Original article

Recovery, relapse, or else? Treatment outcomes in gambling disorder from a multicenter follow-up study

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A B S T R A C T

Purpose: Gambling disorder is associated with various adverse effects. While data on the immediate effectiveness of treatment programs are available, follow-up studies examining long-term effects are scarce and factors contributing to a stable therapy outcome versus relapse are under-researched.
Materials and methods: Patients ($n = 270$) finishing inpatient treatment for gambling disorder regularly participated in a prospective multicenter follow-up study (pre-treatment, post-treatment, 12-month follow-up). Criteria for gambling disorder, psychopathology, functional impairment were defined as endpoints. Changes in personality were defined as an additional parameter.
Results: At follow-up, three groups were identified: subjects maintaining full abstinence (41.6%), patients still meeting criteria for gambling disorder (29.2%), and subjects still participating in gambling without meeting the diagnostic criteria for gambling disorder (29.2%). Every group had improvements in functional impairment, abstinent subjects showed the lowest psychopathology. Significant decreases in neuroticism and increases in both extraversion and conscientiousness were found among abstinent subjects but not in patients still meeting criteria for gambling disorder.
Discussion: One year after treatment, a considerable percentage of patients kept on gambling but not all of them were classified with gambling disorder leading to the question if abstinence is a necessary goal for every patient.
Conclusions: The changes of personality in abstinent patients indicate that after surmounting gambling disorder a subsequent maturing of personality might be a protective factor against relapse.

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1. Introduction

Gambling disorder (GD) is defined as a recurring and poorly controlled engagement in gambling activities leading to various negative repercussions. According to the DSM-5 [1], GD has been re-classified as a non-substance-related addiction, a decision based on parallels between GD and substance-use disorders [2,3]. Epidemiological surveys have demonstrated that GD needs to be recognized as a serious mental health issue. It affects a substantial proportion of the general population with prevalence estimations ranging between 0.8% and 1.8% according to a review of epidemiological surveys from North America, Europe, Asia, and Australia [4]. In Germany, the most recent community-based

survey found a 12-month prevalence rate of 0.37% [5]. Previous research has indicated that intervention strategies show good effectiveness in GD [6]. While this is encouraging, research has also demonstrated high rates of relapse after treatment [7]. However, it has justifiably been criticized that there is a missing consensus regarding the proper definition of the term "relapse" [7].

Complete abstinence seems to be a rather exceptional phenomenon in GD. Hodgins and El-Guebaly [8] demonstrated that only 8% of patients being recently abstinent from gambling were able to maintain their abstinence over a period of one year. Nevertheless, abstinence is traditionally perceived as the primary goal of the therapy of GD [9–12]. Yet, there is growing evidence that re-establishing control over the gambling behavior seems possible – at least for some patients [9,11,13]. For example, in a follow-up study on patients formerly meeting diagnostic criteria for GD, nearly one third reported having participated in gambling

activities within the past six months after therapy without displaying psychopathological symptoms [13]. Similar findings result from community-based surveys [14] with first theoretical explanations available [15].

1.1. The role of personality in gambling disorder

Various personality traits have been linked to GD and most of the existing models on GD describe dysfunctional personality traits in the development and maintenance of GD [14,16,17]. Perceiving personality as a predisposing factor is undoubtedly justified, however, it is also justified to assume that the manifestation of specific personality traits act either as protective or as risk factors in patients trying to surmount gambling problems. For example, Ramos-Grille et al. [18] found that low conscientiousness was a predictor for both, relapse and for dropping off treatment. There is little research targeting changes in personality after treatment but functional changes in formerly dysfunctional traits might be a useful secondary endpoint in studies on treatment effects. Evidence suggests that personality changes throughout lifetime, following a normative pattern of change [19]; preliminary data indicate that addictive behaviors are impairing those normative changes and that overcoming an addictive disease is associated with subsequently catching up on this delay [20–22].

1.2. Research questions

We were interested in monitoring the development of patients being treated for GD. Our main research question concerned the status of GD symptoms one year after treatment, characterizing the patients' current gambling behavior and predictors of relapses. Little is known on factors facilitating controlled gambling after treatment [14]. Thus, our primary research goal is to determine the proportion of patients who are able to maintain abstinence from gambling, to re-establish controlled gambling, or suffer from relapse. A further intention is to provide a characterization of these groups according to demographics, clinical features, and personality traits. Lastly, we intend to investigate if there are variables predicting the later gambling status.

Secondly, we aimed to examine the influence of personality traits on the later status of GD symptoms. As a novel research question, we want to also examine changes in personality traits and their association to the status of GD symptoms after treatment. As depicted above, research has shown that in healthy individuals, personality is developing throughout lifetime (maturing principle; [19]). There is some evidence that maturation of personality traits is impaired by the presence of substance-use disorders [20–22]. On the same time, it has been hypothesized that there is a chance for a later maturing of personality traits in such individuals, which successfully overcome symptoms of substance-use disorders and becoming abstinent. There is a lack on research regarding the extent and nature of maturing of personality in addictive disorders, especially regarding non-substance related addictions; thus, we decided to integrate changes of personality traits as a further dependent variable in our study and to investigate if changes of traits will be present in patients successfully maintaining abstinence after treatment.

2. Materials and methods

2.1. Procedure

Data collection in eight inpatient rehabilitation centers of the "Federal Association of Inpatient Addiction Rehabilitation" ("Bundesverband für Stationäre Suchtkrankenhilfe") took place between 2013 and 2014. Every patient entering ($n = 457$) and meeting the inclusion criteria (diagnosis of GD as the primary diagnosis) was asked to give written informed consent. Patients with psychotic ($n = 3$) or bipolar disorders ($n = 5$) were excluded. The study was approved by the local ethics committee (see flow chart in supplement 1).

A total of $n = 396$ patients were successfully enrolled at baseline, corresponding to a participation rate of 86.7%. From these patients, $n = 270$ finished treatment regularly and provided full data for the second questionnaire that was administered immediately after the last therapy session (post-treatment). Accordingly, $n = 126$ patients dropped out from the treatment programs. One year later, $n = 113$ of the patients were successfully re-contacted via telephone and filled in the last questionnaire (follow-up). GD criteria were assessed at follow-up via telephone using a German version of the Structured Clinical Interview for Pathological Gambling (SCI-PG [23]).

2.2. Inpatient treatment

No specific treatment manual was underlying the therapeutic interventions. However, each of the rehabilitation centers involved was certified in the treatment of substance-use disorders and GD by the German pension fund and therefore was sticking to the general guidelines in the treatment of GD. The multimodal therapy was based on psychotherapy (group and individual sessions) and was additionally including ergo-therapy, sports therapy and physiotherapy, nutrition counselling, social therapy and creative therapies). The main therapy goal was establishing complete abstinence from those gambling activities related to GD. To that purpose, psychotherapy encompassed cognitive restructuring, exposition training, behavior analyses, relapse prevention, etc. The average duration amounted to $M = 76.5$ days ($SD = 30.6$) of inpatient treatment.

2.3. Measures

2.3.1. South Oaks Gambling Screen (SOGS-R [24])
This instrument consisting of 20 items is assessing diagnostic criteria of GD according to DSM-III. While its diagnostic accuracy in community-based samples has been criticized, it has been demonstrated to have good psychometric properties in clinical samples [25]. In this study, the SOGS-R was used only at baseline in order to confirm the clinician's diagnosis.

2.3.2. NEO-Five Factors Inventory (NEO-FFI [26])
This is the most prominent self-report assessing the Big Five in 60 items on a 5-point Likert-scale. The NEO-FFI has been shown to have sound psychometric properties [27]. In our study, the NEO-FFI was applied at baseline and follow-up. At baseline, we found satisfying internal consistencies ranging from $\alpha = .57$ (agreeableness) to $\alpha = .77$ (neuroticism). At follow-up, the internal consistencies ranged between $\alpha = .57$ (agreeableness) and $\alpha = .88$ (neuroticism).

2.3.3. Sheehan Disability Scale (SDS [28])
With three items (with response categories ranging from 0 = not at all impaired to 10 = severely impaired), the SDS measures the degree of impairment in three domains: work, social activities, and family life responsibilities. Prior studies have found that the SDS has sound psychometric properties [29]. In our study, the SDS was used at baseline and follow-up.

2.3.4. Symptom Checklist-90R (SCL-90R [30]) and Symptom Checklist-9 (SCL-9 [31])
The SCL-9 is a short version of the SCL-90R and assesses psychosocial distress in nine items (0 = no distress; 4 = strong