Psychiatry Research 240 (2016) 11–18

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

# Factors associated with suicidal risk among a French cohort of problem gamblers seeking treatment

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ARTICLE INFO

*Article history:*
Received 22 September 2015
Received in revised form
12 March 2016
Accepted 3 April 2016
Available online 4 April 2016

*Keywords:*
Problem gambling
Suicide
Cognitive distortions
Depressive disorder
Anxiety disorder

ABSTRACT

Compared to general population, pathological gamblers are 3.4 times more likely to attempt suicide. Our objective was to identify specific profiles of problem gamblers (PGs) with suicidal risk according to sociodemographic, clinical and gambling characteristics.

The PGs cohort, called "EVALJEU" , consists in the inclusion of any new PG seeking treatment in our Department. Patients underwent a semi-structured clinical interview and completed self-report questionnaires. The "suicidal risk module" of the Mini International Psychiatric interview (MINI) allowed to constitute two groups of patients that were compared, according to the presence of a suicidal risk. A logistic regression was performed to identify factors related to suicidal risk in PGs. In our sample (N=194), 40.21% presented a suicidal risk. A history of major depression and anxiety disorders were predictors of suicidal risk as well as the perceived inability to stop gambling.

Suicidality is a significant clinical concern in PGs. Therefore, three specific predictors, identified by our study, must be assessed.



## 1. Introduction

Gambling disorder is a behavioral addiction characterized by a loss of control over gambling which then becomes the subject's only interest, prevailing over all his/her other activities, causing serious harmful consequences to social, family, or financial life (APA, 2013). Prevalence studies found a 1.6% lifetime prevalence of pathological gambling and a 3.8% lifetime prevalence of problem gambling (Shaffer and Hall, 2001).

Among many potential adverse consequences of gambling, the most serious is suicidal behavior as 20% of pathological gamblers will attempt suicide in their lifetime (Moghaddam et al., 2015a). Furthermore, compared to the general population, pathological gamblers are 3.4 times more likely to attempt suicide (Moran, 1969; Hollander et al., 1998; Newman and Thompson, 2003). Though the range varies significantly, 25% to 80% of gambling crisis hotline callers describe suicidal ideation (Sullivan et al., 1994; Ledgerwood et al., 2005), while clinical samples have shown rates of suicidal ideation in pathological gamblers to be between 17% and 80% (Blaszczynski et al., 1986; Lesieur and Blume, 1990; Frank et al., 1991; Horodecki, 1992). Among pathological gamblers seeking treatment, 12% have already attempted suicide at some time in their life (Ledgerwood and Petry, 2004).

It is recognized that different psychological factors are linked to suicidal risk in problem gamblers (PGs) while some others are linked to suicidal risk overall or to pathological gambling generally speaking.

First, many studies emphasized the links between gambling problems and impulsivity. Recent works explored the links between impulsivity, Attention Deficit/Hyperactivity Disorder (ADHD) and pathological gambling, and found that the impulsivity profile of at-risk and pathological gamblers varies according to the associated psychiatric and addictive disorders (Grall-Bronnec et al., 2011, 2012b). Among the psychiatric disorders, ADHD is one of the disorders most frequently associated with impulsivity and pathological gambling (Derevensky et al., 2007; Grall-Bronnec et al., 2011). Blaszczynski and Nower included impulsivity as a major characteristic of a subtype of pathological gamblers called antisocial impulsivist (Blaszczynski and Nower, 2002). Similarly, a high level of impulsivity is associated with a poorer prognosis concerning the ability to overcome pathological gambling (INSERM,

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http://dx.doi.org/10.1016/j.psychres.2016.04.008
0165-1781/

2008; Grall-Bronnec et al., 2012b).

Some studies also determined that adaptive capacity is a clinical variable found in both suicidal behaviors and pathological gambling. With respect to pathological gambling, poor coping skills and maladaptive defense mechanisms are also found to be factors that facilitate the continuation of problem gambling (Wood and Griffiths, 2007). Coping mechanisms and defense style are incriminated in suicidal risk as well as in different psychiatric comorbidities (Corruble et al., 2004).

Apart from those psychological factors, different studies also identified stressful life events as risk factors common to both pathological gambling and suicidal risk. While traumatic events, such as childhood sexual abuse, are described as risk factors of pathological gambling (Petry et al., 2005a), stressful life events are more prevalent among those who attempt suicide than they are among those with suicidal ideation without attempts (McFeeters et al., 2015).

Furthermore, we did not find studies including gambling characteristics as a potential risk factor in suicidal risk in problem gamblers.

Despite the close association between suicidal risk and pathological gambling, their common underlying risk factors, as well as the impact of this association concerning the management of PGs, we found few extant or prospective studies exploring the multivariate factors of suicidal behaviors risk in PGs.

The objective of our work was to identify the specific profile of PGs who are considered at risk for suicide, based on sociodemographic, clinical and gambling characteristics. The underlying idea was to facilitate the early detection of suicidal risk in PGs seeking treatment, and to propose therapeutic tracks adapted to reduce the dramatic consequences of this comorbidity.

## 2. Material and methods

### 2.1. Participants

Our department is an outpatient-center specialized in gambling disorder management. The patients were offered individual psychological and social interventions, as well as Cognitive Behavioral Therapy group. In 2009, we constructed a cohort including any new patient starting a treatment for this particular reason with the aim of highlighting risk factors of gambling disorder initiation and persistence. The main criterion for inclusion in the EVALJEU Cohort was being a "problem gambler" (DSM-IV diagnostic criteria for Pathological Gambling $\geq 3$) in the previous 12 months. The presence of at least 5 DSM-IV diagnostic criteria is required to confirm the diagnosis of pathological gambling, but the presence of 3 or 4 criteria is enough to suggest "at risk gambling" or "problem gambling". Both pathological and problem gamblers require care, which explains the choice of the threshold of 3 (APA, 1994; Toce-Gerstein et al., 2003). The exclusion criteria included cognitive impairment and difficulties in reading and writing French. The local Research Ethics Committee approved this study, and all subjects provided written informed consent.

### 2.2. Measurements

All patients underwent a semi-structured clinical interview and completed self-report questionnaires. For the purpose of this specific study, we focused on sociodemographic and gambling characteristics, axis 1 disorders, life events and personality traits.

#### 2.2.1. Socio demographic characteristics

We collected information about age, gender, marital status, graduation, and work status.

#### 2.2.2. Clinical characteristics

2.2.2.1. ***Mini International Neuropsychiatric Interview (MINI)*** *(Lecrubier et al., 1997).* The MINI is a structured diagnostic interview that is compatible with the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10), and the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Risk of suicide was defined in the present study according to the MINI "suicidal risk module" (Sheehan et al., 1998).

This module includes three questions on suicidal ideation within the past month ('Did you think you would be better off dead or wish you were dead?', 'Did you want to harm yourself?' and 'Did you think about suicide?'), one question on suicide plans within the past month ('Did you have a suicide plan?'), one question on suicide attempts within the past month ('Did you attempt suicide?') and one question on lifetime history of suicide attempts ('In your lifetime, did you ever make a suicide attempt?').

MINI interview also assessed axis 1 disorders, especially mood disorders, anxiety disorders, psychotic syndrome, alcohol use disorders, and substance use disorders.

2.2.2.2. ***Wender-Utah Rating Scale-Child (WURS-C)*** *(Ward et al., 1993; Caci et al., 2010).* This self-report questionnaire is a tool that has been validated for retrospective evaluation of ADHD in childhood in adults. Its specificity (89.1%) is good, which limits the risk of giving a wrong diagnosis. It is designed to assess ADHD symptoms represented by 25 items on 5-point Likert scales. The authors established that a score greater than or equal to 46/100 would allow for the diagnosis to be made (Ward et al. 1993; Caci et al., 2010).

2.2.2.3. ***UPPS Impulsive Behaviour Scale (UPPS)*** *(Whiteside et al., 2005; Van der Linden et al., 2006).* At the beginning of the inclusion phase, we used the first version of the UPPS-Impulsive Behavior Scale, which was developed in the aim of measuring four distinct pathways of impulsive behavior: "Urgency" (tendency to engage in impulsive behaviors under conditions of negative affects), (lack of) "Premeditation" (difficulty in thinking and reflecting on the consequences of an act before engaging in that act), (lack of) "Perseverance" (inability to remain focused on a task that may be boring or difficult) and "Sensation Seeking" (tendency to enjoy and pursue activities that are exciting and openness to trying new experiences that may or may not be dangerous) (Whiteside et al., 2005; Van der Linden et al., 2006).

Then, we used the UPPS-P, a shortened version (20 items instead of 45), which contains a fifth dimension: Positive Urgency (tendency to act rashly when in an intense positive affective state), the previous Urgency dimension becoming Negative Urgency (Billieux et al., 2012). In order to standardize the results, we have transformed the UPPS completed by the first patients into the UPPS-P, not taking into account the Positive Urgency items.

2.2.2.4. ***Shorter 125-item version of the Temperament and Character Inventory (TCI-125)*** *(Cloninger et al., 1993; Chakroun-Vinciguerra, 2005).* The TCI-125 is used to rapidly explore the four temperament (Novelty Seeking, Harm Avoidance, Reward Dependence and Persistence) and the three character (Self-Directedness, Cooperation and Self-Transcendence) dimensions of personality defined by Cloninger's psychobiological model (De Fruyt et al. 2000).

2.2.2.5. ***Defense Style Questionnaire (DSQ)*** *(Bond, 2004).* This questionnaire allows the identification of the predominant defense style for each participant. Three defense styles were considered, bringing together several defense mechanisms: the Mature style combines sublimation, humor, anticipation and suppression; the Neurotic style combines pseudo-altruism, undoing, idealization and reaction formation; the Immature style combines projection, passive aggression, acting-out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization and somatization.

2.2.2.6. ***Questionnaire of Life Events EVE*** *(Ferreri et al., 1987).* It consists of 37 items representing the most frequently listed events by the usual scales of life events, grouped into 5 areas (family, professional life, social life, marital and emotional life, health). We have added another field, called "other traumatic events," consisting of 3 items, to explore physical or sexual abuse. For better feasibility and understanding of patients, we used a simplified version of EVE questionnaire. Patients were interviewed about their life events, and we collected information about the period in which these events took place (childhood, adolescence and/or adulthood) and about the feelings related to the events (traumatic event or not, and intensity of trauma assessed on a scale from 0 to 10). The final score is obtained by summing the intensity of trauma of each traumatic event, giving a global cumulative score of traumatic events.

#### 2.2.3. Gambling characteristics

2.2.3.1. ***Pathological gambling section in the DSM-IV*** *(APA, 1994).* Well-trained staff members with experience with pathological gamblers conducted an interview concerning the gambling course, the gambling habits and their consequences. Patients were included in the EVALJEU cohort if they fulfilled at least 3 (out of 10) DSM-IV diagnostic criteria for Pathological Gambling. This categorical approach was completed using a dimensional approach by adding the number of positive DSM-IV criteria. The number of positive diagnostic criteria is correlated with the severity of the disorder (Toce-Gerstein et al., 2003).

2.2.3.2. ***Gambling Related Cognitions Scale (GRCS)*** *(Raylu and Oei 2004; Grall-Bronnec et al., 2012a).* The GRCS is a 23-item self-report scale divided in 5 subscales