RESEARCH ARTICLE

GAMBLING ADDICTION AND ASSOCIATED ANXIODEPRESSIVE COMORBIDITIES: THE CASE OF GAMBLERS SEEN IN ANTANANARIVO I AND TOAMASINA I, MADAGASCAR

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ABSTRACT

Background: The availability of games of chance and gambling continues to increase throughout the world which increase the risk of developing addictive behavior towards gambling. The objectives of this study are to describe the prevalence of addiction to gambling and the prevalence of an anxiety and depressive disorder; to describe the sociodemographic profile of bettors. **Methods:** This is an observational, cross-sectional, descriptive study conducted from 07 June 2021 to 08 March 2022 among gamblers in gaming rooms in the city of Antananarivo I and Toamasina I. The measurement tools are : Canadian Problem Gambling Index (CPGI) in its French version and the HAD (Hospital Anxiety and Depression) scale. **Results:** A total of 140 participants were included in this study, with a predominance of men (88.57%). The prevalence of gambling addiction was 67.86%, with a significant association with established depression (p=0.0085). Gambling addiction was significantly associated with a high level of education and living with a partner (p<0.05). Among these gamblers, anxiety and definite depression were significantly associated with age 20 to 30 and male gender respectively. **Conclusion:** A relationship between risk of anxiety, depression and gambling addiction was found.

INTRODUCTION

Gambling is one of society's most common leisure activities. In 2005, a study in France estimated that three out of five adults had gambled at least once (1). Gambling remains an entertaining and relaxing activity with no negative consequences for the individual. However, the availability of gambling is increasing all over the world, increasing the risk of developing addictive gambling behaviour (2,3). At this stage, gambling addiction or "pathological gambling" manifests itself as an irrepressible need to bet money and a "maladaptive, persistent and repeated practice of gambling" (4), thus constituting the subject's sole field of investment" (5). In 2005, international studies estimated the prevalence of pathological gambling in the general adult population at between 0.2% and 3% (6,7). Several literatures show that the development of pathological gambling strongly co-occurs with other psychiatric disorders, notably personality disorders (8-10), substance use disorders (9,11) and depressive disorders (12,13).

Depression is the disorder most frequently associated with addictive disorders in general, and appears to be closely linked to pathological gambling (14,15). In Africa, as in Madagascar, few data exist to describe and understand the epidemiology of pathological gambling and its associated comorbidities. Thus, this study was carried out to obtain more information on gambling addiction in Madagascar. The main objective of this study is to assess the relationship between pathological gambling and associated anxiety-depressive comorbidities in regular gamblers. The specific objectives are: to describe the prevalence of gambling addiction and the prevalence of anxiety and depressive disorders; to describe the sociodemographic profile of gamblers.

MATERIALS AND METHODS

This is an observational, cross-sectional and descriptive study, conducted on a population sample of gamblers in gaming rooms whether in Pari Mutuel Urbain (PMU) representative

outlets or Casino Halls or gamblers in sports event broadcasting rooms, located in the city of Antananarivo downtown and Toamasina I. The survey took place over a period of 09 months, between 07 June 2021 and 08 March 2022. Bettors who regularly frequent gambling halls once a week or more, regardless of gender or age, were included in the study. Not included were occasional gamblers and regular punters who had frequented the hall for less than 12 months. Subjects who did not consent to take part in the study were excluded; those who provided incomplete or ambiguous answers to the questionnaires and those who had had previous psychiatric treatment, regardless of the disorder they presented. Data were collected using a data collection form, while respecting the anonymity of the participants and the game rooms, and in compliance with human rights. Participants were interviewed individually in a semi-structured interview to explain the aims of the study. The data collection forms were translated into Malagasy to clarify them and standardize the questions. The variables studied were sociodemographic (age, gender, marital status, professional status, level of education); clinical: using internationally validated scales to assess gambling addiction, as well as anxiety-depressive comorbidities. To assess pathological gambling addiction, the French version of the Canadian Problem Gambling Index (CPGI) was used to measure the prevalence of gambling habits and problem gambling in the general population. It is an internationally valid scale of satisfactory psychometric quality. It is a 9-item scale, with responses ranging from "never" (= 0 points) to "almost always" (= 3 points) are used to rate the intensity of the problem (16). The CPGI identifies several levels of gambling severity: no gambling problem (score 0); low-risk gambling, which appears to have few or no negative consequences (score 1 or 2); moderate-risk gambling, which has some negative consequences (score 3 to 7); excessive gambling, which has negative consequences and may be out of control (score 8 or more). Problem gamblers include moderate-risk and excessive gamblers (17).

The French version of Zigmond and Snaith's Hospital Anxiety and Depression Scale (HAD) is a diagnostic tool for assessing both anxiety and depressive symptoms. What's more, it has the advantage of having been constructed excluding any items concerning somatic aspects, aspects that could be confused between physical and mental illness (18). This scale comprises 14 items (7 items for anxiety and 7 items for depression). The higher the score, the more severe the symptoms. Its interpretation according to Zigmond and Snaith is as follows (19): from 0 to 7: no anxiety or depressive disorder; from 8 to 10: suspected anxiety or depressive disorder; from 11 to 21: confirmed anxiety or depressive disorder. Data were entered on Microsoft Excel version 2019 and analyzed using Epi-info 7 software. Statistical tests were used to compare variables, with a significance threshold set at a plus-value (p) < 0.05.

RESULTS

At the end of the exhaustive survey during the study period, of the 249 people invited to take part in the study in the two provinces, 140 regular gamblers completed the questionnaires in their entirety in the two major cities. The study population was predominantly male (n=124), with a sex ratio of 7.75. The age of the study population ranged from 18 to 61 years, with an average of 33.75 years. Over half the players were couples, representing 70.71% (n=99) of the total population.

The majority of players are self-employed (54.29%; n=76). In terms of level of education, the majority were university graduates (29.29%; n=41). The type of game most frequently played by bettors was horse racing (65%; n=91) (Table I). In this study, 67.86% (n=95) of regular gamblers presented a gambling addiction according to the ICJE scale. Thirty-two point fourteen percent were non-dependent (Table II). Pathological gambling addiction was found in 67.74% of male gamblers. Among female gamblers, the prevalence of gambling addiction was 68.75% (Table II). This result was not statistically significant. In terms of age groups, 41.05% of gamblers with a gambling addiction were in the 30-40 age bracket, with no statistical significance (Table II). A statistically significant difference was found between the prevalence of gambling addiction and marital status (p=0.0494). Indeed, among the 95 individuals with a gambling addiction, more than half (66.32%, n=63) were living with a partner. Similarly, for those gamblers living with a partner, more than half (63.64%) are exposed to problem gambling (Table II). According to occupational sector, the distribution of gambling addiction is homogeneous (p=0.7326). Pathological gambling addiction was found mainly among self-employed entrepreneurs (64.47% n=49). (Table II).

In terms of level of education, 70.73% (n=29) of individuals with a gambling addiction were university graduates. Nevertheless, high-school gamblers are easily exposed to gambling addiction, with a high rate of 78.13% versus 21.88% of non-dependent gamblers for this population class (Table II). Also, this distribution of pathological gambling in relation to level of education is statistically significant (p=0.0245). Among pathological gamblers, horse racing bettors are the most exposed to gambling addiction (68.13%, n=62). This distribution is statistically homogeneous (p=0.1317) (Table II). In this study, 30% of the 140 respondents presented doubtful anxiety symptoms and 30% confirmed anxiety (Table III). Forty percent of regular gamblers showed no anxiety. Furthermore, the results showed no statistically significant relationship between the presence of anxiety and gender, marital status, occupation, level of education or type of gambling. Gambling addiction is not systematically associated with anxiety (p=0.4852) (Table III). On the other hand, age made a significant contribution to the onset or absence of anxiety disorders, especially for subjects aged between 30 and 40 years old (p=0.0181). Among the 140 patients, thirty-six players (25.71%) had a suspected depressive disorder and fifteen (10.71%) actually suffered from depression. The results of this study showed that both male gender (p=0.0368) and gambling addiction (p=0.0085) were significantly associated with the incidence of depressive disorders. (Table IV)

DISCUSSION

This study was carried out on a population of regular gamblers and provided an insight into the epidemiology of gambling addiction and the associated anxiety-depressive disorder. The choice of study location was justified by the fact that Antananarivo and Toamasina are Madagascar's two most populous cities (20). However, this study has a number of limitations, reflecting only part of the reality of these disorders in Madagascar. The small sample size is explained by the reluctance of the gamblers; nevertheless, the non-response rate is 44%, which places it at a favorable acceptance level compared with other studies (21,22).

Table I. Socio-demographic characteristics of bettors

Parameter	Value (n)	Pourcentage (%)
Gender		
Male	124	88,57
Female	16	11,43
Age (in year)		
<20	04	2,86
(20-30(	43	30,71
(30-40(	64	45,71
≥40	29	20,71
Marital status		
Single	41	29,29
Couple	99	70,71
Employment status		
Unemployed	7	5
Self-employed	76	54,29
Civil servant	31	22,14
Private sector employee	19	13,57
Student	7	5
Level of education		
Illiterate	00	00
Primary	34	24,29
Secondary	33	23,57
High school student	32	22,86
University	41	29,29
Game type		
Horse racing	91	65
Casino game	19	13,57
Sports betting	30	21,43

Table II. Problem or addictive gambling behaviour and socio-demographic parameters

Parameters	Gambling addiction		p-value
	YES n (%)	NO n (%)	
Total population ($n=140$)	95 (67,86)	45 (32,14)	
Gender			
Male	84 (67,74)	40 (32,26)	0.4784
Female	11(68,75)	5 (31,25)	
Age (in years)			
<20	2 (50)	2 (50)	
(20-30(	30 (69,77)	13 (30,23)	0.1708
(30- 40(	39 (60,94)	25 (39,06)	
≥40	24 (82,76)	5 (17,24)	
Marital status			
Single	32 (78,05)	9 (21,95)	0.0494
Couple	63 (63,64)	36 (36,36)	
Employment status			
Unemployed	5 (71,43)	2 (28,57)	
Self-employed	49 (64,47)	27 (35,53)	0.7326
Civil servant	22 (70,97)	9 (29,03)	
Private sector employee	15 (78,95)	4 (21,05)	
Student	4 (57,14)	3 (42,86)	
Level of education			
Illiterate	00 (00)	00 (00)	
Primary	16 (47,06)	18 (52,94)	
Secondary	25 (75,76)	8 (24,24)	0.0245
High school	25 (78,13)	7 (21,88)	
University	29 (70,73)	12 (29,27)	
Game type			
Horse racing	62 (68,13)	29 (31,87)	
Casino game	16 (84,21)	3 (15,79)	0.1317
Sports betting	17 (56,67)	13 (43,33)	

The age of the players ranged from 18 to 61 years, with an average age of 33.75 years. This is in line with the demographics of Madagascar, where the majority of the population is young and the age pyramid is broad-based with a narrowing apex (23). In terms of gender, the study population was predominantly male (88.57%). All epidemiological investigations in non-clinical populations report a male predominance of gambling addiction (25,26). Moreover, most gambling venues in Madagascar are frequented by men. More than half of regular gamblers work as self-employed, 54.29% of cases.

This concurs with data from the World Bank in 2014, who indicated in their report that 86% of subjects of working age derive their income from self-employment (28). This high rate of self-employed gamblers could be explained by the fact that, in view of irregular income, gamblers put hope in gambling-related income. In this study, 65% of gamblers tend to bet on horse racing. A study by M. Costes in France reported a predominance of horse betting among 93% of regular gamblers (24). The hypothesis put forward is that a gambler less invaded by irrational beliefs and with less cognitive distortion will tend more towards a game like PMU (Pari Mutuel Urbain), being

Table III. Distribution of the population according to the existence or absence of anxiety

Parameters	Presence or not of anxiety n (%)			p-value
	NO ANXIETY	SUSPICION	ANXIETY CERTAIN	
Total population n(%)	56 (40)	42 (30)	42 (30)	
Gender				
Male	52 (41,94)	34 (27,42)	38 (30,65)	0.1674
Female	04 (25)	08 (50)	04 (25)	
Age (in year)				
<20	03 (75)	01 (25)	00 (00)	
(20-30(	22 (51,16)	16 (37,21)	05 (11,63)	0.0181
(30-40(	22 (34,38)	19 (29,69)	23 (35,94)	
≥40	09 (31,03)	06 (20,69)	14 (48,28)	
Marital status				
Single	16 (39,02)	11 (26,83)	14 (34,15)	
Couple	40 (40,40)	31 (31,31)	28 (28,28)	0.7632
Employment status				
Unemployed	03 (42,86)	03 (42,86)	01 (14,29)	
Self employed	35 (46,05)	20 (26,32)	21 (27,63)	
Civil servant	07 (22,58)	12 (38,71)	12 (38,71)	0.1873
Private sector employe	06 (31,58)	05 (26,32)	08 (42,11)	
Student	05 (71,43)	02 (28,57)	00 (00)	
Education level				
Primary	13 (38,24)	11 (32,35)	10 (29,41)	
Secondary	16 (48,48)	09 (27,27)	08 (24,24)	0.845
High school	14 (43,75)	08 (25)	10 (31,25)	
University	13 (31,71)	14 (34,15)	14 (34,15)	
Type of game	38 (41,76)			
Horse racing	08 (42,11)	26 (28,57)	27 (29,67)	0.9043
Casino game	10 (33,33)	05 (26,32)	06 (31,58)	
Sport betting		11 (36,67)	09 (30)	
CPGI-score	21 (46,67)			
No problem gambler	35 (36,84)	11 (24,44)	13 (28,89)	0.4852
Problem gambler		31 (32,63)	29 (30,53)	

Table IV. Distribution of the population according to whether or not they suffer from depression

Parameters	Presence or not of depression n (%)		p
	NO SUSPICION OF DEPRESSION	**DEPRESSION CERTAIN**	
Total population	**89 (63,57)**	**36 (25,71)**	**15 (10,71)**	
Gender			
Male	81 (65,32)	28 (22,58)	15 (12,10)	**0.0368**
Female	08 (50)	08 (50)	00 (00)	
Age (in year)			
<20	04 (100)	00 (00)	00 (00)	
(20-30(	26 (60,47)	12 (27,91)	05 (11,63)	
(30-40(	39 (60,94)	16 (25)	09 (14,06)	0.5665
≥40	20 (68,97)	08 (27,59)	01 (3,45)	
Marital status			
Single	26 (63,41)	10 (24,39)	05 (12,2)	0.9238
Couple	63 (63,64)	26 (26,26)	10 (10,10)	
Employement status			
Unemployed	05 (71,43)	02 (28,57)	00 (00)	
Self employed	53 (69,74)	16 (21,05)	07 (9,21)	
Civil servant	15 (48,39)	12 (38,71)	04 (12,90)	0.3178
Private sector employe	10 (52,63)	05 (26,32)	04 (21,05)	
Student	06 (85,71)	01 (14,29)	00 (00)	
Level of study			
Primary	22 (64,71)	10 (29,41)	02 (5,88)	
Secondary	24 (72,73)	05 (15,15)	04 (12,12)	0.658
High school	20 (62,5)	09 (28,13)	03 (9,38)	
University	23 (56,10)	12 (29,27)	06 (14,63)	
Type of game			0.533
Horse racing	60 (65,93)	22 (24,18)	09 (9,89)	
Casino game	10 (52,63)	05 (26,32)	04 (21,05)	
Sport betting	19 (63,33)	09 (30)	02 (6,67)	
CPGI score			**0.0085**
No problem gambler	35 (77,78)	10 (22,22)	00 (00)	
Problem gambler	54 (56,84)	26 (27,37)	15 (15,79)	

aware that the laws of chance intervene less in this game than in others. What's more, he'll acquire a certain knowledge of horses, jockeys, trainers and racing history, and will therefore make his bet taking all these elements into account (1). A rate of 67.86% of gambling-dependent subjects was noted in this study using the CPGI scale. Gambling addiction was found to be particularly prevalent among male regular gamblers, but in a statistically insignificant way.

A fairly high prevalence of this form of behavioural addiction, but without any significant link, was also found among subjects aged between 30 and 40, people in the professions and horse racing bettors. The results thus show a very high prevalence rate compared with that found in the study by Benoît et al in France (30) and the INSERM (Institut National de la Santé et de la Recherche Médicale) study (21), which showed that a significant proportion of the regular gambling

population do not have any damaging difficulties with their mental health, respectively their study showed that 85% and 98% of regular gamblers are not addicted to gambling. This could be explained by the fact that the laws in force are stricter and more respected in developed countries than in developing countries (31). The prevalence of pathological gambling is particularly high among self-employed workers, but no statistical link was found. This is in line with the literature, which has shown that unemployed subjects with no fixed income are more prone to gambling addictions (30). In terms of type of gambling, horse racing bettors are also more exposed to pathological gambling. In fact, 62% of pathological gamblers bet on horses. This result could be explained by the development of racing (several times a day), the existence of specialized television channels broadcasting live, the commercial methods used, such as the possibility of placing bets remotely, and the existence of numerous live broadcasting outlets. Statistically significant relationships were found between gambling and marital status, as well as between gambling and gamblers' level of education. Thus, in this study, gamblers in couples are more exposed to gambling addiction, which differs from those found in the literature. Indeed, several studies in developed countries (32,33) have shown that single people are most at risk of pathological gambling, especially singles with a small social circle.

This result could be explained by the socio-economic context of the Malagasy population, classified among the poorest. However, the context of poverty constitutes a financial, psychological and social trap (34). Thus, to provide for the needs of his family, the father could be attracted by games of chance and money to try to win more money. Moreover, a study carried out in 2006 by Goss E (35) showed that games of money and chance more severely affect the disadvantaged classes and that disproportionate investment in pathological games as well as addiction to games chance and money constitute a social determinant of poverty (36). Addiction to gambling was statistically significantly associated with high level of education (p=0.0245). In fact, 29% of pathological gamblers are at university level. In France, a national study carried out in 2013 also showed that excessive gamblers have a high level of education (64%) (32). Similarly, Eroukmanoff et al in their studies in 2014 (33), reported that 58.5% of pathological gamblers have a level above the Baccalaureate. Several studies have demonstrated a strongly significant link between gambling and psychiatric comorbidities although the latter could be secondary to the onset of gambling problems. It could also lead to pathological gambling behavior, gambling then having the function of relieve anxiety-depressive symptoms.

CONCLUSION

This study was carried out among regular punters in the city of Antananarivo and Toamasina. This is a first study carried out on addiction to games of chance and gambling in Madagascar. It provided insight into the prevalence of pathological gambling addiction and the relationship with anxiety-depressive comorbidity. A significant prevalence of pathological gambling addiction was thus noted (67.86%) with a statistically significant link between gambling and marital status, as well as gambling and the level of education of players. In relation to the development of an anxiety-depressive risk, 10.71% of the study population presented definite depression and 30% had confirmed anxiety. Despite everything, the results only reflect part of the epidemiology of gambling addiction as well as the associated comorbidities on our big island. Other additional large-scale studies are therefore desirable to better understand the epidemiology of this form of behavioral dependence, which is a medico-psychological disorder requiring the implementation of multisectoral measures in its treatment.

Glossary of abbreviation

CPGI : Canadian Problem Gambling Index
HAD : Hospital Anxiety and Depression scale.
PMU : Pari Mutuel Urbain

REFERENCES

1. Venisse JL, De A, Ades J, Valleur M. 2006. Rapport pour la MILDT concernant le problème des addictions aux jeux. 1 janv.
2. Chevalier S, Allard D. 2001. Régie régionale de la santé et des services sociaux de Montréal-Centre (Québec), Direction de la santé publique. Jeu pathologique et joueurs problématiques.
3. Gijsen P, Jammaer R, Mourad H, Pitchot W. 2013. Le jeu pathologique: Evolution conceptuelle, caractéristiques cliniques et perspectives psychothérapeutiques. Rev Médicale Liège.
4. Caillon J, Bouju G, Vénisse JL, Grall-Bronnec M. 2014. Focus on pathological gambling. PSN. 17 oct 12(3) : 61-72.
5. Grall-Bronnec M, Bouju G, Landréat-Guillou M, Vénisse JL. 2010. Évaluation sociodémographique, clinique et du parcours de jeu d'un échantillon de joueurs pathologiques français. L'Encéphale. 36(6) : 452-60.
6. Ladouceur R, Jacques C, Chevalier S, Sévigny S, Hamel D. 2005. Prevalence of Pathological Gambling in Quebec in 2002. Can J Psychiatry Rev Can Psychiatr. 1 août;50 : 451-6.
7. Petry NM, Stinson FS, Grant BF. 2005. Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *J Clin Psychiatry*., mai 66(5) : 564-74.
8. Kessler RC, Hwang I, LaBrie R, Petukhova M, Sampson NA, Winters KC, et al., 2008. DSM-IV pathological gambling in the National Comorbidity Survey Replication. Psychol Med. sept 38(9) : 1351-60.
9. Lorains FK, Cowlishaw S, Thomas SA. 2011. Prevalence of comorbid disorders in problem and pathological gambling: systematic review and meta-analysis of population surveys. *Addict Abingdon Engl*. mars 106(3) : 490-8.
10. Sacco P, Cunningham-Williams RM, Ostmann E, Spitznagel EL. 2008. The Association Between Gambling Pathology and Personality Disorders. *J Psychiatr Res*., oct; 42(13) : 1122-30.
11. Cowlishaw S, Merkouris S, Chapman A, Radermacher H., 2014. Pathological and problem gambling in substance use

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treatment: a systematic review and meta-analysis. J Subst Abuse Treat. Févr. 46(2) : 98-105.

12. Kim SW, Grant JE, Eckert ED, Faris PL, Hartman BK., 2006. Pathological gambling and mood disorders: clinical associations and treatment implications. *J Affect Disord.*, mai 92(1) : 109-16.

13. H Kalmen, P Anderson, A Andren. 2008. Are irrational beliefs and depressive mood more common among problem gamblers than non-gamblers? A survey study of Swedish problem gamblers and controls. *J Gambl Stud.* Déc., 24(4): 450-26.

14. Barrault S, Varescon I. 2012. Psychopathologie des joueurs pathologiques en ligne : une étude préliminaire. Enceph-Rev Psychiatr Clin Biol Ther - Enceph. 1 avr; 38.

15. Gomes K, Pascual-Leone A. 2009. Primed for change: facilitating factors in problem gambling treatment. J Gambl Stud. mars; 25(1) : 1-17.

16. Mc Cready J, Adlaf E. 2006. Performance and Enhancement of the Canadian Problem Gambling Index (CPGI): Report and Recommendations. Rendement et bonification de l'Indice canadien du jeu excessif (ICJE) : Rapport et recommandations (Internet). 20 sept (cité 23 févr 2022); Disponible sur: https://prism.ucalgary.ca/handle/1880/44244

17. Odermatt-Biays S, Pileyre-Berthet F, Leroy B, Cluzeau J, Ackermann F, Kempf A, et al., 2016. Jeux de hasard et d'argent chez les usagers d'un centre d'addictologie en Alsace, France, 98(6) : 42-3.

18. Masson E. 2022. Anxiété et dépression en hémodialyse : validation de l'Hospital Anxiety and Depression Scale (HADS) (Internet). EM-Consulte. Janv 2009 (cité 23 févr). Disponible sur: https://www.em-consulte.com/article/215288/anxiete-et-depression-en-hemodialyse-validation.

19. Zigmond AS, Snaith RP. 1983. The hospital anxiety and depression scale. Acta Psychiatr Scand. juin; 67(6) : 361-70.

20. Institut National des Statistiques, Cellule Centrale d'Exécution du Recensement. Troisième Recensement Général de la Population et de l'Habitation (RGPH-3). Madagascar : INSTAT ; 2019.

21. Adès J, Belmas E, Costes JM, Craipeau S, Lançon C, Moal ML, et al., 2022. Jeux de hasard et d'argent : contextes et addictions (Internet) (report). Institut national de la santé et de la recherche médicale (INSERM); 2008 (cité 30 janv). p. 268 pages, figures, tableaux. Disponible sur: https://hal-lara.archives-ouvertes.fr/hal-01572053

22. Ladouceur R, Chevalier S, Allard D, Jacques C, Sévigny S, Hamel D. 2004. Prévalence des habitudes de jeu et du jeu pathologique au Québec en 2002. Institut national de santé publique du Québec.

23. inistère de l'Economie et des Finances (Internet) ; 2018. (cité 27 avr 2022). Disponible sur: http://www.mefb.gov.mg/page_personnalisee/index/news/237

24. J Costes, V Eroukmanoff. 2014. Les jeux d'argent et de hasard en france en 2014. Institut National de Prevention et d'éducation pour la santé.Note Inf. (6).

25. Beco Na E. 1996. Prevalence surveys of problem and pathological gambling in Europe: The cases of Germany, Holland and Spain. J Gambl Stud. juin; 12(2) : 179-92.

26. Maccallum F, Blaszczynski A. 2002. Pathological Gambling and Comorbid Substance Use. Aust N Z J Psychiatry. 1 juin; 36(3) : 411-5.

27. Institut National de la Statistique. Cellule Centrale d'Exécution du Recensement. Troisième Recensement Général de la Population et de l'Habitation (RGPH-3). Madagascar : INSTAT ; 2019. Accessible à https://www.instat.mg/wp-content/uploads/Rapport-Prelim-2019_ver_final.pdf.

28. Banque Mondiale. Visages de la pauvreté à Madagascar : évaluation de la pauvreté, du genre et de l'inégalité. Rapport N°78131-MG ; Avril 2014. Accessible à https://openknowledge.worldbank.org/handle/10986/18250

29. Les jeux d'argent et de hasard sur Internet en France en 2012 - Tendances 85 - juin 2013 - OFDT (Internet). (cité 1 mai 2022). Disponible sur: https://www.ofdt.fr/publications/collections/periodiques/lettre-tendances/jeux-argent-hasard-sur-internet-france-2012-tendances-85-juin-2013/

30. Benoît E, Facy F. 2010. Prévalence du jeu excessif observée dans un centre de médecine préventive en France. Alcoologie Addictologie. 32(2) : 101-9.

31. Van der Smissen D, Litwak T, Vrins F. 2015. " Loterie en Belgique: profil des joueurs et analyse de la distribution des gains des jeux de grattage. 24 (3) : 2-75

32. Costes JM, Kairouz S, Pousset M. 2013. Jeu problématique en France : une première enquête nationale. Drogue Santé Société. 12(2) : 1-19.

33. Eroukmanoff V, Costes JM, Tovar ML. 2014. Les joueurs de poker, une population présentant un profil particulier. Paris Obs Jeux ODJ.

34. Blocked page - Haaretz Israel news, COVID vaccine data, the Middle East and the Jewish World - Haaretz.com (Internet). (cité 10 mai 2022). Disponible sur: https://www.haaretz.com/hblocked

35. Goss E, Morse EA. Gambling interests crap out in 2006 elections. 2007 (cité 10 mai 2022); Disponible sur: https://dspace2.creighton.edu/xmlui/handle/10504/73670

36. Suissa A. La dépendance aux Jeux de hasard et d'argent comme problème social : pistes de réflexion et repères psychosociaux. Serv Soc. 2013 ; 59(2) : 76-92.

37. Dowling NA, Brown M, Aarsman S, Merkouris SS. Brief Report: Problem Gambling in International and Domestic University Students. Am J Addict. janv 2020 ; 29(1) : 77-81.

38. Blanco C, Hasin DS, Petry N, Stinson FS, Grant BF. Sex differences in subclinical and DSM-IV pathological gambling: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Psychol Med. juill 2006 ; 36(7) : 943-53.

39. Potenza MN, Maciejewski PK, Mazure CM. A Gender-based Examination of Past-year Recreational Gamblers. J Gambl Stud. 2006 ; 22(1) : 41-64.

40. Romo L, Legauffre C, Genolini C, Lucas C, Morvannou A, Lerfel Y, et al. 2011. Prévalence du jeu pathologique en Île de France. Étude préliminaire. L'Encéphale. sept; 37(4) : 278-83.

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