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An Analysis of Treatment-Seeking Behavior in Individuals with Gambling Disorder

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Abstract Gambling disorder affects approximately 1.1–3.5% of the population, with the rates being higher in young adults. Despite this high prevalence, little is known regarding which pathological gamblers decide to seek treatment. This study sought to examine the differences in three groups of pathological gamblers: those who did not seek treatment (n = 94), those who sought therapy (n = 106) and those who sought medication therapy (n = 680). All subjects were assessed on a variety of measures including demographics, family history, gambling history, comorbid psychiatric disorders and an assortment of clinical variables such as the Quality of Life Inventory, Hamilton Depression and Anxiety Rating Scales, Yale Brown Obsessive Compulsive Scale for Pathologic Gambling (PG-YBOCS), Barratt Impulsiveness Scale, Eysenck Impulsiveness Questionnaire and select cognitive tasks. Those seeking treatment were more likely to be Caucasian, have lost more money in the past year due to gambling, and were more likely to have legal and social problems as a result of their gambling. Those seeking therapy or medical treatment also scored significantly higher on the PG-YBOCS. This study suggests that pathologic gamblers seeking treatment were more likely to exhibit obsessive–compulsive tendencies likely leading to the increased legal and social problems that exist in this group.

Keywords Gambling disorder · Pathological gambling · Treatment-seeking · Impulsive · Obsessive–compulsive

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Introduction

Gambling disorder is characterized by persistent and recurrent problematic gambling behavior that leads to clinically significant impairment or distress. It is classified as a substance-related and addictive disorder, a tribute to its similarity with other behavioral and substance addictions (APA 2013; Petry et al. 2013). The prevalence of gambling disorder has been shown to range from 1.1 to 3.5% (Lorains et al. 2011; Williams et al. 2012). The rates have been shown to be even higher in young adults, ranging from 6 to 9% (Barnes et al. 2010).

A number of treatments for gambling disorder have been studied with varying results and have included serotonin reuptake inhibitors, opioid antagonists, mood stabilizers and antipsychotics, as well as therapy modalities such as cognitive-based therapy, motivational interviewing and gamblers anonymous (Grant and Kim 2006; Nautiyal et al. 2017). However, to date no medical treatment has been approved by the Food and Drug Administration for gambling disorder.

Despite its often debilitating nature, and the promise of several treatments, less than 10% of problem gamblers seek treatment (Braun et al. 2014). Some have attributed this to the high rates of natural recovery that exist across not only gambling disorders, but also other substance use disorders (Slutske 2006; Hodgins and el-Guebaly 2000). Other studies have shown distinct barriers that exist to seeking treatment such as pride, shame and denial (Pulford et al. 2009). Conversely, some research suggests that when gambling problems become severe, reflected by the amount of gambling debt and intervention by legal and/or social networks, individuals seek treatment (Weinstock et al. 2011; Braun et al. 2014).

Given this background, there are several questions that remain unanswered. Are there differences in gamblers who seek treatment versus those who do not? When individuals do seek treatment, are there differences between those who seek medication or psychotherapy? To our knowledge, no study has examined the differences in therapy seeking versus medication seeking problem gamblers. Does the difference in modality change the desire of a problem gambler to seek treatment?

In our examination of these questions, and based on the extant research, we made the following hypotheses. (1) We hypothesized that among pathologic gamblers those seeking treatment (either therapy or medication) would have increased urges to gamble when compared to those who do not seek treatment. (2) While the three groups analyzed in this study (non-treatment seeking gamblers, therapy seeking gamblers and medication seeking gamblers) likely suffer from a similar drive to initiate gambling, we hypothesized that treatment-seeking gamblers would have increased urges to keep gambling causing increased financial losses. (3) As a result of this increased drive to continue gambling, we hypothesized that treatment-seeking gamblers would be more likely to have legal, social and/or familial problems secondary to gambling. (4) Finally, because these repercussions may be the driving factor behind why a pathologic gambler ends up seeking treatment, we hypothesized that those treatment-seeking gamblers with more serious gambling related problems would be more likely to seek pharmacological treatment instead of psychotherapy.

Materials and Methods

Participants

A group of non-treatment seeking gamblers, a group of therapy seeking gamblers and a group of medication seeking gamblers were recruited from the Minneapolis and Chicago metropolitan areas via media advertisements. For detailed information regarding these individual studies see the following citations: Harries et al. (2017), Kim et al. (2001, 2002), Grant et al. (2003, 2007, 2008, 2009, 2010a, b, 2013, 2014) and Grant and Potenza (2006). Common exclusion criteria for both treatment groups included, but was not limited to, current suicidality, severe depression or other severe mental illness requiring intervention, impaired cognitive ability, substance or alcohol use disorder within the last 3 months, current diagnosis of bipolar or psychotic disorder or current participation in Gambler's Anonymous.

Measurements

Grouping Methods

All participants were diagnosed with a gambling disorder based on the qualifications established in the Minnesota Impulsive Disorders Interview (MIDI) or the Structured Clinical Interview for Pathological Gambling (SCI-PG), depending on the respective study (Grant 2008; Grant et al. 2004). Subjects were grouped into one of three categories: non-treatment seekers, those seeking and receiving psychotherapy and those seeking and receiving medication treatment.

Demographic and Family History Variables

All subjects responded to a variety of basic demographic questions pertaining to age, gender, education, race and income. Subjects were also asked if first-degree family members had gambling problems.

Gambling History

Subjects responded to a semi-structured interview pertaining to their gambling behavior and its implications. Such questions included the age of first gambling, the age at which they began gambling regularly, and the financial losses due to gambling over the past year. In addition, subjects were asked why they gambled (e.g. to make money, to escape from problems, etc.). Subjects also reported whether or not they had legal, financial, work or social problems as a result of their gambling.

Comorbidities

Co-occurring Psychiatric Disorders   All participants were assessed for current and past co-occurring psychiatric disorders [e.g. major depressive disorder, general anxiety disorder and obsessive–compulsive disorder (OCD)] using the Mini International Neuropsychiatric Interview (MINI) (Sheehan et al. 1998). Participants were also asked to report lifetime history of other medical diagnoses.

Clinical Variables

Quality of Life   The self-administered Quality of Life Inventory (QoLI) was used to examine satisfaction with various life domains (e.g. work, leisure activities) (Frisch 2013).

Depressive and Anxiety Symptoms   Depressive symptoms and anxiety symptoms were examined using the Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HAM-D) (Hamilton 1959, 1960).

Yale Brown Obsessive Compulsive Scale Modified for Pathological Gambling (PG-YBOCS)   The PG YBOCS was used to assess gambling severity for the week prior to the evaluation. The PG-YBOCS is comprised of a total score and two subscale scores assessing urges/preoccupations with gambling and gambling behavior (Pallanti et al. 2005).

Impulsiveness   Participants completed self-report measures: the Eysenck Impulsiveness Questionnaire (EIQ) and the Barratt Impulsiveness Scale-11 (BIS). The EIQ consists of 54 questions and examines three sub-domains of impulsivity: impulsiveness (the subject's likelihood to act without thinking), venturesomeness (the subject's likelihood to engage in a new activity or action) and empathy (the subject's likelihood to feel similarly or engage in similar actions with those around them) (Eysenck et al. 1985). The Barratt Impulsiveness Scale-11 (BIS) consists of 30 questions and is divided into 3 sub-scales: attention impulsiveness, motor impulsiveness, and non-planning impulsiveness (Patton et al. 1995).

Neurocognitive Variables

The Cambridge Neuropsychological Test Automated Battery (CANTAB) was used to analyze cognitive functioning. Testing occurred in a quiet room using a touch-screen computer. Two domains were tested: (1) Set-shifting (via the Intra-Extra Dimensional Set Shift Task) and response inhibition (via the Stop Signal Response Task). These domains were chosen as a result of previous literature showing impairments in these areas in subjects with impulsive behavior in the form of gambling disorder (Clark 2010; van Holst et al. 2010; Grant et al. 2011; Odlaug et al. 2011).

Cognitive Flexibility; Intra-extra Dimensional Set Shift Task (IED)   Participants are asked to learn, and then follow an underlying rule given by the computer. Once the participant demonstrates understanding of the rule, by answering six tasks correctly, the computer changes the underlying rule. At this point the subject must learn the new, computer determined underlying rule. Once the subject answers six tasks correctly, applying the new rule, the computer again changes the underlying rule. This process is repeated. There are a number of output measures, including the total number of adjusted errors (i.e. how many errors does the subject make before learning the new rule) and the number of errors the subject makes during specific portions of the task (Owen et al. 1991).

Response Inhibition; Stop Signal Task (SST)   This task examines the subject's ability to inhibit a desired response. The computer presents the participant with an arrow pointing to the right or left. The subject must then press the matching arrow on the keyboard. However, at random, after presenting the participant with a right or left arrow, the computer will make a loud beeping sound. When the sound occurs the subject must refrain from pressing the matching arrow on the keyboard. The SST provides a variety of output measures. For the purpose of this study, the response time (SSRT) was analyzed. This output measures

the time it takes for the subject to inhibit their desired motor decision to press the arrow on the keyboard (Aron 2007).

Statistical Analysis

Participants were divided into three groups: (1) non-treatment seeking pathologic gamblers (n = 94), (2) pathologic gamblers seeking and receiving psychotherapy for gambling (n = 106), (3) pathologic gamblers seeking and receiving medication for gambling (n = 680). An additional age-matched data set was created from this larger data set to eliminate the confounding variable of age (the non-treatment seeking pathologic gamblers were significantly younger than both treatment groups). This age-matched data set included only subjects from all three groups who were aged 20–29. The three age-matched groups were grouped in the same manner with n = 68, 11, and 52 respectively. Demographic, family and gambling history, clinical and cognitive variables were measured using Chi squared and analysis of variance tests where appropriate.

Ethical Issues

The Institutional Review Boards at the University of Chicago and the University of Minnesota approved the study and the informed consent procedures. All study procedures were carried out in accordance with the Declaration of Helsinki and all subjects provided voluntary, written informed consent after being explained all of the study procedures.

Results

We examined whether demographic and family history differences existed (Table 1) in regards to age, gender, education and race, as well as in general gambling information in a population of non-treatment seeking gamblers (n = 94), therapy seeking gamblers (n = 106) and medication seeking gamblers (n = 680). Significant differences existed in race ($p < 0.001$) with Caucasian individuals being more likely to seek therapy or medication treatment. Significant differences ($p < 0.001$) in age also existed between the three groups. However, this significant difference disappeared ($p = 0.95$) when a smaller, age-matched subset was created. The treatment seeking groups reported higher rates of maternal gambling problems ($p = 0.047$).

Those seeking treatment lost significantly more money in the past year when compared to the non-treatment seeking group ($p < 0.001$). Those seeking medication or therapy treatment were significantly more likely to report that they gambled to make money ($p = 0.024$) or escape from problems ($p = 0.003$), and they report more legal ($p < 0.001$) and social problems ($p = 0.017$) secondary to their gambling. Those individuals seeking therapy as treatment exhibited the highest levels of legal and social problems. Information pertaining to gambling behavior is presented in Table 2.

Comorbidities were also examined between groups (Table 3). Non-treatment seekers were significantly more likely to have a current or past major depressive episode ($p < 0.001$) while those seeking therapy were more likely to have comorbid general anxiety disorder ($p = 0.007$).

When examining clinical measures, significant differences existed in all 3 scales of the PG-YBOCS: urge, behavior and total scores ($p < 0.001$, Table 4). Those seeking medical treatment had higher scores than the other two groups. Those seeking therapy had higher

Table 1 Demographics and family history

	Non-treatment seeking	Therapy	Medication	Statistic	Full population p value	Age matched p value
Age (mean, SD)	23.5 (3.85)	47.59 (12.36)	46.89 (11.82)	F = 180.93	< 0.001	0.95
Gender				$\chi^2 = 9.58$	0.008	0.079
Female	32 (7.5)	57 (13.3)	339 (79.2)			
Male	62 (13.7)	49 (10.9)	340 (75.4)			
Education				$\chi^2 = 7.56$	0.023	0.136
High school grad or less	16 (9.4)	35 (20.5)	120 (70.2)			
Some college +	78 (17.5)	68 (15.3)	299 (67.2)			
Race				$\chi^2 = 72.42$	< 0.001	< 0.001***
Caucasian	48 (7.1)	89 (13.2)	535 (79.6)			
African American	33 (36.7)	10 (11.1)	47 (52.2)			
Other	8 (13.6)	7 (11.9)	44 (74.6)			
Mother gambling problem	6 (4.2)	20 (13.9)	118 (81.9)	$\chi^2 = 8.43$	0.015	0.047*
Father gambling problem	11 (6.4)	12 (7.0)	148 (86.5)	$\chi^2 = 8.90$	0.012	0.754
Sibling gambling problem	9 (5.2)	16 (9.3)	147 (85.5)	$\chi^2 = 5.49$	0.064	0.637

All variables are n (% within variable) unless otherwise noted

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ in both the full and age-matched populations

scores than non-treatment seekers. A significant difference existed in non-planning impulsiveness ($p = 0.002$), with non-treatment seekers exhibiting lower scores. There were no group significant differences on any neurocognitive measure. Specific n-values for each variable are provided in Table 5.

Discussion

In confirmation of our first hypothesis, this study found significant differences in the obsessive–compulsive nature of the three groups as measured by the PG-YBOCS. Non-treatment seeking gamblers scored significantly lower than both therapy and medical treatment seeking gamblers in all three categories of the scale: urge, behavior and total score. Those seeking therapy scored in between non-treatment seeking gamblers and gamblers seeking medical treatment. This finding was true in both the large group and the smaller age matched analysis. This finding may signify a difference in the cognitive nature

Table 2 Gambling information

	Non-treatment seeking	Therapy	Medication	Statistic	Full population p value	Age matched p value
Age 1st gambling	14.60 (3.73)	27.42 (12.53)	26.40 (13.30)	F = 38.37	< 0.001	0.39
Age regular gambling	18.39 (2.95)	37.22 (12.71)	37.01 (12.60)	F = 101.77	< 0.001	0.001**
Time between 1st and reg. gambling	3.79 (2.54)	9.43 (10.38)	10.85 (10.73)	F = 20.01	< 0.001	0.54
Duration of illness	5.11 (4.12)	10.82 (7.65)	10.18 (8.65)	F = 17.03	< 0.001	0.718
$ Lost past year	4214.4 (6800.5)	19,804.2 (20,144.5)	26,144.5 (32,574.1)	F = 22.75	< 0.001	< 0.001***
Income last year	22,874.5 (17,834.5)	39,955.9 (28,882.4)	43,901.1 (31,713.7)	F = 18.6	< 0.001	0.519
$ Ratio ($lost/income)	0.20 (0.29)	0.66 (1.07)	0.72 (1.39)	F = 6.632	0.001	< 0.001**
Reason: make $ (n,% within variable)	59 (12.8)	46 (10.0)	356 (77.)	$\chi^2 = 28.91$	< 0.001	0.024*
Reason: escape (n, % within variable)	32 (8.4)	56 (14.8)	291 (76.8)	$\chi^2 = 46.00$	< 0.001	0.003**
Legal problems (n, % within variable)	3 (1.3)	30 (13.3)	192 (85.3)	$\chi^2 = 59.50$	< 0.001	< 0.001***
Financial problems (n, % within variable)	50 (30.9)	54 (33.3)	58 (35.8)	$\chi^2 = 39.07$	< 0.001	0.344
Work problems (n, % within variable)	12 (11.2)	22 (20.6)	73 (68.2)	$\chi^2 = 4.08$	0.13	0.319
Social problems (n, % within variable)	31 (11.0)	44 (15.5)	208 (73.5)	$\chi^2 = 30.75$	< 0.001	0.017*

All variables are mean (standard deviation) unless otherwise specified

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ in both the full and age-matched populations

Table 3 Comorbidities

	Non-treatment seeking	Therapy	Medication	Statistic	Full population p value	Age matched p value
Any diagnosed medical history	50 (53.2)	26 (37.7)	88 (36.4)	$\chi^2 = 8.23$	0.016	0.193
Current or past MDE	46 (48.9)	35 (33.0)	141 (23.6)	$\chi^2 = 27.66$	< 0.001	< 0.001***
General anxiety disorder	9 (9.6)	12 (16.9)	45 (7.5)	$\chi^2 = 7.12$	0.028	0.007**
OCD	4 (4.3)	1 (0.9)	4 (0.6)	$\chi^2 = 10.98$	0.004	.608

All variables are n (% within group)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ in both the full and age-matched populations

of disordered gamblers seeking treatment. While all three groups struggle to resist the impulse to gamble, the differences in PG-YBOCS scores may suggest treatment-seeking gamblers tend to gamble in a more compulsive manner. Such behavior could lead to increased financial losses, resulting in increased social, legal and or work problems, leading to the individual seeking treatment. Such a conclusion correlates with previous literature that has hypothesized a transformation from impulsive to compulsive behavior in pathologic gamblers (Brewer and Potenza 2008; Leeman and Potenza 2012), but contradicts another study that suggests gambling severity increases due to impulsivity changes (Blanco et al. 2009). This transformation may be a result of a neurological shift of control from the pre-frontal cortex to the dorsolateral striatum and putamen (Brewer and Potenza 2008; Holland 2004). Such a transition from impulsive to compulsive addictive behavior has been shown to exist in animal models and hypothesized for human addictions (Dalley et al. 2011).

Taken together, this finding seems to signify that gambling disorder lies on a continuum; gamblers seeking treatment appear to have a more severe form of the disease than disordered gamblers who do not seek treatment. If this is true, then one may hypothesize that the severity of gambling disorder may also be due to duration of illness. Interestingly, however, this study did not find this to be the case, contradicting our second hypothesis. Despite the larger sample showing medication seekers to have a significantly longer duration of illness, the significant difference between groups disappeared in the age-matched sample. Thus, an individual with new onset gambling disorder appears just as likely to seek treatment as an individual who has been diagnosed with gambling disorder for many years. This conclusion is supported by a recent study that found no correlation between duration of illness and gambling severity (Medeiros et al. 2017).

The results of this study also confirmed our third and fourth hypotheses that gamblers seeking treatment likely do so due to gambling related difficulties. Those receiving treatment, either therapy or medication, had significantly higher ratios of money lost to income, as well as increased legal problems. Treatment seekers were also significantly more likely to gamble to make money or to escape from problems, further supporting these findings. Previous research has shown severity of gambling to correlate with financial losses (Suurvali et al. 2012). This relationship signifies that the treatment seeking gamblers

Table 4 Clinical and cognitive variables

	Non-treatment seeking	Therapy	Medication	Statistic	Full population p value	Age matched p value
QoLI	41.16 (14.15)	34.00 (14.92)	33.66 (14.60)	F = 7.76	0.001	0.186
HAM-A	7.22 (6.29)	6.49 (3.96)	7.37 (4.68)	F = 1.40	0.248	0.164
HAM-D	7.98 (7.34)	7.71 (4.61)	7.10 (4.14)	F = 1.53	0.217	0.056
PG-YBOCS						
Urge	6.15 (4.55)	9.70 (3.36)	11.48 (2.70)	F = 118.68	< 0.001	< 0.001***
Behavior	6.29 (4.87)	10.40 (3.97)	11.71 (3.24)	F = 88.66	< 0.001	< 0.001***
Total	12.44 (8.97)	19.97 (5.45)	23.18 (5.09)	F = 136.71	< 0.001	< 0.001***
EIQ						
Impulsiveness	10.106 (4.05)	11.11 (4.24)	10.53 (4.31)	F = 0.78	0.46	0.040
Venturesomeness	10.36 (3.39)	8.17 (4.02)	6.88 (3.89)	F = 18.27	< 0.001	0.153
Empathy	12.33 (3.56)	12.42 (3.76)	13.39 (3.04)	F = 2.07	0.13	0.648
BIS						
Attention impulsiveness	18.03 (4.44)	19.13 (4.07)	18.67 (3.82)	F = 0.97	0.38	0.007
Motor impulsiveness	26.01 (5.02)	27.23 (4.64)	26.83 (3.70)	F = 1.13	0.33	0.105
Non-planning impulsiveness	26.10 (5.26)	30.47 (4.24)	29.83 (4.89)	F = 15.12	< 0.001	0.002**
SST						
Median correct	541.7 (216.2)	558.3 (129.4)	512.2 (160.6)	F = 0.70	0.50	0.084
SSRT	195.1 (71.4)	200.0 (65.0)	179.7 (50.3)	F = 1.32	0.27	0.680
IED						
Total errors adjusted	32.45 (26.91)	34.31 (24.28)	27.62 (22.06)	F = 0.92	0.40	0.434

All variables are mean (standard deviation)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ in both the full and age-matched populations

Table 5 Specific n-values for each variable

	Full population			Age-matched subgroup		
	Non-treatment seeking	Therapy	Medication	Non-treatment seeking	Therapy	Medication
Age	94	106	678	52	11	52
Gender	94	103	419	52	11	52
Education	89	106	626	26	11	26
Race	89	106	626	48	11	48
Any diagnosed medical history	94	69	242	14	5	14
Current or past MDE	94	106	598	46	11	46
General anxiety disorder	94	71	598	46	6	46
OCD	94	106	680	52	11	52
Reason: make $	94	58	412	23	4	23
Reason: escape	94	80	412	23	8	23
Mom gambling problem	93	99	661	52	11	52
Dad gambling problem	86	99	661	52	11	52
Sibling gambling problem	74	99	661	52	11	52
Legal problems	94	56	443	27	4	27
Financial problems	94	54	223	4	4	4
Work problems	94	92	423	24	10	24
Social problems	94	55	423	24	4	24
Age 1st gambling	94	96	678	45	11	45
Age regular gambling	94	96	578	45	11	45
Time between 1st and regular gambling	94	93	557	44	11	44
Duration of illness	94	100	578	45	11	45
$ Lost past year	94	71	345	20	10	20
Income last year	94	68	263	16	10	16
$ Ratio ($lost/income)	91	69	259	15	10	15
QoLI	93	69	102	8	5	8
HAM-A	68	106	376	22	11	22
HAM-D	91	106	376	22	11	22
YBOCS						
Urge	93	106	494	38	11	38
Behavior	93	106	494	38	11	38
Total	93	106	494	38	11	38
EIQ						
Impulsiveness	94	36	70	4	6	4
Venturesomeness	94	36	70	4	6	4
Empathy	94	36	70	4	6	4
BIS						
Attention impulsiveness	94	30	70	4	4	4

Table 5 continued

	Full population			Age-matched subgroup		
	Non-treatment seeking	Therapy	Medication	Non-treatment seeking	Therapy	Medication
Motor impulsiveness	94	30	70	4	3	4
Non-planning impulsiveness	94	30	69	4	4	4
SST						
Median correct	94	32	54	6	4	6
SSRT	94	32	54	6	4	6
IED						
Total errors adjusted	94	32	55	6	4	6

in this study were also more severe gamblers, supporting the hypothesis and the findings discussed prior.

Finally, this study found a significant difference between races in treatment seeking behavior amongst disordered gamblers. Caucasians were significantly more likely to seek treatment than African-American patients. This finding confirms many previous studies that have found similar patterns in psychiatric care (Broman 1987; Anglin et al. 2008; Snowden 2001). However, it contradicts another group of studies (Alegría et al. 2009; Broman 1987). While not a novel finding, this result supports previous research that has shown African American populations are less likely to seek mental health treatment than Caucasian populations. This study supports the need to include gambling disorder in this conversation.

There are a few limitations to this study that need to be noted. First, this study was unable to prove that any variable was causative in determining the grouping of subjects into their treatment-seeking category. While many of the correlative findings were significantly strong, it is possible the results may have been confounded by another variable. One of these potential confounding variables was age. We attempted to solve for this by creating an age-matched category to ensure statistically significant findings still held. However, it must be noted that the n value of the therapy-seeking group was small, n = 11, in comparison to the non-treatment seeking group and medication seeking group, n = 68 and n = 52, respectively. Finally, many of the variables examined in this analysis were self-reported values that were retrospectively volunteered (i.e. age of first gambling). Therefore, these values may be subject to recall bias.

In conclusion, this study adds to the literature by providing a better understanding of the differences between non-treatment seeking, therapy seeking and medication seeking gamblers. To our knowledge this is the only study to examine all three groups in a population of individuals diagnosed with gambling disorder. In support of our hypotheses, this study suggests that the three groups differ significantly in regards to the nature of their gambling behavior. Medication and therapy seeking gamblers were more likely to exhibit obsessive–compulsive tendencies, likely resulting in the increased legal and social problems seen in the medication-seeking group. Additional research studies attempting to better

delineate the causative variables determining which group pathologic gamblers fall into should be pursued.

Compliance with Ethical Standards

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