling. *Alcohol and Alcoholism* 49, 2, 165-172.
- Noom M, Dekovic' M, Meeus W (1999). Autonomy, attachment and psychosocial adjustment during adolescence: A double-edge sword. *Journal of Adolescence* 22, 771-783.
- Pace U, Schimmenti A, Zappulla C, Di Maggio R (2013). Psychological variables characterized different type of adolescent gamblers: A discriminant function analysis. *Clinical Neuropsychiatry* 10, 253-259.
- Petry NM, Blanco C, Stinchfield R, Volberg R (2013). An empirical evaluation of proposed changes for gambling diagnosis in the DSM-5. *Addiction* 108, 575-581
- Potenza MN, Wareham JD, Steinberg MA, Rugle L, Cavallo DA, Krishnan-Sarin S et al. (2011). Correlates of at-risk/problem internet gambling in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry* 50, 2, 150-159.
- Ronnlund M, Karlsson E (2006). The relation between dimensions of attachment and internalizing or externalizing problems during adolescence. *The Journal of Genetic Psychology* 167, 1, 47-63.
- Rosenstein DS, Horowitz HA (1996). Adolescent attachment and psychopathology. *Journal of Consulting and Clinical Psychology* 64, 244-253
- Rutter M, Kim-Cohen J, Maughan B (2006). Continuities and discontinuities in psychopathology between childhood and adult life. *Journal of Child Psychology and Psychiatry* 47, 276-295.
- Sandoval M, Lemos S, Vallejo G (2006). Self-reported competences and problems in Spanish adolescents: A normative study of the YSR. *Psicothema* 18, 804-809.
- Scalese M, Bastiani L, Salvadori S, Gori M, Lewis I, Jarre P, Molinaro S (2016). Association of Problem Gambling with Type of Gambling Among Italian General Population. *Journal of Gambling Studies* 32, 3, 1017-1026.
- Schimmenti A, Caretti V (2010). Psychic retreats or psychic pits? Unbearable states of mind and technological addiction. *Psychoanalytic Psychology* 27, 115-132.
- Schimmenti A, Guglielmucci F, Barbasio C, Granieri A (2012). Attachment disorganization and dissociation

- in virtual worlds: A study on problematic Internet use among players of online roleplaying games. *Clinical Neuropsychiatry* 9, 195-202.
- Scott Brown L, Wright JC (2001). Attachment theory in adolescence and its relevance to developmental psychopathology. *Clinical Psychology and Psychotherapy* 8, 15-32
- Serpelloni G, Rimondo C (2013). *Gioco d'azzardo problematico e patologico: inquadramento generale, meccanismi fisio-patologici, vulnerabilità, evidenze scientifiche per la prevenzione, cura e riabilitazione*. Dipartimento Politiche Antidroga. [http://www.politicheantidroga.it/media/587792/manualegambling\\_light.pdf](http://www.politicheantidroga.it/media/587792/manualegambling_light.pdf).
- Shaffer HJ, Korn DA (2002). Gambling and related mental disorders: A public health analysis. *Annual Review of Public Health* 23, 171-212.
- Shaver PR, Mikulincer M (2002). Attachment-related psychodynamics. *Attachment and Human Development* 4, 133-161.
- Shirk SR, Gudmundson GR, Burwell RA (2005). Links among attachment related cognitions and adolescent depressive symptoms. *Journal of Clinical Child and Adolescent Psychology* 34, 172-181.
- Steiner S (1993). *I rifugi della mente*. Torino: Boringhieri.
- Sternberg KJ, Lamb ME, Guterman E, Abbott CB (2006). Effects of early and later family violence on children's behavior problems and depression: A longitudinal, multi-informant perspective. *Child Abuse & Neglect* 30, 3, 283-306.
- Stevens JP (2002). *Applied multivariate statistics for the social sciences*. Lawrence Erlbaum, Mahwah, NJ.
- Stinchfield R (2004). Demographic, Psychosocial, and Behavioral Factors Associated with Youth Gambling and Problem Gambling. In J Derevensky and R Gupta (2004) (eds) *Gambling Problems in Youth: Theoretical and Applied Perspectives*. Kluwer Academic/Plenum, New York.
- Tambelli R, Laghi F, Odorisio F, Notari V (2012). Attachment relationships and Internalizing and Externalizing problems among Italian adolescents. *Children and Youth Services Review* 34, 1465-1471
- Terrone G, Santona A (2012). Il rischio psicopatologico nella preadolescenza. *Giornale Italiano di Psicologia* 39, 3, pp. 697-706.
- Vieno A, Nation M, Pastore M, Santinello M (2009). Parenting and Antisocial Behavior: A Model of the Relations between Adolescent Self-Disclosure, Parental Closeness, Parental Control, and Adolescent Antisocial Behavior. *Developmental Psychology* 45, 1509-1519.
- Vitaro F, Brendgen M, Ladouceur R, Tremblay RE (2001). Gambling, delinquency, and drug use during adolescence. *Journal of Gambling Studies* 17, 3, 171-190.