

Socio-demographic Profile and Psychiatric Comorbidity of Subjects with Pathological Gambling

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Abstract

Introduction: Pathological gambling is defined as the failure to resist the impulse to gamble despite disruption to personal, family and vocational life. It appears to be highly comorbid with psychiatric disorders. This study aims to describe the socio-demographic profile and comorbidity of 40 pathological gamblers compared to controls. **Materials and Methods:** Questionnaires were administered to 40 cases (90% male, mean age = 38.3, SD = 10.0) scoring 5 or more in the South Oaks Gambling Screen (SOGS) and verified to be pathological gamblers based on DSM-IV criteria and 40 age-and-gender-matched controls. **Results:** Study results showed that the prevalence of lifetime DSM-IV diagnoses were significantly different between cases and controls ($\chi^2 = 16.4$, $P < 0.001$), with 67.5% of the cases and 22.5% of the controls meeting the criteria, respectively. Eighty percent of the cases had at least one personality disorder compared to 45% in the control ($\chi^2 = 10.5$, $P < 0.005$). The common lifetime disorders observed in the cases were substance abuse disorder and anxiety while common personality disorders were obsessive-compulsive, avoidant and paranoid. **Conclusion:** This study highlights the high rates of comorbidity in a largely Chinese sample in an Asian setting and the importance of assessing pathological gamblers for comorbidities.

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Introduction

Gambling has been defined as a wager of any type of item or possession of value upon a game or event of uncertain outcome in which chance, of a variable degree, determines the outcome.¹ The failure to resist the impulse to gamble despite disruption to personal, family and vocational life characterises pathological gambling. Pathological gambling is associated with adverse consequences not only for the person who has the disorder, but also for their families and the society at large. Pathological gambling was first designated a psychiatric disorder in 1980 in DSM-III and in DSM-III-R was grouped under the category “disorders of impulse control not elsewhere classified”. While some researchers consider pathological gambling an addiction,² others argue that pathological gambling has more in common with obsessive-compulsive disorder than with addictions and should therefore be viewed as an obsessive-compulsive spectrum disorder.³

Pathological gambling has become an increasingly important problem and the prevalence of pathological gambling has been estimated to range from 0.4% to 2.0% in surveys conducted across the United States (US) and Canada.^{4,5} Surveys in Asian countries have reported rates of 1.0% and 2.0%.^{6,7} In the local context, a recent study conducted by the Ministry of Community Development, Youth and Sports (MCYS), Singapore, from December 2004 to February 2005 found that 58% of Singapore residents aged 18 years and above have taken part in some form of gambling activity over a one-year period. Among them, 2.1% reported symptoms suggesting probable pathological gambling.⁸ This is comparable to the results of similar studies done in Hong Kong and Macau, which are also majority-Chinese urban societies.

Pathological gambling appears to be highly comorbid with some psychiatric disorders. The relationship between mood-disorders and pathological gambling is complex and

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pathophysiological mechanisms that may link the two are poorly understood. Bland et al⁹ found a significant increase in affective disorders among pathological gamblers (33.3%) compared to non-gamblers (14.2%) but no differences in major depression. In a community-based study, Cunningham-Williams et al¹⁰ found major depression to be significantly more prevalent in problem gamblers (8.8%) than non-gamblers (5.2%). While primary depression is not very common in patients with pathological gambling, evidence seems to suggest that secondary depressive symptoms are a very common finding among patients who engage in gambling.^{11,12} Bland et al⁹ found that pathological gamblers were significantly more likely than non-gamblers to have any anxiety disorder and agoraphobia. Petry et al¹³ have also reported high rates of prevalence of anxiety disorders among respondents with pathological gambling, identified in a National Survey conducted in the US. Grant and Kim¹⁴ studied the association of pathological gambling with other impulse control disorders such as compulsive shopping and compulsive sexual activity. They found that 22.9% of their study subjects reported these behaviours. They also found that patients with co-occurring impulse control disorders reported more severe gambling symptoms.

In terms of personality disorders many studies have shown an association between pathological gambling and anti-social personality disorders.^{15,10} Data on comorbidity of other personality disorders with pathological gambling has mainly come from treatment-seeking samples. Black and Moyer¹⁶ reported that 87% of their subjects with pathological gambling met the criteria for at least 1 personality disorder, the most frequent being obsessive-compulsive, avoidant and schizoid personality disorders. Blaszczynski and Steel¹⁷ analysed the effect of multiple co-occurring personality disorders among pathological gamblers and found that the number of disorders were positively related to the South Oaks Gambling Screen (SOGS) score.

A number of studies done on both community-based and in treatment seeking populations give evidence to a strong relationship between substance use and gambling disorders. Toneatto et al¹⁸ studied a group of 169 Canadian Gamblers and reported that 55.4% were using alcohol and 10.1% were using drugs the month before treatment. A considerable number of these gamblers had sought treatment for their alcohol and drug use before seeking treatment for gambling problems. Welte et al¹⁹ found an extremely strong relationship between current alcohol dependence and current pathological gambling (Odds ratio was 23.1). Their study also found that as the amount of drinking per day increased in the sample, the amount and severity of the gambling also increased. Petry et al¹³ reported alcohol dependence, as well as any drug use disorder and tobacco dependence to be significantly related to pathological

gambling. Their study, which was a community study on a large representative sample, found that the vast majority of lifetime pathological gamblers in the US community have other lifetime substance use and psychiatric disorders.

A study done by Blaszczynski reported high rates of pathological gambling (2.9%) within the Australian Chinese speaking sample which is almost 3 times higher than the rate for the Australian population in general.²⁰ However this result is comparable to that found in the Chinese community in Canada²¹ and Hong Kong.²² This may be explained by the Chinese culture where gambling is deemed as a common recreational activity and some activities (e.g. Mahjong) if played for reasons of entertainment or on festive occasions may not be regarded as gambling. Due to the difference in gambling culture, it would be useful to conduct more studies on the Asian sample to have a better understanding of the gambling characteristics in the Asian population since most of the studies were done on a non-Asian population.

Singapore is a multi-racial and multi-cultural city-state located just North of the equator at the southern tip of the Malay Peninsular. The latest data from 2005 would indicate that the racial breakdown is Chinese (76%), Malays (13.7%), Indians (8.4%) and Others (1.8%). Little research has been done in profiling pathological gamblers in the Asian population and gambling is very much part of the culture and is socially acceptable in Singapore. Thus, this case-control study aims to describe the socio-demographic profile and comorbidity of 40 subjects with pathological gambling compared to 40 age- and gender-matched controls.

Materials and Methods

The study was conducted by the Addiction Medicine Department, Institute of Mental Health, Singapore. This department is currently the main provider of comprehensive addiction treatment in Singapore, with an emphasis on training, prevention and public education initiatives. Ethical approval for conducting the study was granted by the Institutional Review Board, National Healthcare Group, Singapore. The study had a Matched Case-Control design. Forty subjects with "compulsive gambling behaviour" were recruited via advertisements placed in local papers in the months of July and August 2006 and referrals from our treatment programme. A trained research assistant screened all the subjects using the South Oaks gambling screen (SOGS) to differentiate pathological gamblers from non-problem gamblers. The SOGS is a brief 20-item questionnaire used to screen for pathological or compulsive gambling. The SOGS is based on the DSM-III criteria for pathological gambling. It may be either self-administered or interviewer-administered. Internal consistency and test-retest reliability of this questionnaire has been established.^{23,24}

Subjects who responded to the advertisements were screened via a telephone interview while those referred from the treatment programme were screened via a face to face interview. All those scoring 5 and above were invited to participate in the study. Recruitment was closed once the target population of 40 subjects was reached. All the participants were subsequently verified to be pathological gamblers by a trained psychiatrist based on DSM-IV criteria. Forty age- (± 1 year) and gender-matched controls were recruited by inviting the Institution's staff and their families. SOGS was administered to controls and only those who scored less than 5 were invited to participate in the study. A control group was included as no epidemiological surveys have been conducted in Singapore to establish the prevalence of substance abuse disorders and personality disorders. Local data on these were inadequate for comparison with the morbidity in the cases.

After obtaining informed written consent, socio-demographic data and data concerning cultural beliefs regarding gambling were collected using a structured questionnaire. The participants were then administered the Composite International Diagnostic Interview (CIDI). CIDI is the product of a joint project undertaken by the World Health Organization (WHO) and the former United States Alcohol, Drug Abuse and Mental Health Administration. It is a comprehensive, fully structured diagnostic interview for the assessment of mental disorders and provides, by means of computerised algorithms, lifetime and current diagnoses according to the accepted definitions of the International Classification of Diseases -10 (ICD-10) and Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-III-R). The computerised version of the CIDI is known as CIDI-Auto; this is a computer-based diagnostic interview and generates both the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) and ICD 10 diagnosis.²⁵ Subjects were assessed for Axis II disorders using the Personality Diagnostic Questionnaire.²⁶ The Personality Diagnostic Questionnaire 4th Edition (PDQ-4) is a 100 item, self-administered, true/false questionnaire that yields personality diagnoses consistent with the DSM-IV diagnostic criteria for the axis II disorders.

Impulsivity was measured using a questionnaire derived from the Eysenck Personality Inventory.²⁷ All the participants who were not undergoing any form of treatment, were offered treatment under the Addiction Medicine Department's gambling programme, but were not compelled in any way to attend the same.

Results

Thirty subjects were recruited via advertisement and had no prior contact with our treatment programme and 10 of them were seeking or had sought treatment from

our treatment programme. A comparison between these 2 groups showed that there are no significant differences in their age ($\chi^2 = 12.3$, $P > 0.005$), gender ($\chi^2 = 1.3$, $P > 0.005$), educational level ($\chi^2 = 2.6$, $P > 0.005$) and SOGS score ($\chi^2 = 11.3$, $P > 0.005$).

The sociodemographic profile of the pathological gamblers and controls are presented in Table 1. There is no significant difference in any key variable between the

Table 1. Social Demographic Characteristics of 40 Pathological Gamblers and Controls

Characteristic	Subjects		Controls	
	Mean	SD	Mean	SD
Age (y)	38.3	10.0	38.3	9.8
Age of onset of gambling	19.5	7.2	-	-
	n	%	n	%
Gender				
Male	36	90.0	36	90.0
Female	4	10.0	4	10.0
Marital status				
Single	15	37.5	11	27.5
Married	21	52.5	28	70.0
Separated/Divorced	3	7.5	1	2.5
Widowed	1	2.5	0	0
Ethnicity				
Chinese	37	92.5	31	77.5
Malay	1	2.5	2	5.0
Indian	2	5.0	5	12.5
Others	0	0	2	5.0
Educational level				
Primary	0	0	2	5.0
Secondary	5	12.5	9	22.5
Pre-U	12	30.0	1	2.5
Tertiary	21	52.5	22	55.0
Vocational institute	2	5.0	3	7.5
Others	0	0	3	7.5
Employment status				
Paid or self-employment	28	70.0	29	72.5
Sheltered employment	5	12.5	10	25.0
Unemployed	5	12.5	0	0
Student	0	0	1	2.5
Retired	1	2.5	0	0
Others	1	2.5	0	0
Main source of income				
Salary/Wage	31	77.5	39	97.5
Family	3	7.5	1	2.5
Pension	1	2.5	0	0
Others	5	12.5	0	0

* $P < 0.005$, ** $P < 0.001$

gamblers and controls. Twenty-six of the gamblers (65%) reported that they first gambled with friends, and 25 of them (62.5%) had familial history of gambling. Nineteen (47.5%) of them reported “Cards”, 5 (12.5%) reported “Mahjong” and 4 (10%) reported buying lottery tickets as the first type of gambling they had done.

The most popular form of gambling was 4D, a form of local lottery, endorsed by 32 subjects (80%). Sports betting and Toto, another form of local lottery, followed this (65% and 62.5%, respectively) (Table 2). The average amount betted per month was S\$7376.20 ± 23257.00 (ranges S\$13 to S\$111800). Using credit cards, borrowing money from banks/other financial institutions, spouse and money meant for household expenses were the most common methods

Table 2. Type of Gambling Ever Pursued and Problems Caused by Gambling

	n	%
Type of gambling ever pursued		
4D (Lottery)	32	80.0
Sports Betting	26	65.0
Toto (Lottery)	25	62.5
Social Gambling [#]	23	57.5
Singapore Sweep	18	45.0
Online Gambling	15	37.5
Table Games*	14	37.5
Horse Betting	11	27.5
Jackpot	10	27.5
Scratch It	7	17.5
Table Games (Private)**	3	7.5
Presence of job/school trouble due to gambling		
Yes	19	47.5
No	21	52.5
Gambling-related break-up (near break-up) with someone important to you		
Yes	22	55.0
No	18	45.0
Help given for living expenses due to gambling		
Yes	31	77.5
No	9	22.5
Ever raised gambling money in illegal way		
Yes	9	22.5
No	31	77.5

* Games played usually in casino settings by multiple players such as: Baccarat, craps, roulette and blackjack

† Tables are reserved for a select group of players without interruptions by adhoc players.

‡ Social gambling refers to playing mahjong, card games or other games with friends or relatives involving money.

for acquiring money for gambling or paying off gambling debts (Table 3).

Comorbid psychiatric diagnoses are shown in Table 4. Twenty-seven of pathological gamblers (67.5%) met DSM-IV criteria for a lifetime disorder. The most common disorders are substance abuse disorders, mood disorders and anxiety disorders. Only 9 of controls (22.5%) met the criteria for a lifetime disorder. The prevalence of lifetime

Table 3. Sources from Which Borrowed Money to Gamble or Pay Gambling Debts

	n (21)	%
From spouse*		
Yes	19	90.5
No	2	9.5
	n (40)	%
From household money		
Yes	19	47.5
No	20	50.0
From other relatives or in-laws		
Yes	16	40.0
No	23	57.5
From banks, loan companies or credit unions		
Yes	24	60.0
No	16	40.0
From credit cards		
Yes	25	62.5
No	14	35.0
From loan sharks		
Yes	10	25.0
No	29	72.5
Cashed in stocks, bonds or other securities		
Yes	13	32.5
No	26	65.0
Sold personal or family properties		
Yes	11	27.5
No	28	70.0
Borrowed on checking accounts (Passed bad checks)		
Yes	5	12.5
No	34	85.0
Have credit line with bookies		
Yes	8	20.0
No	31	77.5
Have credit line with casino		
Yes	3	7.5
No	36	90.0

* Only 21 of the 40 subjects were married

Table 4. Results of Computer Screening for Lifetime Rates of DSM-IV Psychiatric Disorder among 40 Subjects Reporting Pathological Gambling Behaviour

Diagnosis 1	Subject lifetime		Control lifetime	
	n	%	n	%
Mood disorders				
Major depressive disorder or dysthymia	5	12.5	1	2.5
Bipolar disorder	2	5.0	0	0
Any mood disorder	7	17.5	1	2.5
Anxiety disorders				
Generalised anxiety disorder	5	12.5	0	0
Phobic disorder	6	15.0	1	2.5
PTSD	1	2.5	0	0
Any anxiety disorder	10	25.0	1	2.5
Substance use disorders				
Alcohol abuse or dependence	10	25.0	1	2.5
Nicotine dependence or withdrawal	15	37.5	3	7.5
Other substance use or dependence	2	5.0	0	0
Eating disorder				
Anorexia nervosa	1	2.5	0	0
Bulimia nervosa	0	0	1	2.5
Any eating disorder	1	2.5	1	2.5
Psychotic disorder				
Brief psychotic disorder	1	2.5	1	2.5
Somatoform disorder	0	0	1	2.5
Any comorbid disorder**	27	67.5	9	22.5

* $P < 0.005$, ** $P < 0.001$

DSM-IV diagnoses was significantly different between the cases and the controls ($\chi^2 = 16.4$, $P < 0.001$). Results of assessment for personality disorder using the PDQ-IV are shown in Table 5. Thirty-two of the pathological gamblers (80.0%) met criteria for at least 1 personality disorder as compared to only 18 of controls (45.0%). The prevalence of personality disorders was significantly different between the cases and the controls ($\chi^2 = 10.5$, $P < 0.005$). The most frequent personality disorders observed in pathological gamblers were obsessive-compulsive, avoidant and paranoid. Pathological gamblers also scored significantly higher than the controls on the impulsivity questionnaire (16.8 ± 4.7 and 11.3 ± 4.2 respectively, $P < 0.005$).

Most of the pathological gamblers did not seek help for their problem. Only 10 of them (25%) indicated that they had sought help (Table 6). Main reasons for not seeking help included not knowing where to seek help and not feeling the need for help. Less than 25% had attended gamblers anonymous (GAQ) or sought counselling for their problem and 5 (12.5%) had sought help from helplines or doctors for gambling related problems (Table 6).

Table 5. DSM-IV Personality Disorders Assessed with the Personality Diagnostic Questionnaire among 40 Subjects Reporting Pathological Gambling Behaviour and 40 Controls

Personality disorder	Subject		Control	
	n	%	n	%
Obsessive-compulsive	22	55.0	14	35.0
Schizoid	18	45.0	5	12.5
Avoidant	21	52.5	5	12.5
Negativistic	16	40.0	5	12.5
Paranoid	20	50.0	8	20.0
Histrionic	9	22.5	2	5.0
Narcissistic	17	42.5	4	10.0
Schizotypal	16	40.0	2	5.0
Borderline	14	35.0	2	5.0
Dependent	5	12.5	1	2.5
Depressive	15	37.5	4	10.0
Antisocial	7	17.5	0	0
Any one personality disorder*	32	80.0	18	45.0

* $P < 0.005$, ** $P < 0.001$

Table 6. Help Seeking Behaviour of Pathological Gamblers

	n	%
Ever sought help for gambling related problems		
Yes	10	25.0
No	23	57.5
Reason for not seeking help		
Do not need help	7	17.5
Do not know where to seek help	7	17.5
Embarrassed to seek help	4	10.0
No use seeking help	1	2.5
Ever gone to the GA		
Yes	9	22.5
No	24	60.0
Ever sought counseling		
Yes	9	22.5
No	22	55.0
Ever called telephone helpline		
Yes	5	12.5
No	27	67.5
Ever seen doctor/professional in the last 12 months		
Yes	7	12.5

Discussion

The typical profile of a pathological gambler in our study was a 38-year-old married man, with tertiary education who was employed at the time of the study. They initiated their gambling when they were about 20 years old and 4D was reported to be the most preferred form of gambling. Most subjects reported betting less than \$1000, but 3 subjects

reported betting more than \$10,000 on a single occasion.

High rates of comorbid substance use and mood disorders were confirmed in this sample. Twenty-seven of the pathological gamblers (67.5%) suffered from comorbidity; 10 (25%) suffered from any one anxiety disorder, 7 (17.5%) had a mood disorder, 10 (25.0%) suffered from comorbid alcohol abuse or dependence and 15 (37.5%) had nicotine dependence or withdrawal. This was in contrast to the controls where only 22.5% were diagnosed with a DSM-IV criteria for a lifetime disorder. Black and Moyer¹⁶ reported that 90% of their sample of pathological gamblers suffered from a lifetime disorder. The most common lifetime disorders, similar to that found in our study were mood disorders, substance use disorders and anxiety disorders.¹⁶ Population based studies have shown similar results, with high rates of mood (49.6%) and anxiety (41.3%) disorders diagnosed among pathological gamblers.¹³ Both these studies reported higher rates of mood disorders than anxiety disorders as opposed to our study, in which we found higher rates of anxiety disorders. Petry et al¹³ estimated that of the adult Americans with pathological gambling, 73.2% have a lifetime alcohol disorder, 38.1% have a drug use disorder and 48.9% have nicotine dependence. These rates are also higher than those observed in our study. The rate of substance abuse disorders is low in Singapore due to the stringent laws within the country. However, it is possible that there is an element of under-reporting by the subjects. Overall the rates of anxiety, depression and substance use were significantly higher in the pathological gamblers as compared to the controls.

The aetiological implications of increased comorbidity among pathological gamblers are unclear. The concept of “switching addictions” has been suggested; this notion suggests a common aetiology between substance abuse and gambling disorders,²⁸ with the gambling problem representing the current expression of the disorder. Onset of gambling predated onset of substance (including alcohol) abuse in all the cases in our study. Gambling has also been viewed as an attempt to self-medicate or escape negative mood states among a significant group of pathological gamblers.²⁹ In contrast to substance use disorders, age of onset of gambling preceded age of onset of depression in most cases and in a couple the mean age of onset was the same or depression preceded age of onset of gambling. This is consistent with the suggestion that there are two types of gamblers: those who become depressed in response to the negative consequences of a gambling disorder and those who gamble to modulate moods.

Studies that have examined predictors of outcome for pathological gambling with relation to the role of comorbidity have revealed some interesting results. A lifetime mood disorder predicted a longer time until stable

abstinence was achieved. Individuals without a lifetime mood disorder were 2.3 times more likely to achieve stable abstinence earlier. However, past alcohol and other drug disorders did not predict outcome.³⁰ Comorbidity is also associated with treatment implications. When depression is the primary/driving force behind gambling behaviour, the depressive symptoms must be targeted first. However if gamblers develop depression as a result of gambling the focus of treatment must target the root cause of their gambling, rather than or as well as, their depressive symptoms.³¹ The authors have also reported that gamblers with bipolar I or II disorder respond preferentially to mood stabilisers rather than to opioid antagonist treatment.²⁸

Personality disorders were also frequent and were found in all but 8 subjects. According to PDQ-IV results, obsessive-compulsive, avoidant and paranoid personality disorders were the most common. These findings are similar to those of Black and Moyer¹⁶ who found obsessive-compulsive, avoidant and schizoid personality disorders to be the most common in their sample of pathological gamblers. It is understandable that for the obsessive-compulsive, there is overlap with the impulse control and addictive disorders. Gambling activities such as 4D and Toto also require little or no interpersonal contact which fits the avoidant and schizoid personalities. Epidemiological surveys have also found a high prevalence of personality disorders in pathological gamblers. Petry et al¹³ reported that 60.8% of those with pathological gambling had any one personality disorder, obsessive-compulsive, paranoid and anti-social being the most common. Studies done both in the community and in treatment seeking samples have shown high rates of anti-social personality disorders (ASPD). Using data from their epidemiological study, Cunningham-Williams et al¹⁰ found that 35.0% of pathological and problem gamblers had a diagnosis of ASPD compared to 4.6% of non-gamblers. Bland et al⁹ reported similarly high rates in a general population survey conducted in Edmonton, Canada. We found 17.5% of our pathological gamblers to suffer from ASPD. While this rate was lower than that of other personality disorders in this sample, it was significantly higher than that in controls; none of the controls met the criteria for ASPD. These rates are also higher than lifetime prevalence rates of 1.5% to 3.5% reported in general population surveys.³²

Only 25% indicated that they had sought help, which is disconcerting. Main reasons for not seeking help included not knowing where to seek help and not feeling the need for help. A recent review by Loo et al has reported that Chinese problem gamblers consistently have difficulty admitting their issue and seeking professional help for fear of losing respect.³³ The policy implications include further intensification of media campaigns to reach out to those

with pathological gambling to create awareness of centres where they can seek help and also the need for interventions specifically tailored for Chinese problem gamblers.

This is an important study, which highlights the high rates of comorbidity in a largely Chinese sample in an Asian setting. Few studies have profiled this population and the results, which are similar to those of other international studies, highlight the importance of assessing pathological gamblers for comorbidities in a clinical setting. This just emphasises the need for early detection and for those treating the various psychological conditions to screen for pathological gambling. We also need to be particularly aware of the comorbidity in preparing individualised treatment plans for pathological gamblers. There are some limitations to our study. While we made an effort to recruit both treatment seeking and non-treatment seeking samples in our survey, it is possible that pathological gamblers with more disordered lives would have been less likely to volunteer for the study. Those subjects who volunteered for the study probably have some insight, so this may not accurately represent the profile of all pathological gamblers. We sought an English speaking population as most of the questionnaires were available and validated only in English, which limits the generalisability of our results. The data collected was based entirely on 'self-administered' instruments and there is a possibility of the respondents giving socially desirable answers; the study did not seek corroboration from the family or the treating clinicians. Since the study had a cross-sectional design, we could not examine the effects of comorbidity on treatment retention or outcomes. Future studies should focus on these important issues. Comorbidity has tremendous treatment implications; clinical trials based on psychological and pharmacological interventions, must be designed carefully to understand the impact of treating comorbid conditions in the overall treatment of pathological gambling.

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