Research Report

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Association of Sociodemographic, Psychopathological and Gambling-Related Factors with Treatment Utilization for Pathological Gambling

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Key Words

Pathological gambling · Treatment utilization · Comorbidity · Adverse consequences

Abstract

Background/Aims: Only a small percentage of pathological gamblers utilizes professional treatment for gambling problems. Little is known about which social and gambling-related factors are associated with treatment utilization. The aim of this study was to look for factors associated with treatment utilization for pathological gambling. ***Methods:*** The study followed a sampling design with 3 different recruitment channels, namely (1) a general population-based telephone sample, (2) a gambling location sample and (3) a project telephone hotline. Pathological gambling was diagnosed in a telephone interview. Participants with pathological gambling (n = 395) received an in-depth clinical interview concerning treatment utilization, comorbid psychiatric disorders and social characteristics. ***Results:*** Variables associated with treatment were higher age [odds ratio (OR) 1.05, 95% confidence interval (CI) 1.03–1.08], an increased number of DSM-IV criteria for pathological gambling (OR 1.34, 95% CI 1.06–1.70), more adverse consequences from gambling (OR 1.10, 95% CI 1.03–1.16) and more social pressure from significant others (OR 1.17, 95% CI 1.07–1.27). Affective disorders were associated with treatment utilization in the univariate analysis (OR 1.81, 95% CI 1.19–2.73), but multivariate analysis showed that comorbid psychiatric disorders were not independently associated. ***Conclusion:*** These results indicate that individuals with more severe gambling problems utilize treatment at an older age when more adverse consequences have occurred. Further research should focus on proactive early interventions.

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Introduction

Lifetime prevalence proportions for pathological gambling have been revealed to range between 0.4 and 4.2% among general population samples [1]. However, only a few individuals with gambling addiction seek professional treatment for their gambling problems. In the Nation-

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al Epidemiological Survey on Alcohol and Related Conditions, with a sample of 43,093 individuals, 185 participants (0.4%) fulfilled the diagnostic criteria for lifetime pathological gambling [2]. Among them, 9.9% reported to have participated in professional treatment or a self-help group. Treatment utilization was associated with the number of fulfilled DSM-IV criteria for pathological gambling [2]. In the Gambling Impact and Behavior Study, 2 of 21 participants with pathological gambling had received professional treatment [2].

These findings from the USA correspond with further results. In an Australian community-based twin study, among 4,764 participants, 2.2% (n = 104) had a lifetime diagnosis of pathological gambling [3]. Of these, 19.2% (n = 20) had either received professional help or visited a self-help group. Results showed a moderate correlation between the number of fulfilled DSM-IV criteria and the utilization of professional treatment. The odds for treatment utilization were more than threefold among females compared to males.

In a Canadian population-based study with 8,467 participants, Suurvali et al. [4] found lifetime treatment rates of 53% among pathological gamblers. The most frequently used treatment type was self-help (materials and Internet).

There are only a few studies of factors which might inhibit or facilitate treatment utilization among pathological gamblers. Models derived from other addictive disorders suggest that psychological distress (e.g. depression), adverse consequences from addictive behavior and social pressure make treatment entry more likely [5]. Pulford et al. [6] found in a study in New Zealand that psychological distress, problem prevention, health issues and social relationships were associated with help-seeking behavior in gamblers who called a national gambling helpline. However, psychological distress was not assessed in a clinical sense. In a population-based Canadian survey, Suurvali et al. [7] identified financial and social issues, loss of control over gambling as well as adverse consequences (negative impacts on job performance and other life areas) to have a possible impact on treatment-seeking behavior. However, the study only inquired about reasons that might help the study participants to seek treatment in the future.

The incidence of psychiatric comorbidity is high in pathological gamblers [1]. In Germany, comorbidity of psychiatric conditions has mainly been assessed in clinical settings. In a sample of 101 pathological gamblers receiving inpatient treatment, 91.1% had at least one Axis I disorder over their lifetime [8]. In a sample of 337 pathological gamblers receiving outpatient treatment, Braun et al. [9] found that half of the study participants (47.4%) suffered from depressive symptoms. An analysis of the data from the Pathological Gambling and Epidemiology (PAGE) study revealed that the proportions of Axis I disorders in individuals with at least 1–2 DSM-IV criteria for pathological gambling were significantly higher than in a general population sample [10]. Until now, no studies have analyzed psychiatric comorbidity as a predictor of treatment entry.

The aim of the present study was to examine lifetime treatment utilization of professional help as well as factors that are associated with treatment entry. It was hypothesized that individuals with a comorbid mental disorder over their lifetime are more likely to utilize specialized treatment for gambling than those who have no comorbid mental disorder.

Methods

Design

Data for the PAGE study were gathered from December 2009 to February 2011 in Germany. The study followed a sampling design with 3 recruitment channels, as follows: (1) a nationwide landline telephone sample of the general population was proactively contacted using a stratified and clustered sampling design; to maximize coverage, an additional sample of individuals reachable only by cell phones and selected at random was proactively recruited using a random digit dialing procedure; (2) a sample of gamblers was recruited directly at gambling locations like casinos and gambling halls by requesting participation when the gamblers attended the gambling location, and (3) a sample of individuals with present or former gambling problems was recruited via a project telephone hotline. The hotline number was systematically communicated via media announcements and facilities with a high probability of being utilized by pathological gamblers like outpatient addiction counseling services, debt counselors, probation assistants and self-help groups. More detailed information about design and recruitment in the PAGE study can be found elsewhere [11]. The inclusion criterion was age 14–64 years.

In a first step, participants were asked in a computer-assisted telephone interview about their gambling behavior and activities in their leisure time. Participants who fulfilled the criteria for pathological gambling based on DSM-IV [12] were asked to take part in a comprehensive clinical computer-assisted personal interview (CAPI) which was conducted by trained interviewers in the participant's home or at another location of the participant's choice. The CAPI lasted on average 121.6 min (SD 47.6). The participants received EUR 100 for the CAPI.

Among all participants in the 3 recruitment channels, 591 individuals with pathological gambling (>4 DSM-IV criteria for pathological gambling) were eligible for the clinical interview. Of those, 532 persons (90.0%) agreed to take part in the clinical interview. Due to a limited project budget and restrictions of the field period, the clinical interview was conducted with 395 par-

ticipants with pathological gambling (74.2%) within the study period. These 395 individuals are our final sample for the present analysis.

To explore selection bias, participating individuals recruited by telephone or at gambling locations were compared with subjects who were eligible (i.e. fulfilling at least 5 criteria for pathological gambling) but did not participate in the clinical interview. Since the other recruitment channel (project telephone hotline) was not proactive and the participants were volunteers, there was only marginal dropout (3.0%). To compare study participants with nonparticipants, we entered the following variables in a multivariate binary logistic regression model (method: stepwise backward using likelihood ratio): age, gender, marital status, occupational status, migration background, education (<10 years, 10 years, >10 years), frequency of gambling, last symptom of pathological gambling within the last 12 months (i.e. DSM-IV criteria were still fulfilled in the 12 months prior to the interview) and highest loss of money due to gambling. The multivariate logistic regression model revealed that in the telephone sample, having a migration background [odds ratio (OR) 0.41, 95% confidence interval (CI) 0.18–0.94] and fulfilling symptoms of pathological gambling within the last 12 months (OR 0.40, 95% CI 0.17–0.93) were negatively associated with participation in the clinical interview. The comparison between eligible individuals who participated and individuals who were eligible but did not participate in the subsample recruited from gambling locations revealed no associations with nonparticipation except that older individuals were more likely to participate (OR 1.04, 95% CI 1.00–1.07).

Measures

For the identification of gambling behavior and gambling problems, the gambling section of the Composite International Diagnostic Interview (CIDI) [13] was applied in the computer-assisted telephone interview. Translation into the German language was carried out by a psychologist, and a specialized translation service was commissioned with back translation and a consistency check. The gambling section of the CIDI had shown good internal consistency in another study (Cronbach's α = 0.90) [14]. In the PAGE study, Cronbach's α was 0.88. The gambling types were adapted to German conditions.

The CAPI included utilization of specialized treatment for gambling problems as well as other professional treatment options. A questionnaire about alcohol treatment utilization was used in a version adapted to gambling treatment [15]. The questionnaire covered inpatient treatment in psychiatry, inpatient treatment in specialized facilities for pathological gamblers, outpatient rehabilitation programs in specialized inpatient facilities for pathological gamblers, counseling services in psychiatry, counseling services for pathological gamblers, self-help groups, online counseling services for pathological gamblers, counseling services for addiction, counseling services for family problems, telephone hotlines for gambling problems, psychologists, general practitioners, priests/pastors and social workers.

Psychiatric disorders were assessed with the Munich CIDI [16] for lifetime Axis I disorders. Included were substance use disorders (tobacco, alcohol, illicit drugs), anxiety disorders (agoraphobia, panic disorder, social phobia, posttraumatic stress disorder and generalized anxiety disorder) and mood disorders (major depression, dysthymia, bipolar I and II). Our analyses are based on lifetime Axis I disorders. For assessment of personality disorders, the Structured Clinical Interview for DSM-IV, Axis II [17], was conducted.

Gender, age, education and migration background were assessed. For analyses, education was divided into the following categories: up to 10 years and more than 10 years of school education.

For the assessment of demands by significant others to stop or change gambling behavior, we used the Social Pressure Scale, German Version [18, 19]. Social support was assessed with the Social Support Appraisal Scale [20], and the negative consequences of gambling were assessed with a modified version of the Adverse Consequences from Drinking Questionnaire [21] adapted for gambling problems.

Analyses

In a first step, treatment utilization was calculated using descriptive statistics. In a second step, differences between participants with a lifetime history of treatment and participants who had no contact with any gambling treatment were calculated using univariate binary logistic regressions. For the analysis of associations with treatment utilization, we collapsed all individuals who had confirmed 1 or more of the 14 treatments into the 'treatment group' and used those who denied any of these 14 treatments as the reference group. In a last step, all variables were included in a multivariate binary logistic regression analysis. In this model, we used the forward stepwise procedure with Wald statistics to get a model as parsimonious as possible for treatment-associated factors. In order to control for potential bias due to the inclusion of the reactively recruited project telephone hotline sample, recruitment channel was integrated into the analyses as a covariate. Because of the heterogeneity of the sample, factors were also analyzed with regard to differences in treatment. Therefore, all factors were integrated into a multivariate logistic regression (dependent variable: inpatient treatment = 1, any outpatient treatment = 0). All analyses were calculated with SPSS 20.

Results

Among the sample of 395 lifetime pathological gamblers, 66 were female (16.7%), the mean age was 40.5 years (SD 12.0) and 29.9% had a migration background. Of the lifetime pathological gamblers, 53.9% had an alcohol use disorder, 61.0% had an affective disorder, 36.2% had an anxiety disorder and 32.7% had at least one personality disorder. Study participants who had fulfilled DSM-IV criteria for pathological gambling during their lifetime but not in the last 12 months before the interview made up 42.3% of the final sample.

Lifetime experience of treatment or utilization of other help services was reported by 236 participants (59.7%). Of the female participants, 53.0% had a lifetime history of treatment utilization (n = 35). According to sample recruitment, the data revealed that among the 51 participants from the telephone sample, 15.7% had a lifetime history of treatment utilization; this rate was 24.1% among

Table 1. Lifetime treatment utilization and sample recruitment

Treatment offer	Project telephone hotline sample (n = 290)		Telephone sample (n = 51)		Gambling location sample (n = 54)		Total (n = 395)	
	n	%	n	%	n	%	n	%
Inpatient treatment in psychiatry	45	15.5	1	2.0	2	3.7	48	12.2
Inpatient treatment in a facility for pathological gamblers	83	28.6	1	2.0	0		84	21.3
Outpatient rehabilitation in a facility for pathological gamblers	37	12.8	1	2.0	1	1.9	39	9.9
Counseling in psychiatry	20	6.9	2	3.9	1	1.9	23	5.8
Counseling service for gamblers	40	13.8	2	3.9	0		42	10.6
Self-help groups	164	56.6	2	3.9	4	7.4	170	43.0
Online counseling service	12	4.1	0		2	3.7	14	3.5
Addiction counseling service	126	43.4	4	7.8	4	7.4	134	33.9
Family counseling service	8	2.8	0		1	1.9	9	2.3
Telephone hotline for gamblers	12	4.1	0		1	1.9	13	3.3
Psychologist	89	30.7	5	9.8	1	1.9	95	24.1
General practitioner	103	35.5	2	3.9	5	9.3	110	27.8
Priest/pastor	17	5.9	2	3.9	0		19	4.8
Social worker	40	13.8	2	3.9	1	1.9	43	10.9
Any treatment	215	74.1	8	15.7	13	24.1	236	59.7

For treatment offer, multiple responses were allowed.

the 54 participants from the gambling location sample, and among the 290 persons who contacted the project telephone hotline, it was 74.1%. Over all subsamples, 181 participants (45.8%) had utilized professional help for gambling disorders (i.e. inpatient treatment, outpatient rehabilitation, counseling for gamblers, addiction counseling and telephone helpline for gamblers).

In the project telephone hotline sample, the most prevalent form of help that had been utilized were self-help groups (56.6%), followed by addiction counseling services (43.4%) and counseling by a general practitioner (35.5%; table 1). In the telephone sample, the treatment service that had been utilized by most participants was a psychologist (9.8%), followed by addiction counseling services (7.8%).

Factors associated with treatment utilization were analyzed in univariate and multivariate logistic regressions (table 2). ORs indicate the increased or decreased chance of being in the group with a lifetime history of treatment.

According to multivariate logistic regression, higher age was associated with higher odds of having been in treatment. The more severe the gambling problems and the higher the sum of adverse consequences from gambling, the higher were the odds of being in the treatment group. Social pressure as an associated social factor showed increased odds for treatment, whereas other factors that showed significant associations with treatment in the univariate analyses, like psychopathological comorbidity and social support, were not significant in the multivariate model. Multivariate analysis was based on 371 participants due to missing values. Missing values mainly affected the variables personality disorders (not assessed in participants younger than 18 years), maximum loss and adverse consequences. When these variables were excluded from analysis, results with 387 participants remained stable (i.e. age, number of DSM-IV criteria, social pressure and recruitment channels remained in the model). When the multivariate analysis was conducted separately for the project telephone hotline and proactively recruited samples (telephone sample and gambling location sample), utilization of treatment was solely associated with social pressure (OR 1.40, 95% CI 1.20–1.64) in the proactively recruited samples and with age (OR 1.05, 95% CI 1.02–1.08), number of DSM-IV criteria (OR 1.48, 95% CI 1.13–1.92), maximum loss (OR 4.17, 95% CI 1.29–13.46), adverse consequences (OR 1.12, 95% CI 1.05–1.20) and social support (OR 0.99, 95% CI 0.98–1.00) in the project telephone hotline sample (data not displayed).

Table 2. Associations of sociodemographic, psychopathological, gambling-related and social factors with utilization of treatment (n = 395)

	Univariate analyses			Multivariate analysis		
	OR	95% CI	p	OR	95% CI	p
Sociodemographic factors						
Female	1.39	0.82–2.37	0.224	–	–	–
Age	1.05	1.03–1.07	<0.001	1.05	1.03–1.08	<0.001
Education >10 years	0.87	0.57–1.34	0.531	–	–	–
Migration background	0.57	0.37–0.88	0.011	–	–	–
Psychopathological factors						
Substance use disorders without tobacco dependence	1.26	0.84–1.90	0.267	–	–	–
Alcohol use disorder	1.30	0.87–1.95	0.208	–	–	–
Affective disorder	1.81	1.19–2.73	0.005	–	–	–
Anxiety disorder	1.16	0.76–1.76	0.503	–	–	–
Any personality disorder	0.96	0.63–1.48	0.860	–	–	–
Gambling-related factors						
Number of DSM-IV criteria	2.20	1.85–2.60	<0.001	1.34	1.06–1.70	0.013
Gambling frequency (days/month)	1.02	1.00–1.04	0.091	–	–	–
Gambling duration (h/day)	1.18	1.09–1.27	<0.001	–	–	–
Maximum loss in 1 year >EUR 1,000	12.99	6.18–27.28	<0.001	–	–	–
Adverse consequences (sum score)	1.22	1.17–1.28	<0.001	1.10	1.03–1.16	0.003
Social factors						
Social pressure (sum score)	1.26	1.18–1.34	<0.001	1.17	1.07–1.27	0.001
Social support (sum score)	1.00	0.99–1.01	0.363	–	–	–
Recruitment channels						
Project telephone hotline sample	reference			reference		
Telephone sample	0.07	0.03–0.14	<0.001	0.22	0.08–0.59	0.003
Gambling locations sample	0.11	0.06–0.22	<0.001	0.18	0.08–0.41	<0.001

Univariate analyses were calculated by binary logistic regression; the dependent variable was no treatment/treatment and the reference was no treatment. Multivariate analysis also involved binary logistic regression, using a forward stepwise procedure with Wald statistics; the dependent variable was no treatment/treatment and the reference was no treatment. Multivariate analysis was based on a sample of 371 participants.

Regarding differences in treatment, as expected participants with inpatient treatment (psychiatry and inpatient facilities for pathological gambling) had more DSM-IV criteria (OR 1.47, 95% CI 1.03–2.09) and had experienced more social pressure (OR 1.10, 95% CI 1.00–1.20), and more had an anxiety disorder (OR 3.25, 95% CI 1.56–6.74) than participants with any outpatient treatment (data not shown).

Discussion

PAGE is the first study in Germany that has analyzed a variety of factors that could have an impact on treatment utilization among individuals with pathological gambling. The main findings of the present study are, firstly, that only a minority of pathological gamblers utilized treatment. Secondly, the data revealed 4 main factors associated with treatment utilization.

Our treatment definition included 14 possible supporting contacts with institutions offering formal help including professional help and self-help groups. Professional help covered treatment specialized for gambling problems (like inpatient facilities) and professional help by others counseling the person with gambling problems such as priests, social workers and counseling facilities. Our standardized assessment of 14 treatments may have elicited more confirmations of treatment contacts than in other studies with a nonspecified assessment of treatment. Secondly, our list of 14

treatments includes 'minor' contacts, but we do not know how effective they were. On the basis of these conditions, we assumed that our study should identify significantly more study participants who utilized treatment than in other previous studies. However, in spite of these conditions the proportion of treatment users was low, according to the data. Regarding the proactively recruited telephone and gambling location samples, only 20% of pathological gamblers reported lifetime contact with treatment services. This number is slightly higher than the results from other studies, with treatment rates of 9.5–19.2% [2, 3]. However, in the PAGE study, treatment was defined quite broadly, including 'minor' contacts with any professional such as a physician or priest.

With regard to gender, our data suggest no differences between males and females regarding treatment utilization, as found in a recent study by Slutske et al. [3].

Self-help groups were used more often than other types of formal help. In contrast to recent studies of telephone helplines and their role in helping individuals enter the treatment system [22, 23], the telephone hotline number for gamblers offered in Germany and statutorily provided in every gambling location was used by a minority (13 out of 395 pathological gamblers) in the PAGE study. A possible explanation for this difference could be that our study covered lifetime data, and participants may have been recovered before setup of the hotline.

Factors associated with treatment utilization were age, severity of gambling problems, sum of adverse consequences and social pressure. These results correspond to epidemiological studies, according to which the number of criteria was significantly correlated with the use of treatment offers for gambling problems [2, 3]. With regard to age, we might assume that these individuals may have struggled with gambling problems for many years. This might reflect long-term suffering but also a weakness of the treatment system, which does not use proactive treatment approaches. Data suggest that specialized treatment reaches only a minority of pathological gamblers. These results are in line with findings from a study by Braun et al. [9] analyzing the utilization of outpatient treatment for pathological gambling and characteristics of attendees in another German region.

The results correspond with the 'stress and coping model' of Finney and Moos [5], which was originally designed for alcohol use disorders and which identifies 3 factors 'as creating an impetus or readiness to seek treatment: hardship or psychological distress, stressors and social pressure to seek treatment' [5, p. 1224]. In this model, the severity of problems, life stressors and social pressure increased the impetus to seek treatment, whereas social resources were considered counteractive factors. Although psychological distress in the sense of psychiatric comorbidity as a predicting factor could not be confirmed in the multivariate model, results show that the severity of problems (including dependence symptoms and adverse consequences) and social pressure are indeed factors for treatment utilization. Social support was not a counteractive factor in the univariate and multivariate models. However, this result could correspond to the inclusion of minor contacts with the treatment system. As shown, the associated factors differed regarding in- and outpatient treatment. Social pressure, a higher number of DSM-IV criteria and anxiety disorders were associated with inpatient treatment. In conclusion, psychological distress seems to be positively associated with the intensity of treatment but not with treatment per se. These results correspond with findings from Premper and Schulz [8], who found anxiety disorder to be a predisposing factor for the development of a gambling disorder.

Our findings are limited by the retrospective nature of self-reported lifetime data. Sample sizes of the subsamples recruited by telephone survey and from gambling locations were rather small, thus limiting the statistical power. Differences in characteristics of participants and nonparticipants revealed that in the telephone sample, individuals without a migration background and with no criteria for pathological gambling in the past 12 months were more likely to participate in the clinical interview, whereas in the gambling location sample, older individuals were more likely to participate. The analyzed sample is based on a mixed-sample design including a self-selected sample of callers to a project telephone hotline. Therefore, the results cannot be seen as representative. PAGE was a cross-sectional study; therefore, no causal relationships can be drawn. Furthermore, although recruitment channel was controlled for in the regression models, sampling bias cannot be fully ruled out. Separate multivariate analyses for the recruitment channels showed that factors associated with treatment utilization differed between the proactive and reactive recruitment channels. However, it has to be taken into account that statistical power is reduced due to small sample sizes. Therefore, findings based on the multivariate analysis using the total sample appear to be more conclusive in order to stimulate further research.

Findings show that especially severely disturbed gamblers at later ages utilize treatment. Those with less severe problems and low social pressure use treatment offers less. Further studies should focus on trajectories of gambling behavior and influences of additional factors as treatment offers in communities. An improvement of care might be to offer interventions in a more proactive manner than in the past. Additionally, strategies of early intervention are needed to address this population. Brief interventions have been shown to be effective [24–27] and may serve as a means to reach a broader target population.

Disclosure Statement

There are no conflicts of interest.

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