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ORIGINAL RESEARCH

Family Demographics, Somatic Symptoms and Problem Gambling Among Students in a Nigerian Institution

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Abstract

Background: Problem gambling is becoming a potential public health epidemic in southwest Nigeria. Individuals with gambling problems are underdiagnosed and relatively under-recognised. Hence, they rarely present with complaints of gambling problems at clinics. The family plays a significant role in identifying and managing persons with gambling addiction. Healthcare professionals need to have a high index of suspicion and understanding of the relationships between family demographics and the presentation of somatic symptoms among high-risk groups.

Objective: To assess the relationships between family demographics, somatic symptoms, and gambling problems among Nigerian tertiary educational institution students.

Method: This is a cross-sectional study carried out among 183 students of a tertiary education institution in Ogun State, southwest Nigeria. The Southern Oaks Gambling Screen (SOGS) and the Patient Health Questionnaire-15 (PHQ-15) were the tools used to assess the pattern of gambling and somatic symptoms, respectively.

Results: The prevalence of gambling disorder was 23% (42/183). There was a significant relationship between somatic symptoms and problem gambling ($p = 0.02$). The predictors of probable gambling were a positive family history of gambling (OR = 3.64, $p = 0.01$, CI = 1.34-9.90), gender (OR = 0.36, $p = 0.02$, CI = 0.15-0.86) and a decreasing level of the father's education (OR = 2.78, $p = 0.02$, CI = 1.15-6.71). At the same time, monthly allowances (OR = 1.01, $p = 0.07$) and somatic symptoms were not predictors of problem gambling (OR = 0.41, $p = 0.17$).

Conclusions: Healthcare professionals need a high index of suspicion when evaluating young persons with somatic symptoms.

Keywords: Addiction, Gambling, Family, College Students, Somatic symptoms.

Introduction

Gambling has become a major lucrative industry in Nigeria and has seen phenomenal growth in recent decades. The industry's growth can be attributed to many factors in Nigeria.^[1] This

growth is fuelled mainly by many passionate youths who have an insatiable hunger to win and improve their economic fortunes.^[2] Significantly, access to mobile phones and various online and offline adverts have generated an appealing social consciousness among many Nigerian

youth, thus creating the enabling environment for both legal and illegal gambling while, on the upside, generating more government revenue. [3-5]

The passionate interest in sports, especially football, and the relentless drive of the large youthful population to better their economic fortunes have guaranteed a ready market for gambling enthusiasts, non-enthusiasts and investors alike. [6] More so, the ease of access to various forms of gambling due to developments in technology has also widened the appeal among those who are in pursuit of better economic fortunes and those who explore gambling as a recreational activity. [7,8] Due to Technology, exclusive private gambling devoid of cultural, moral, religious or social inhibitions has been enabled. At the same time, the lure of bogus monetary incentives with little investment and lax enforcement of laws have added to the attraction for a large pool of recruits and regular gamblers. [9,10] This continuous surge in gambling activities has become a huge concern to mental health physicians and public health practitioners. [11]

Problem gambling, also known as pathological gambling, gambling addiction, disordered gambling and gambling disorder, is described as a maladaptive biopsychosocial disorder leading to an uncontrollable, persistent, harmful behaviour that is similar to substance use disorders. [12] In recent times, more current opinions have put gambling disorder in the same category as substance use, necessitating the classification under substance use in the DSM-V. [13] Globally, the prevalence of problem gambling differs widely, depending on the culture, social practice and legislation. A conservative report documented a wide prevalence between 0.12-5.8%, with a lower prevalence in some regions. [14] Among the adolescents who form a larger bulk of the gambling population, a higher prevalence ranging between 0.2-12.8% was reported. [15] In

Nigeria, about two-thirds of the populace engage in some form of gambling once in their life and more than 50% gamble daily, [3] creating a brewing public health crisis in Nigeria. [11,16] In addition, another study reported a disordered gambling prevalence of 30.5% in Nigeria. [9] The most common form of gambling is online sports betting, while others include lucky numbers, card games, dice games and bowling. [3,17] Potentially, it is expected that with an increase in gambling, there would be an associated increase in disordered gambling. [18]

Regardless of the prevalence, gambling disorder remains an underestimated and under-identified problem due to poor reporting, illiteracy and stigmatisation. [2,9,11] In most parts of Africa, gambling is regarded as a moral problem, and the majority of those with this disorder are rarely ever referred for psychological evaluation. [19,20] Persons with problem gambling do not present to mental health professionals as the first point of call, and the clinical complaints are not usually about the gambling problem, making this a principal concern. [21] Problem gambling, like substance use disorders, is associated with multiple comorbid psychopathologies. [22] For many, the comorbidities may be the presenting complaint; hence, there is a need for a carefully detailed history. [21] Several comorbid mental disorders have been identified. [22] The more commonly reported are personality disorders, depression and anxiety disorders, while somatic symptoms are rarely researched and reported. [23-25] Somatic symptoms involve a complexity of physical symptoms or various medically unexplained symptoms. [26] According to some documented cases, somatic symptoms may be the presenting complaint of persons who have problem gambling in a clinic. [27]

Among the factors associated with gambling addiction, the role of family factors, family history of problem gambling, socio-demographics and the relationship between

problem gambling and somatic complaints are active areas of research. Family history of gambling and parents' educational attainment are known factors associated with problem gambling. [28] Many theorists in behavioural psychology have postulated that similar to aetiological factors in substance dependence, modelling plays a significant factor in problem gambling. [29] Therefore, understanding the family dynamics will help in planning public health programs and individual therapy in the management of problem gambling. Furthermore, to stem the rising tide of problem gambling, it is necessary to understand some of the social and family factors associated with problem gambling in Nigeria, as the family plays a vital part in shaping beliefs, attitudes and behaviour.

Gambling research in Nigeria is still a brooding area, and due to the lack of data on this subject in Nigeria, several gaps exist in understanding the complex relationship. For many persons in Nigerian society, there is a common perception of gambling as a moral issue rather than a medical concern. Hence, the problem usually goes under-recognised and under-reported. [11] Relatively, within the Nigerian context, few studies have explored problem gambling in relationship with this crucial fabric of the society and the interconnection with family demographics and somatic complaints. Incidentally, few studies have reported the association of somatic symptoms with problem gambling, even globally. [30,31] Additionally, in Nigeria, the relationship between somatic symptoms and problem gambling is unknown; meanwhile, somatic symptoms are associated with conditions that can be missed easily in the management of problem gambling and may also complicate the prognosis. Therefore, this study aimed to assess the prevalence of problem gambling, somatic symptoms and family demographics among students in a Nigerian tertiary educational institution.

Methods

This was a descriptive, cross-sectional study carried out among the students of a tertiary institution in southwest Nigeria (anonymized). All the available students were invited to participate in the study.

Procedure

Invitations for participation were sent out to prospective participants two weeks before the actual commencement of the study. The participants were recruited from the students attending the General Studies classes. These classes involved a series of lectures which were compulsory for all the students in the institution, irrespective of discipline or field of study. Information about the purpose of the survey and assurance of anonymity were communicated before willing volunteers were requested. Those who did not want to participate and those who had medical or psychiatric disorders that may affect their responses and participation were excluded from the study. Names were not requested, and the questionnaire was self-reported.

Ethical considerations

Due authorisation was obtained from the course coordinator, and institutional ethical approval was obtained from the Institutional Ethical Review Board as part of a more extensive study (BHU/026) and from the relevant school authority. Research trainees distributed the various questionnaires and instruments to willing participants. The research trainees were previously adequately trained.

Sample size determination

Sample size calculation was done using the Yewane formula, $n = N / (1 + N(e))$

Where: n = desired sample size, N = Estimated Population under study and e = margin of error.

The calculated sample size was derived as follows:

$$n = x$$

$$N = 240 \text{ Students}$$

$$e = 0.05$$

Thus

$$n = 240 / [1 + (240 \times 0.0025)]$$

$$= 150.$$

Survey Instruments

(1) Sociodemographic Data

The sociodemographic data, which included age, gender, ethnicity, place of abode, monthly allowances, religion, and family demographics, such as parent level of education and pattern of gambling, were obtained using a purposely designed questionnaire.

The Southern Oaks Gambling Screen: The Southern Oaks Gambling Screen (SOGS) is a 20-item questionnaire used in several studies to assess problem gambling. It is a self-administered questionnaire and defines problem gambling based on the DSM-III questionnaire. [23, 32] It has shown good reliability and validity in clinical settings. [9] The reliability estimates were reported to be 0.78 and 0.79. [33] The 20 items were scored on a point basis for each item. The cut-off criterion adapted in this study for problem gambling was four or more positive responses as probable problem gambling, while scores below four were considered as no gambling.

(2) Patient Health Questionnaire-15

The Patient Health Questionnaire-15 was used to assess participants' severity of somatic symptoms. The Patient Health Questionnaire -15 somatic module was based on the DSM-IV criteria. Patient Health Questionnaire was derived from Primary Care Evaluation of Mental Disorders (PRIME-MD). [34] It is a brief measure used frequently in many primary care settings. [35] The instrument assesses somatic symptoms over two weeks. A list of 15 symptoms is graded according to severity as rated by the participants. The initial 13 are graded slightly differently from

the other two symptoms in the depression module. The two remaining symptoms assess somatic symptoms, which share symptoms with the core features of depression. The scoring options are coded as 0 (not at all), 1 (several days), or 2 (more than half the days, or nearly every day). [35] For this study, we used a cut-off criterion of ≥ 10 to indicate significant moderate to severe somatisation symptoms. The reliability and internal consistency of the PHQ-15 have been widely reported to be high in several studies. [36]

Statistical Analyses

The Statistical Package for Social Sciences (Version 23) was used for data analysis. Descriptive statistics were used to analyse sociodemographic data, family factors such as parental level of education and marital status, and somatic symptoms data. Where appropriate, bivariate analyses were used to compare categorical variables using Chi-Square and Fisher Exact Test (FET). Significance was set at $p < 0.05$, and effect sizes were calculated. Logistic regression using the enter method was used to evaluate determinants of problem gambling.

Results

Sociodemographic profile

A total of 183 out of 195 invited respondents completed the survey. The response rate was 93.8%. Table I shows the demographic profile of the participants. The age ranged between 18 and 39 years. The modal age was 24 years, while the mean was 23.95 ± 2.85 years. Females constituted 68.3% ($n = 125$) of the participants' total population, while males comprised 31.7% ($n = 58$). A larger proportion of the respondents were from urban areas ($n = 123, 67.2\%$). The majority were Yorubas (72.1%, $n = 132$), while religious beliefs included Christianity (69.0%, $n = 126$) and Islam (31%, $n = 57$). A higher percentage of the participants belonged to families whose parents were married (92.9%, $n = 170$). Over 90% of the

participants' fathers were employed (97.8%, $n = 179$), and the mothers had similar employment rates (97.3%, $n = 178$). Family history of gambling was reported by 29 (15.9%) participants. Among those with a positive family history, the most frequently reported parents who gambled were the fathers, and most of the participants who gambled were in the third position in the family.

The median score on the PHQ was 3.00. About 10% ($n = 19$) of the sampled population scored ≥ 10 on the PHQ-15. The scores ranged between 0 and 30. Thirty-four (81.0%) of those who had problem gambling had no somatic symptoms, whereas 8 (19.0%) had somatic symptoms. There was a significant association between those who had problem gambling and somatic symptoms ($\chi^2 = 5.06$, $p = 0.02$) as well as those who had problem gambling and family history of gambling ($\chi^2 = 21.81$, $p < 0.001$) (Table I).

Gambling Measures on SOGS

The total scores on SOGS ranged from 0 to 9. The median score was 0. The majority (60.7%, $n = 111$) never gambled, while 72 (39.3%) had ever gambled. In all, 42 (23%) of the participants had problem gambling.

Pattern of Gambling

Seventy-two (39.3%) participants reported having participated in gambling at least once in their lifetime. A large proportion of those who gambled participated in more than one type of gambling. The five major categories of gambling reported were sports betting (32; 17.5%), cards playing (15; 8.1%), dice games (13; 7.1%), bowling and short pools (17; 9.2%). The most frequently preferred period of the day was the evening, as reported by 14.8% (27/183) of the participants. There was a significant difference in the proportion of males who met the criteria for

problem gambling compared to females ($X^2 = 4.79$, $p = 0.03$) (Table I). There was a significant difference across the age groups about problem gambling. There was a higher proportion of the younger age group (≤ 20 years) who had problem gambling compared to the older age group (> 20 years): (85.7% vs. 14.3%; $X^2 = 6.46$, $p = 0.01$). Problem gambling was also significantly associated with a family history of gambling ($X^2 = 21.81$, $p < 0.001$) (Table I). The majority of participants with a family history of gambling reported a similar history of gambling in their fathers. There was a significant association between monthly allowances received by the participant and gambling disorder ($X^2 = 8.34$, $p < 0.001$). Father's level of education ($X^2 = 9.69$, $p < 0.001$), mother's level of education ($X^2 = 10.25$, $p = 0.01$) and the presence of somatic symptoms ($X^2 = 5.06$, $p = 0.02$) had significant relationships with problem gambling.

A binary logistic regression was carried out to assess the effect of age, gender, mother's education, father's education, monthly allowances, family history of gambling, and somatic symptoms on the likelihood of engaging in problem gambling. The overall model was statistically significant ($X^2 = 36.34$, $p < 0.001$), explained 35.4% of the variation and predicted 81.5% of the cases. Gender, monthly allowances, age, monetary allowance, parents' marital status, parents' level of education, somatic symptoms, parents' employment status and family history of gambling added significantly to the model fit. Gender (OR = 0.36, $p = 0.02$, CI = 0.15-0.86), family history (OR = 3.64, $p = 0.01$, CI = 1.34-9.90), father's level of education (OR = 2.78, $p = 0.02$, CI = 1.15-6.71) were significant predictors of the likelihood of problem gambling. At the same time, complaints of somatic symptoms were not predictive of problem gambling.

Table I: Association of sociodemographic characteristics with problem gambling

Variable	Category	Frequency (%)	Prevalence of Problem Gambling (% of n where n = 42)	Statistics
Age (Years)	≤20	172 (94.0)	36 (85.7)	X ² = 6.46; p = 0.01; phi = 0.19
	21-39	11 (6.0)	6 (14.3)	
Gender	Males	58 (31.7)	19 (45.2)	X ² = 4.79; p = 0.03; phi = 0.16
	Female	125 (68.3)	23 (54.8)	
Monthly monetary allowance (Naira)	≤5000	45 (24.6)	3 (7.1)	X ² = 8.34; p < 0.001
	>5000	138 (75.4)	39 (92.9)	
Marital status	Never married	2 (1.1)	0 (0.0)	X ² = 3.96; p = 0.26
	Married	170 (92.9)	39 (92.9)	
	Separated/Divorced/Widowed	11 (6.0)	3 (7.1)	
Fathers' Education	Primary	12 (6.6)	2 (5.0)	X ² = 9.69; p < 0.001; phi = 0.22
	Secondary	63 (34.4)	6 (14.0)	
	Tertiary	108 (59.0)	34 (81.0)	
Mothers' Education	Primary	13 (7.1)	1 (2.0)	X ² = 10.25; p = 0.01; phi = 0.24
	Secondary	77 (42.0)	10 (24.0)	
	Tertiary	93 (50.8)	31 (74.0)	
Fathers' employment status	Unemployed	4 (2.2)	2 (4.8)	X ² = 0.02; p = 0.90
	Employed	179 (97.8)	40 (95.2)	
Mothers' employment status	Unemployed	5 (2.7)	0 (0.0)	FET = 0.39
	Employed	178 (97.3)	42 (100.0)	
Domicile	Urban	123 (67.2)	30 (73.2)	X ² = 0.16; p = 0.68
	Rural	60 (32.8)	11 (26.8)	
Family history of gambling	Yes	29 (15.9)	16 (38.1)	X ² = 21.81; p < 0.001; phi = 0.36
	No	154 (84.1)	26 (61.9)	

Discussion

This study explored the relationships between family demographics, somatic symptoms and problem gambling among a cohort of undergraduates in a Nigerian tertiary educational institution. The sociodemographic

profile reflected age ranges typical of many higher institutions in southwest Nigeria. The participants engaged in several forms of gambling, such as sports betting, dice playing, bowling, pools, and playing cards. Expectedly, the most prevalent type of gambling in this present study was sports betting. The high

prevalence of sports betting has been replicated in several studies on gambling in Nigeria. [1, 5, 11] The booming popularity of this kind of gambling is evidenced by the increasing access to various forms of sports betting, offline or online. [37] This is due to the availability, affordability, and enlarging sports fan base among the youth. A

primary motivator for engaging in sports betting is always the lure of extra cash, [14] and a major influential factor is the knowledge about the type of gambling played. It has been shown that attitude towards gambling influences the pattern of gambling. [38]

Table II: Predictors of problem gambling among sociodemographic factors, somatic symptoms and family demographics

Predictor	B	S.E	Wald (χ^2)	P	Odds ratio	95%CI	
					att	Lower	Upper
Age	-1.29	0.82	2.46	0.12	0.28	0.05	1.37
Gender	-1.032	0.451	5.25	0.02	0.36	0.15	0.86
Monthly Allowances	-1.36	0.70	3.78	0.07	1.01	0.03	0.82
Marital Status of Parents	0.18	0.80	0.05	0.82	1.20	0.25	5.72
Parents Educational Level	-1.02	0.45	5.13	0.02	2.78	1.15	6.71
Father							
Mother	9.78	12421.50	0.00	0.99	17663	0.00	1.02
Parent's Employment Status	-1.04	1.23	0.72	0.40	0.35	0.032	3.92
Father							
Mother	19.23	16281.11	0.00	0.99	2,2 x 10 ⁸	0.00	
PHQ Family History of Gambling	-0.90	0.65	1.88	0.17	0.41	0.11	1.50
	1.29	0.51	6,41	0.01	3.64	1.34	9.90
Constant	-17.651	16407.415	.000	.999	.000	-17.651	16407.415

Additionally, apart from the ease of physical access, easy emotional and cognitive access will also influence the pattern or type of gambling in many countries. [39] Furthermore, the widespread access to both offline and online sports betting has made it the most prevalent kind of gambling in Nigeria. [4] However, playing cards was observed to be more prevalent, followed closely by sports betting in some research work.[11] The variance may be due to the availability of sports

betting platforms, the affordability, the improvements in technology, and the widespread internet services, which have gradually changed the milieu and the increasing interest in sports betting as a form of recreational gambling.

In this study, the prevalence of problem gambling was 23%. This rate was close to the rate reported by Afe *et al.*, 2022 [9] in another

southwest community in Nigeria. Still, comparatively, there was a higher rate of problem gambling, 51.3%, among similar populations in the southeastern part of Nigeria. [40] The difference may be reflective of regional or cultural factors mediating the prevalence of problem gambling in Nigeria. However, it is expected that the prevalence of problem gambling may rise due to increasing access, awareness and the lure of financial reward in a depressed economy like Nigeria. [14]

Various degrees of somatic symptoms were reported by more than 90% of the participants who engaged in gambling using the PHQ 15. In this study, somatic symptoms were significantly associated with problem gambling, and almost all of the students who met the criteria for problem gambling reported moderate to severe somatic symptoms. The relationship between problem gambling and somatic symptoms is still a budding area of research. Some have opined that a causative relationship exists, but due to a shortage of data, a causative relationship cannot be conclusive. [41] Others attributed the significant association of somatic symptoms with problem gambling to interruptions in gambling habits and stress involving financial, psychological, social and physical stress induced by the gambling habit.

However, significantly, this frequent association of somatic symptoms with problem gambling is of clinical importance. In primary care settings, especially in societies where gamblers have negative perceptions [4], gambling problems are usually not part of the presenting complaint. It will take a high index of suspicion and deliberate probe of gambling behaviour among youths by the managing clinician to identify the disorder, provide the necessary interventions and also detect the underlying problem of the gambling.

An interesting finding in this study is the higher likelihood of females to have problem gambling. There is no consistent finding concerning gender

differences and gambling disorders in the literature. [42] A mixture of factors determines the gender differences, such as age, employment status, level of education, marital status and methodology adopted in the studies. These are factors to consider when exploring findings on gender differences. [43] A major strength of this study is the relatively higher pool of female participants. The study brings to focus the need for more studies on female gambling, which, apparently, is neglected and easily missed. [43,44] Studies have shown that gambling disorder is associated with a worse prognosis in females. [45]

Monthly monetary allowances received by the participants were related to problem gambling. Although studies are rare, there are no consistent findings on the relationship between monthly or disposable income and gambling behaviour. Nevertheless, it has been reported that a lower salary is associated with the motivation to gamble. Increased trivial impacts on gambling during salary paydays have also been observed. [46] A rational explanation in understanding the relationship between income and gambling behaviour in the present study may be due to the feeling of economic deprivation and the attempt to upstage economic deprivation. [47] These financial conditions may be a driving force in gambling among college students. Variables such as religion, preferred time of gambling, residence and ethnicity were not significantly associated with problem gambling in the present study. In this regard, the findings concord with an earlier study among secondary school students. [4] These socio-demographics bear little significance to gambling behaviour among students in the social context.

This study reports a significant relationship between age and gambling. This is in tandem with what other studies have reported that age is a moderating factor in problem gambling. [48]

A positive family history of gambling, among the family variables, has a significant relationship

with problem gambling. The study findings support earlier studies that problem gambling tends to run in families.^[49] In the present study, the father's history of gambling was the most frequently reported positive family history among those who engaged in gambling; these findings are similar to the reports obtained in a previous study.^[50] Problem gambling has been observed to show familial patterns with other similar comorbid states, such as substance use disorder.^[51] Genetic linkage and social learning have been postulated as factors inherent in higher rates of prevalence of pathological disorders.^[52] Modelling examples by siblings may partly be responsible for the increased frequency of gambling behaviour among participants in the present study. Further, social acceptance and tacit approval within families may be a powerful motivation for engaging in gambling behaviour. They may be a maintaining factor in its persistence especially in problem gambling.^[50]

A minor finding is that the level of the father's education is significantly associated with problem gambling on the cross tab. Increasing levels of parent education were associated with gambling. It seems that highly educated parenthood may be possibly associated with more access to information on various forms of gambling and allowances for the students, which may be a factor in a higher frequency of reported cases of problem gambling. This study observed that the levels of education of both parents were significant factors in the relationship with gambling. This differs from earlier reports in similar populations.

The predictors of gambling disorder in the present cohort included a positive family history of gambling, the father's level of education and the monthly monetary allowance of the participant. The study is supportive of research that showed that gambling disorder is more frequently occurring among those with a positive family history^[51, 53] as it has been demonstrated

variously to be associated with problem gambling.^[14] Like substance use, problem gambling seems to be familial, having similar genetic linkage or pattern of inheritance. It is a reasonably common determinant with implications for clinical practice.

Also, monthly monetary allowances determined problem gambling in the present study. This infers that economic considerations play a significant role in the pattern of problem gambling among students in higher learning institutions. In developing countries like Nigeria, the level of disposable income may be a factor that enables individuals to engage in several gambling opportunities to increase their monetary income.

A primary limitation of this study is the nature of the methodological design. The cross-sectional design makes it difficult to establish causal relationships. The participants were drawn from a single institution; hence, the results cannot be generalised to the entirety of students in southwest Nigeria. The variables examined in the study were not exhaustive of factors plausibly associated with problem gambling and family demographics. Finally, the sample size was rather small; hence, larger-scale research in multiple centres is needed.

Conclusion

Problem gambling is a major health and behavioural problem among students in higher institutions. Problem gambling is associated with various somatic symptoms. Problem gambling is related to some aspects of family demographics, such as the family history of gambling, the father's level of education and monthly monetary allowances. Therefore, a family history of gambling is an integral part of clinical history that should be explored during engagements with those with problem gambling. A holistic

approach is needed in tackling issues involving problem gambling.

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