

Appendix Table 1. The distribution of lifetime gambling frequency in the total sample, among people with lifetime gambling problems, and among people with lifetime Pathological Gambling (PG)

	Total sample		Problem gamblers		Pathological Gambling ¹	
	%	(se)	%	(se)	%	(se)
Never	21.6	(1.4)	0.0	(0.0)	0.0	(0.0)
1-10	23.9	(1.2)	0.0	(0.0)	0.0	(0.0)
11-50	17.8	(1.0)	0.6	(0.2)	0.1	(0.1)
51-100	9.7	(0.7)	1.7	(0.6)	1.0	(0.5)
101-500	11.8	(0.8)	5.1	(1.3)	1.0	(0.3)
501-1000	5.2	(0.5)	6.5	(2.0)	1.3	(0.7)
1001+	10.1	(0.7)	12.2	(2.0)	4.3	(1.1)
Total	100.0	(0.0)	2.4	(0.4)	0.7	(0.1)
(n)	(3435)		(117)		(42)	

¹Includes seven respondents with Bipolar-I disorder

Appendix Table 2. The distribution of gambling types among lifetime gamblers and separately among lifetime non-problem gamblers and problem gamblers

	All gamblers		Non-problem gamblers		Problem gamblers with the following numbers of problems					
	%	(se)	%	(se)	1-2	(se)	3-4	(se)	5+ ¹	(se)
I. Sports betting										
Office sports pool	44.3	(1.7)	56.6	(1.7)	80.8	(5.9)	73.0	(10.7)	85.1	(4.9)
Sports with bookie or parlay cards	5.8	(0.5)	6.8	(0.6)	17.5	(4.8)	43.1	(10.0)	45.3	(8.1)
Betting on horse/dog races or cock/dog fights	25.0	(1.3)	31.3	(1.4)	58.1	(7.4)	61.4	(10.4)	66.6	(8.0)
Gambling at a casino	44.7	(2.1)	57.1	(2.6)	79.8	(9.9)	84.2	(7.8)	78.5	(7.3)
II. Other types of gambling that involve some aspect of mental or physical skill										
Games involving mental skill (e.g., cards)	35.8	(1.2)	45.3	(1.3)	71.3	(9.1)	82.7	(7.6)	85.6	(6.0)
Games involving physical skill (e.g., pool)	22.7	(1.1)	28.5	(1.1)	49.3	(9.9)	56.7	(11.7)	69.9	(7.3)
Speculating on high risk investments	8.4	(0.7)	10.6	(0.8)	13.8	(4.6)	22.6	(7.9)	26.9	(6.4)
Internet gambling	1.0	(0.2)	1.3	(0.2)	1.1	(1.1)	0.0	(0.0)	7.5	(4.6)
III. Types of gambling that largely involve chance rather than skill										
Playing numbers/lotto	62.2	(1.5)	80.2	(1.1)	96.3	(2.7)	70.2	(11.1)	86.5	(6.0)
Gambling machines (e.g., video poker)	26.1	(1.3)	32.8	(1.6)	64.1	(9.0)	53.7	(9.6)	69.9	(6.5)
Slot machines, bingo, or pull tabs	48.9	(1.8)	62.8	(2.0)	81.0	(7.0)	80.5	(7.4)	77.3	(7.1)
IV. Number of types of gambling										
1-2	21.8	(1.4)	29.1	(1.8)	1.0	(1.0)	0.0	(0.0)	1.6	(1.6)
3-4	22.7	(0.8)	29.7	(1.1)	21.2	(6.7)	21.1	(10.0)	14.1	(5.0)
5-6	18.7	(1.0)	24.0	(1.3)	40.5	(11.2)	29.8	(11.2)	13.2	(3.7)
7-9	13.3	(0.8)	16.3	(0.9)	34.8	(9.0)	45.9	(10.1)	63.3	(7.2)
10-11	0.7	(0.2)	0.8	(0.2)	2.4	(1.6)	3.2	(3.1)	7.8	(4.5)
	(n)									
		(3435)		(2624)		(51)		(24)		(42)

¹Includes seven respondents with Bipolar-I disorder

Appendix Table 3. Socio-demographic predictors of onset and termination of CIDI/DSM-IV Pathological Gambling (PG)

	Lifetime Pathological Gambling (PG) in the total sample		Lifetime gambling In the total sample		Lifetime problem Gambling among Gamblers		Lifetime Pathological Gambling (PG) among Problem gamblers		Termination of Problem gambling	
	OR	(95% CI) ¹	OR	(95% CI) ²	OR	(95% CI) ³	OR	(95% CI) ⁴	OR	(95% CI) ⁵
Age										
18-44	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)
45-59	0.3	(0.1-1.3)	0.6*	(0.5-0.7)	0.2	(0.0-1.2)	0.3	(0.0-10.0)	0.2*	(0.1-0.6)
60+	0.1*	(0.0-0.3)	0.2*	(0.2-0.3)	0.1	(0.0-1.4)	0.2	(0.0-89.4)	0.1	(0.0-1.5)
χ^2_2		13.3*		268.1*		3.7		0.5		13.0*
Gender										
Females	0.2*	(0.1-0.6)	0.6*	(0.6-0.7)	0.9	(0.4-2.4)	1.3	(0.3-5.9)	1.3	(0.4-4.7)
Males	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)
χ^2_1		8.6*		70.7*		0.0		0.1		0.2
Education										
Current Student	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)
Some High School	11.1*	(2.9-42.7)	1.6*	(1.2-2.1)	7.2*	(2.0-26.0)	1.2	(0.1-16.5)	5.7	(0.5-69.3)
High School Graduate	6.9*	(1.2-40.6)	3.0*	(2.4-3.7)	11.3*	(5.0-25.5)	1.5	(0.2-13.6)	11.6*	(1.9-69.9)
Some College	16.6*	(2.7-102.1)	4.0*	(3.2-5.1)	9.3*	(2.4-36.8)	2.1	(0.1-31.4)	18.5*	(2.7-129.5)
College Graduate	6.2	(0.9-43.0)	3.5*	(2.7-4.5)	2.8	(0.6-13.2)	**-	(-)	28.8*	(3.9-210.7)
χ^2_{3-4}		14.7*		203.1*		49.6*		0.6		13.8*
Ethnicity										
Hispanic	0.4	(0.1-1.3)	1.4	(1.0-1.9)	0.4	(0.2-1.1)	0.7	(0.1-4.7)	1.0	(0.2-5.2)
Black	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)
Other	-	(-)	1.4*	(1.1-1.9)	-	(-)	-	(-)	-	(-)
White	0.1*	(0.0-0.3)	1.4*	(1.1-1.8)	0.2*	(0.1-0.7)	0.1*	(0.0-0.5)	1.8	(0.6-5.1)
χ^2_{2-3}		20.7*		10.6*		8.2*		9.8*		1.5
Marital Status										
Never Married	3.2	(0.6-16.9)	1.1	(0.9-1.4)	2.4	(0.7-8.1)	1.2	(0.2-8.1)	1.2	(0.3-4.7)
Currently Married/Cohabitated	-	(-)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)	1.0	(1.0-1.0)
Separated/Widowed/Divorced	1.0	(1.0-1.0)	0.9	(0.7-1.1)	6.4*	(1.4-29.3)	1.6	(0.3-7.7)	1.3	(0.5-3.4)
χ^2_{1-2}		2.0		2.0		9.3*		0.4		0.3

*Significant at the .05 level, two-sided test

¹Coefficients are based on a discrete-time survival model with person-year the unit of analysis, beginning at the respondent's age of birth. The model includes a control for age in the person-year.

²Coefficients are based on a discrete-time survival model with person-year the unit of analysis, beginning at the respondent's age of birth. The model includes a control for age in the person-year.

³Coefficients are based on a discrete-time survival model with person-year the unit of analysis, beginning at the respondent's age of onset of gambling. The model includes controls for age in the person-year and AOO of gambling.

⁴Coefficients are based on a logistic regression model estimated in the sub-sample of lifetime problem gamblers. The model includes controls for AOO of gambling, AOO of problem gambling, and number of years since first onset of problem gambling at the time of interview.

⁵Coefficients are based on a discrete-time survival model with person-year the unit of analysis beginning at the respondent's age of onset of problem gambling. The model includes controls for age in the person-year, AOO of gambling, and AOO of problem gambling.

Appendix Table 4. Rank Order Correlations among the 4 subgroups (gambling but no problems, 1-2, 3-4, 5+ problems) in the relative popularity of the 10 gambling types

	1	2	3	4
Number of gambling problems				
1 None	1.0	.	.	.
2 1-2	.98	1.0	.	.
3 3-4	.80	.82	1.0	.
4 5+	.91	.94	.78	1.0

Appendix Table 5. Lifetime treatment of emotional or substance problems by treatment sector among respondents with lifetime CIDI/DSM-IV Pathological Gambling (n = 35)

	%	(se)
General Medical	27.9	(2.7)
Psychiatrist	21.7	(3.2)
Other Mental Health Specialist	23.7	(1.7)
Human Services	14.9	(3.6)
CAM	17.7	(3.6)
Any Treatment	49.0	(2.6)

Appendix Table 6. Time-lagged associations of other temporally primary CIDI/DSM-IV disorders with the subsequent first onset of gambling, gambling problems among gamblers, CIDI/DSM-IV Pathological Gambling (PG) among problem gamblers, PG, and termination of problem gambling

	Lifetime gambling In the total sample		Lifetime problem Gambling among Gamblers		Lifetime Pathological Gambling (PG) among Problem gamblers		Termination of Problem gambling	
	OR ¹	(95% CI)	OR ²	(95% CI)	OR ³	(95% CI)	OR ⁴	(95% CI)
I. Mood disorders								
Major depressive disorder or dysthymia	1.2*	(1.0-1.5)	7.2*	(3.9-13.1)	2.1	(0.4-11.8)	1.4	(0.4-4.6)
Bipolar disorder ⁵	1.4	(0.9-2.3)	2.0	(0.5-7.5)	4.8	(0.7-33.3)	0.5	(0.1-2.9)
Any mood disorder	1.1	(1.0-1.2)	4.8*	(2.2-10.4)	3.7	(0.9-14.8)	1.2	(0.4-3.4)
II. Anxiety disorders								
Panic disorder	1.5*	(1.0-2.1)	2.6	(0.7-9.6)	17.0*	(2.7-108.9)	0.2*	(0.1-0.8)
Generalized anxiety disorder	1.0	(0.7-1.5)	2.5	(0.6-10.0)	9.3*	(1.7-51.7)	1.4	(0.3-6.9)
Phobia	1.4*	(1.2-1.7)	2.1	(0.6-7.3)	2.8	(0.7-11.8)	1.6	(0.6-4.1)
PTSD	1.3	(1.0-1.6)	1.3	(0.3-6.5)	2.8	(0.2-53.2)	0.5	(0.1-2.5)
Any anxiety disorder ⁶	1.4*	(1.2-1.6)	1.4	(0.4-5.4)	2.3	(0.4-11.8)	1.5	(0.5-4.1)
III. Impulse-control disorders								
ADHD	1.4*	(1.1-1.8)	0.9	(0.3-3.4)	1.0	(0.3-3.7)	0.2	(0.0-1.4)
Oppositional-defiant disorder	1.9*	(1.5-2.4)	0.9	(0.3-2.7)	1.9	(0.3-10.4)	0.5	(0.1-5.4)
Conduct disorder	1.6*	(1.2-2.2)	2.1	(0.8-5.4)	1.0	(0.0-21.5)	0.7	(0.2-2.4)
Intermittent explosive disorder	1.8*	(1.3-2.3)	7.7*	(3.5-16.9)	0.4	(0.0-9.7)	0.3	(0.1-1.4)
Any impulse control disorder	1.8*	(1.6-2.1)	3.6*	(1.4-9.2)	0.2	(0.0-3.3)	0.2*	(0.0-0.9)
IV. Substance use disorders								
Alcohol or drug abuse	1.4*	(1.0-1.9)	1.5	(0.5-4.0)	2.9	(0.4-21.2)	0.6	(0.2-1.8)
Alcohol or drug dependence	1.2	(0.6-2.3)	2.0	(0.5-7.6)	2.8	(0.5-16.6)	0.7	(0.2-1.9)
Nicotine dependence	1.5*	(1.2-1.9)	1.0	(0.3-3.7)	1.8	(0.3-9.8)	2.9*	(1.2-6.6)
Any substance use disorder	1.6*	(1.3-1.9)	1.3	(0.4-4.3)	6.3	(0.9-42.1)	2.0	(0.6-6.6)
V. Number of disorders								
Any disorder	1.7*	(1.5-2.0)	4.8*	(2.0-11.7)	12.5	(0.6-249.8)	8.6*	(1.0-72.8)
Exactly one disorder	1.4*	(1.2-1.7)	0.7	(0.1-3.7)	26.3	(0.7-1040.2)	5.7*	(1.9-17.2)
Exactly two disorders	1.4*	(1.1-1.8)	0.9	(0.1-6.3)	4.2	(0.2-111.8)	15.1*	(2.0-111.5)
Three or more disorders	1.7*	(1.4-1.9)	1.6	(0.3-8.5)	19.7	(1.0-394.1)	2.3	(0.7-7.4)

*Significant at the .05 level, two-sided test

¹Coefficients are based on a series of discrete-time survival models with person-year the unit of analysis, beginning at the respondent's age of birth, in which one temporally primary disorder is used to predict the subsequent first onset of gambling. A separate model is used for each entry in the column, with the exception of three predicting being included in the model for number of disorders. Each model includes controls for age in the person-year, age at interview, sex, and race-ethnicity in addition to a variable single measure.

²Coefficients are based on a series of discrete-time survival models with person-year the unit of analysis, beginning at the respondent's age of onset of gambling, in which one temporally primary disorder is used to predict the subsequent first onset of problem gambling among gamblers. Each model includes controls for age in the person-year, AOO of gambling, age at interview, sex, and race-ethnicity.

³Coefficients are based on a series of logistic regression models estimated in the sub-sample of lifetime problem gamblers, in each of which one temporally primary disorder is used to predict the subsequent first onset of CIDI/DSM-IV Pathological Gambling among problem gamblers. Each model includes controls for AOO of gambling, AOO of problem gambling, number of years since first onset of problem gambling at the time of interview, sex, and race-ethnicity.

⁴Coefficients are based on a series of discrete-time survival models with person-year the unit of analysis beginning at the respondent's age of onset of problem gambling, in which one temporally primary disorder is used to predict the subsequent termination of problem gamblers among lifetime problem gamblers (whether or not with CIDI/DSM-IV Pathological Gambling). The model includes controls for age in the person-year, AOO of gambling, AOO of problem gambling, age at interview, sex, and race-ethnicity.

⁵Bipolar disorders include bipolar-II disorder and sub-threshold BPD (Merikangas et al., Arch Gen Psych 2007 – This is a paper I coauthored).

⁶This category includes anxiety disorders that were too uncommon to be considered separately (obsessive-compulsive disorder and separation anxiety disorder)

Appendix Table 7. Time-lagged associations of temporally primary non-problem gambling and problem gambling with the subsequent first onset of other CIDI/DSM-IV disorders¹

	Non-Problem Gambling		Problem Gambling	
	OR	(95% CI)	OR	(95% CI)
I. Mood disorders				
Major depressive disorder or dysthymia	1.4*	(1.1-1.7)	6.0*	(1.9-18.6)
Bipolar disorder ²	1.3	(0.6-2.5)	2.3	(0.9-5.6)
Any mood disorder	1.2	(0.9-1.5)	6.3*	(1.6-24.5)
II. Anxiety disorders				
Panic disorder	1.2	(0.9-1.8)	1.0	(0.2-4.5)
Generalized anxiety disorder	2.0*	(1.3-3.0)	4.6	(0.8-25.9)
Phobia	0.6*	(0.5-0.9)	0.3	(0.0-3.1)
PTSD	1.3	(0.7-2.3)	3.6*	(1.2-10.3)
Any anxiety disorder ³	1.0	(0.8-1.2)	0.9	(0.3-2.8)
III. Impulse-control disorders				
ADHD	0.2*	(0.1-0.6)	0.0*	(0.0-0.0)
Oppositional-defiant disorder	0.4*	(0.2-0.8)	0.6	(0.1-4.7)
Conduct disorder	1.4	(0.4-5.1)	0.9	(0.1-6.8)
Intermittent explosive disorder	0.4*	(0.2-0.9)	1.1	(0.2-5.1)
Any impulse control disorder	0.4*	(0.3-0.6)	0.6	(0.1-3.8)
IV. Substance use disorders				
Alcohol or drug abuse	2.5*	(1.5-4.3)	4.4*	(2.0-10.0)
Alcohol or drug dependence	2.8*	(1.7-4.7)	11.9*	(4.6-30.5)
Nicotine dependence	2.8*	(2.1-3.7)	17.9*	(10.8-29.7)
Any substance use disorder	2.7*	(2.2-3.3)	10.7*	(5.1-22.3)
V. Number of disorders				
Any disorder	1.4*	(1.1-1.7)	2.2	(0.7-6.7)

*Significant at the .05 level, two-sided test

¹Coefficients are based on a separate discrete-time survival model for each row in the table. Person-year is the unit of analysis, beginning at the respondent's age of birth. Time-varying predictor variables for non-problem gambling and problem gambling (whether or not with CIDI/DSM-IV Pathological Gambling) are both included in each model to predict the subsequent first onset of temporally secondary disorders. Each model includes controls for age in the person-year, age at interview, sex, and race-ethnicity.

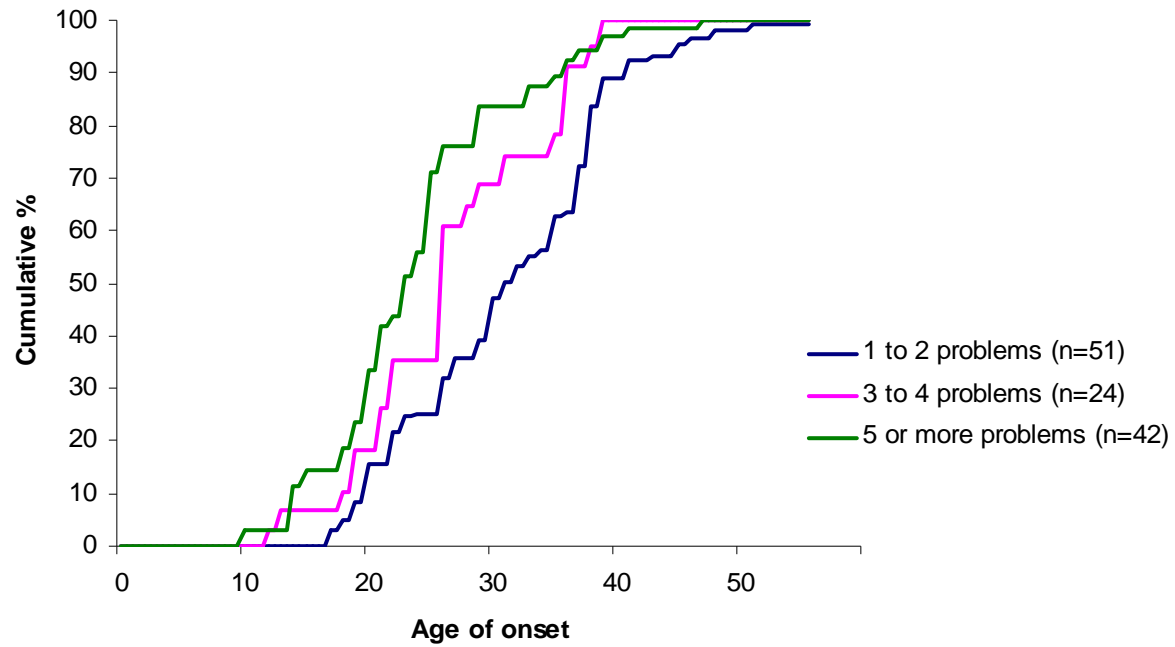
²Bipolar disorders include bipolar-II disorder and sub-threshold BPD (Merikangas et al., Arch Gen Psych 2007 – This is a paper I coauthored).

³This category includes anxiety disorders that were too uncommon to be considered separately (obsessive-compulsive disorder and separation anxiety disorder)

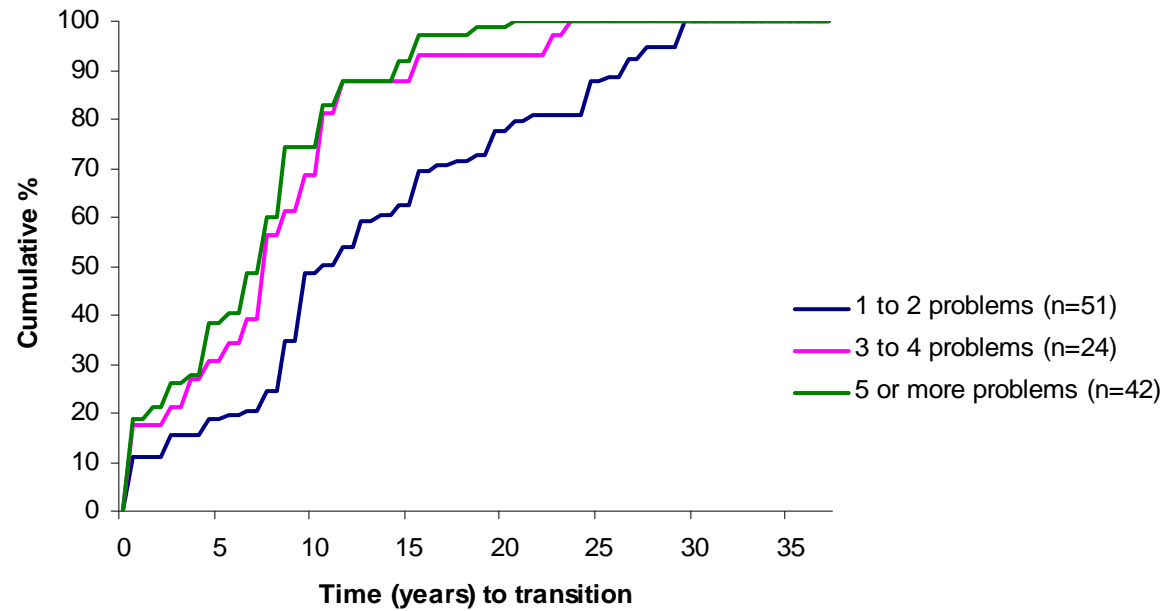
Appendix table 8. DSM-IV Criterion A symptoms of Pathological Gambling and the CIDI questions designed to assess these symptoms

DSM-IV Symptoms	CIDI Questions
1. Is preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble	1. Did you ever have periods when you would spend lots of time planning your bets or studying the odds when you should have been doing other things?
2. Needs to gamble with increasing amounts of money in order to achieve the desired excitement	2. Over time, did you have to increase the amount you bet or gambled in order to keep it exciting?
3. Has repeated unsuccessful efforts to control, cut back, or stop gambling	3. A positive response to any of the following three questions: How many times did you ever make a serious attempt to cut down or stop gambling? (We required a minimum of three such attempts to qualify for the symptom.) Was there ever a time in your life when you had such a strong desire to bet or gamble that you couldn't resist it or couldn't think of anything else? Did you ever have times when you gambled even though you promised yourself you wouldn't, or when you bet a lot more or for a longer period of time than you intended?
4. Is restless or irritable when attempting to cut down or stop gambling	4. Did trying to quit or cut down on gambling make you feel restless or irritable?
5. Gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)	5. A positive response to either of the following two questions: Did you ever have a time in your when you would often use betting or gambling as a way to get out of a bad mood or to improve your mood? Did you ever gamble in order to escape or stop thinking about personal problems?
6. After losing money gambling, often returns another day to get even ("chasing" one's losses)	6. A positive response to either of the following two questions: After losing money gambling, did you often return another day soon to win back your losses? When you had a big gambling debt, did you gamble more and more in the hope of winning back the losses?
7. Lies to family members, therapist, or others to conceal the extent of involvement with gambling	7. A positive response to either of the following two questions: Was there ever a time when you often tried to keep your family or friends from knowing how much you gambled? Did you sometimes claim to be winning when you were actually losing?
8. Has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling	8. Did you ever try to raise gambling money by writing a bad check, stealing, or doing something else that was illegal?
9. Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling	9. A positive response to either of the following two questions: Was there ever a time when your betting or gambling often interfered with your work or responsibilities at school, on a job, or at home? Was there ever a time when your gambling caused repeated arguments or other serious problems with your family, friends, neighbors, or coworkers?
10. Relies on others to provide money to relieve a desperate financial situation caused by gambling	10. Did you repeatedly borrow money from your family or friends to support your gambling or to pay your gambling debts?

Appendix figure 1. Age of onset of gambling among problem gamblers who differ in number of lifetime gambling problems



Appendix figure 2. Years since onset of starting to gamble until first onset of a gambling problem among problem gamblers who differ in number of lifetime gambling problems



Appendix figure 3. Speed of recovery of problem gamblers among lifetime problem gamblers who differ in number of lifetime gambling problems

