Roles of impulsivity and stress on problem gambling in a sample of Nigerian undergraduate students

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A R T I C L E I N F O

A B S T R A C T

This study examined the predictive roles of impulsivity and stress in gambling addiction among undergraduates in Enugu, Nigeria. Participants were 250 students (mean = 20.54, SD = 2.63), consisting of 163 females and 87 males between the ages of 16 and 28 years. Participants were conveniently selected based on their availability and willingness to participate from six faculties of the University of Nigeria Nsukka. Participants responded to three instruments; Barratt Impulsivity Scale (BIS-15), Perceptual stress scale (PSS) and gambling addiction severity index (PGSI). Hierarchical multiple regression results showed that impulsivity significantly predicted gambling addiction ($\beta = 2.36$, p <.05). Stress also predicted gambling addiction ($\beta = .32$, p <.001). The result portrays that the more students act impulsively, the more likely they engage in problematic gaming. Those who were more stressed also report more gambling problems.

Introduction

The introduction of internet and communication gadgets with the wide spread of smartphones that comes with different applications has made gambling accessible to people of different ages (World Health Organization, 2015). For instance, in Nigeria, gambling has become a growing trend amongst young aged between 18 -35 years, who accounted for the highest proportion of Nigerians who engage in the practice (Adigun, 2020). Gambling exists in different forms (such as lotteries, casinos, sport betting, poker, gaming and pool betting) but varies in popularity among different groups and classes of people (Adigun, 2020). Gambling is a problem that affects not only the person but also those involved with them, including family and friends (Nowak & Aloe, 2014; Rinker et al, 2016). In the late 1990s, in Chapter 22, Section 236 of the Penal Code (2005), the Nigerian government legalized several forms of gambling for the purpose of generating tax income. Gambling in Nigeria is regulated by the National Regulatory Commission. National Lottery was legalized in Nigeria in 2005, under the National Lottery Act 2005 (Nigerian National Act 2005). The law distinguishes between games of skill (legal) and games of chance (illegal). Legal forms of gambling include lotteries, land-based casinos and sports betting, while roulette, dice games and unskilled card games are considered illegal. There are no specific laws to regulate online gambling. The minimum legal age for gambling in Nigeria is 18 years (Aguocha & George, 2021).

Popular forms of gambling in Nigeria today are online sports betting (e.g., football and pool promotions), lotteries and slot machines (Oyebisi et al., 2012). Examples of popular gambling activities include lotteries, slots, sports betting, card games, scratch cards, internet gambling, slot games, bingo and private betting (Zack et al., 2020). In Nigeria, Nariabet, Merrybet, Bet9ja, Naijabet, Surebet247, Supabets, 1960bet, winnergoldenbet, 360bet, Lovingbet, Plusbet, Skybetnaija, 9jadollarbet, Visabet and many more are some of the gambling center names available (Adigun, 2020). Gambling becomes a problem when a person continues to engage in it without regard for its negative consequences for the individual player, his or her relationship with family and friends and/or pursue the person's study and performance or work. It also becomes a problem when it creates problems in one's life, such as mounting debt, relationship problems, job loss, stress, or loss of valuable assets, value and performance. In addition, gambling leads to personal difficulties such as loss of money, anxiety and depression, risk of suicide, and relationship problems (Ioannidis et al., 2019). Research has also suggested that some individuals with problem gambling behaviours may be disposed to the risk of developing mood disorders; anxiety disorders; substance use disorders, personality disorders, and impulse control disorders (Martinez-Loredo et al., 2019).

The American Psychiatric Association (2021) defines problem gambling as impaired control over gambling that results in significant harm for the gambler or people in his/her immediate social network. However, problem gambling remains a significant public health concern both in Canada (Granero et al., 2020) and internationally (Kim & Choi, 2019; National Gambling Control Commission, 2019). Problem

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gambling is any gambling behaviour that disrupts one's life and makes one spend more and more time and money on it, chasing losses, or gambling despite serious consequences in one's life (Segal et al., 2021). Because gambling can lead to serious adverse consequences and become a progressive disease, many adolescents who have ever gambled are at risk of developing a gambling problem (Kim & Jang, 2016). Problem gambling is more common among online gamblers, especially among vulnerable people (Hakansson et al., 2017; Diaz & Perez, 2021). Lee et al. (2007) identified five-factor gambling motivations. The five factors/motives were: 1) the excitement motive, 2) the socialization motive, 3) the avoidance motive, 4) the monetary motive, and 5) the amusement motive. The main motivations for continuing gambling are "money motivations" and "excitement motivations. The motivation for money is to give many gamblers the expectation that they can grab a large sum of money and recover the money they have lost so far, thus deeply involved in gambling behavior. The motivation for excitement is to create a primary awakening experience through gambling behavior, which makes deeply involved in gambling by the strange pleasures of winning and losing money. These two motivations were said to be important factors in sharing social gambling, problem gambling, and pathological gambling, respectively.

Blaszczynski and Nower (2002) presented three paths to gambling addiction. Path one is a path that increases participation in gambling due to classical and operational conditions and subsequently becomes habitual gambling. It is a common route for all gamblers to start gambling, and the possibility of gambling addiction increases when accessibility and availability increases, such as online gambling, which is frequently accessible to teenagers. Path two is the path to gambling because of emotional vulnerability, such as high levels of depression and anxiety, or low self-esteem, and high levels of stress before problem gambling. They gamble because of their avoidance motivation to escape from negative moods and have low motivation for treatment and poor prognosis. Finally, Route three is a path in which an individual suffers from behavioral control difficulties, tends to have ADHD, impulsiveness, lack of patience, criminal behavior, and substance abuse (Blaszczynski & Nower, 2002).

On this regards, empirical evidence has shown that gambling behaviors is motivated by impulsivity and accompanied stress. Impulsivity is defined as taking an action without thinking or bordering about the consequences of the action. It can also be seen as actions without foresight that are poorly conceived, prematurely expressed, unnecessarily risky, and inappropriate to the situation (Salters-Pedneault, 2020). Impulsivity is associated with undesirable, rather than desirable outcomes (American Psychiatric Association (APA, 2013). Impulsivity is a multifaceted construct comprising a dispositional tendency towards rash action, alongside (and distinct from) performance-based behavioural indicators of impulsive action or impulsive choice (Mackillop et al., 2016). Studies related to impulsivity showed that among the predictors of problematic gambling in adults, the strongest predictor of gambling severity was impulsivity. Early adolescent's

impulsivity was designated as predictors of gambling behavior. It turned out that teenagers were highly impulsive in situations where their emotions were not properly expressed, or they were not aware of their emotional state (Ji et al., 2021). Ji et al., (2011) also revealed that as impulsivity increases, there is every high degree that the person involved is likely to become a problematic gambler.

With regards to stress, it has also been established that stress is not only associated with the development of gambling disorder, but also associated with gambling disorder severity. In a nationally representative sample of over 40 000 people from the National Epidemiologic Survey on Alcohol and Related Conditions, high stress was related to increased problem gambling severity; 71.7% of those with problem gambling reported high stress in the past year (Rouzitti et al., 2018). The first intersection between stress and gambling is gambling as a means to escape stress (Blaszczynski & Nower, 2002; Dixon et al., 2019). This intersection is recognized within the DSM-5 diagnostic criteria set for gambling disorder (i.e., gambling when feeling distressed (criterion #5); (American Psychiactric Association, 2013), a criterion that is absent for substance use disorder. Adolescent problem gamblers report higher perceived stress (Giralt et al., 2018) compared to those without gambling problems.

Furthermore, emerging adults (aged 18 to 20) with problem gambling report using gambling as a way to cope with stress (Edgerton et al., 2018). These findings in adolescence and young adulthood, when problem gambling is most likely to develop (Calado et al., 2017), suggest that poor coping mechanisms begin early in the development of gambling disorder and may interfere with the implementation of appropriate stress coping strategies such as solution-focused coping (Lazarus & Folkman, 1984; Jauregui et al., 2017). Almost 50% of individuals with gambling disorder undergoing cognitive behavioral therapy identified negative emotional states, such as stress, as a strong trigger to gamble (Morasco et al., 2007). Based on this, the purpose of this research is to find out the roles of impulsivity and stress in predicting problem gambling among Nigerian undergraduates. Also based on pathways model of problem and pathological gambling (Blaszczynski & Nower, 2002), problem and pathological gambling can be traced to a) behaviourally conditioned problem, (b) emotionally vulnerable problem and (c) antisocial, impulsiveness problem. Based on past literature we hypothesized that: (1) Impulsivity will significantly predict gambling among Nigerian undergraduates. (2) Stress will significantly predict gambling among Nigerian undergraduates.

Methods

Sample and Procedure

Two hundred and fifty participants comprising of 87 males (34.8%) and 163 (65.2%) were sampled in the study. Participants were drawn from seven faculties from the University of Nigeria, Nsukka using mixed sampling technique comprising simple random sampling and convenient sampling

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procedure. The faculties were: Social Sciences, Arts, Pharmaceutical sciences, Health Science and Technology, Education, Biological Sciences, and Agriculture. Their age ranged from 16 to 28 years, with the mean of 20.54 and standard deviation (SD) of 2.63. Out of the two hundred and fifty (250) participants, 246(98.4%) were Christians, 2(8%) were Muslims and 2(8%) practices other types of religion. Two hundred and thirty-six (94.4%) participants were from Igbo tribe, ten (4%) from Yoruba tribe while four (1.4%) were from Hausa tribe. Out of the two hundred and fifty (250) participants, 240 (96%) were singles), and 10 (14%) were married. Out of the total population, 125 (50%) were in 100 level, 54 (21.6%) were in 200 levels, 34 (13.6%) were in 300 levels, 26 (10.4%) were in 400 levels while 11 (4.4%) were in 500 levels. Five hundred copies of questionnaires were distributed to the students in the seven different faculties with the inform consent form that was attached at the front of the questionnaire. They were made to understand that participation is voluntary and that anybody is free to withdraw from the study whenever he or she feel like. The questionnaires were shared to them in their different faculties /classes with the help of research assistances from each faculty with the aid of different course representatives. It took one week to share and collect back the questionnaires from the participants. Participants were assured of complete anonymity and confidentiality. Out of 500 questionnaires shared, only 320 questionnaires were returned and out of that 320, only 250 were correctly filled and used for data analysis.

Measures

Problem Gambling Severity Index

This measure contains (9) items and was developed by Holtgraves (2009) to measure the prevalence of disordered gambling. The problem gambling severity index is one dimensional and all the nine items are positively warded. It taps on how frequent participants experience certain symptoms common associated with problem gambling under 12 months. Some of the items include, how often have you bet more than you could afford to lose? How often has your gambling caused any financial problems for you or your household? Responses were scored on a 4-point ranging from 0 = Never, 1 = Sometimes, 2 = Most of the time, 3 = Almost always. High scores indicate problem gambling. This shows that 0 = means non-problem gambler, 1-2 =low risk gambler, 3-7 = moderate risk gambler, while 8 and above = problem gambler. Holtgraves (2009) reported a Cronbach alpha coefficient α =.84. The present study had Cronbach α of .91.

Barratt Impulsiveness Scale (BIS) 15

The BIS is a 15-item developed by Meule (2011) to measure impulsivity and it has three (3) dimensions. The three dimensions are: non-planning impulsivity, motor impulsivity, and attention impulsivity. Items 1 – 5 measures motor impulsivity. It contains items such as (I act on impulse; I do things without thinking etc.). Then items 6 – 10 measures non-planning impulsivity with items such as (I plan for job security, I plan for the future, I save regularly etc.). While items 11 - 15

measure attention impulsivity with items such as (I am restless at lectures or talks, I squirm at plays or lectures, I concentrate easily etc.). It is scored on a four-point Likert scale which ranges from 1 = rarely/never, 2 = Occasionally, 3 = Often, and 4 = almost always. Meule (2011) reported Cronbach alpha α of .79, while the pretest carried by researchers using 100 students from Enugu State University of Science and Technology yielded a Cronbach alpha of .76.

Perceived Stress Scale (PSS)

This scale was developed by Reis et al., (2010) to measure the degree to which situations in one's life are appraised as stressful. It consists of 10 items which inquire about the feelings and thoughts that taps on the degree to which respondents find their current life situation unpredictable, uncontrollable and stressful. Respondents indicates how often in the past month they have felt or thought a certain way. Example of item in the scale include In the last month, how often have you felt nervous and stressed? It is scored on a five-point Likert format ranging from 0 = never, 1 = almost, 2 = sometimes, 3 = fairly, and 4 = very often. It comprises of six negative items (items 1 – 3, 8, 11, and 14) and four positive items (items 6,7, 9 and 10). The total score is obtained by reversing the scores on the positive items and then summing across all the items. The higher the score, the higher the perceived stress is. Reis et al., (2010), reported a Cronbach alpha of .78, while pilot study by the research yielded Cronbach alpha of .79.

Design and statistics: The study employed a cross sectional design. Correlation and hierarchical multiple regression were employed in analyzing the data.

Results

Table 1: Descriptive statistics for age and the study variables

Variables	Range	Mean	Std. Deviation
Age	16 - 28	20.54	2.63
Stress	6 - 36	23.11	5.58
Impulsivity	11 – 48	31.38	9.05
Problem gambling	9 - 30	19.72	5.37

Descriptive statistics in Table 1 showed that the age range of the participants was 16 -28 years (Mean = 20.54, SD = 2.63 years). The scores of the participants on the variables in the study were within the normal range of scores.

Table 2: Correlations of demographic variables, impulsivity, stress and problem gambling

Variables	1	2	3	4	5
Age	-				
Gender	-.11	-			
Marital status	.15*	.06	-		
Impulsivity	.04	.11	-.03	-	
Stress	.07	.18**	.01	.34***	-
Problem gambling	-.10	.04	-.03	.15*	.32***

Note***p<.001; **p<.01; *p<.05; Gender (0= male; 1 = female); Marital status (0 = Single; 1 = Married)

Table 3: Hierarchical multiple regression predicting problem gambling, impulsivity, and stress, with age, gender and marital status as control variables

Predictors	Step 1			Step 2			Step 3		
	B	β	*t*	*B*	β	*t*	*B*	β	*t*
Age	-.15	-.10	-1.51	-.16	-.11	-1.65	-.19	-.13	-2.06*
Gender	.26	.03	.49	.12	.01	.22	-.29	-.04	-.56
Marital status	-.27	-.01	-.21	-.14	-.01	-.11	-.44	-.02	-.36
Impulsivity				.09	.15	2.36*	.03	.05	.76
Stress							.24	.32	4.90***
R^2		.01			.03			.12	
ΔR^2		.01			.02			.09	
F		(3,246).969			(4,245)2.131			(5,244)6.656***	
ΔF		(3,246).969			(1,245)5.563*			(1,244)23.960***	

Note: ***$p<.001$; ** $p<. 01$; * $p<.05$; gender coded as (0 = male; 1 = female)

The results in table 2, showed that being single correlated with older age ($r = .15$, $p<.05$). It was also shown that female students experience greater stress ($r = .18$, $p<.01$). Impulsivity was positively associated with stress ($r = .34$, $p>.001$). This suggests that students who acts more on impulse experience higher stress. Impulsivity associated with problem gambling positively ($r = .15$, $p<.05$). This suggests that the more students act on impulse, the higher their chances of engaging in problem gambling behaviour. Stress associated positively with problem gambling ($r = .32$, $p<.001$). This implies that the more students' experiences stress, the higher they engage in problem gambling behaviour.

Results of hierarchical multiple regression for the test of the hypotheses is shown in Table 3. In Step 1 of the regression model, age, gender and marital status were added to the regression model as control variables, collectively did not make any significant contribution to the prediction of problem gambling. The control variables contributed .1% in explaining the variance in problem gambling ($R2 = .01$), and the model was not significant, $\Delta F (3,246) = .97$. In step 2, impulsivity was added in the regression model, and it predicted problem gambling significantly, $β =.15$, $t(250) = 2.36$, $p<.05$. Impulsivity did not make any contribution in explaining the variance in problem gambling ($\Delta R2 = .02$), and the model was significant, $\Delta F (1,245) = 5.56$, $p<.05$. In Step 3, stress was added to the regression model, and it positively predicted problem gambling significant, $β= .32$, $t(250) = 4.90$, $p<.001$. The unstandardized regression coefficient (B) showed that for every one unit increase in stress, problem gambling rises by.24 units. Stress did not make any contribution in explaining the variance in problem gambling ($\Delta R2 = .09$), and model was significant, $\Delta F(1,244) = 23.96$, $p<.001$.

Discussion

This study examined the roles of impulsivity and stress on problem gambling among tertiary students in Nigeria, University of Nigeria, Nsukka in particular. Result shows that impulsivity predicted problem gambling positively among the studied population, thus the hypothesis which stated that impulsivity will not predict problem gambling positively was not confirmed. This shows that that was positive relationship or association between impulsivity and problem gambling. The implication of this finding is that the more students act on Impulse, the higher their chances of engaging in problem gambling. Consistent with previous studies (Secades-Villa et al., 2016; Trivedi & Teichert, 2018), found out that the level of one's impulsiveness increased the risk of problem gambling.

Auger et al (2010) asserted that impulsivity is a risk factor for onset gambling. While Ji et al. (2021), agrees that the level of impulsivity affects gambling behaviour among high school students. This may be due to the fact that youths or adolescents act on impulse without thinking or planning for their action, may be at risk of problem gambling because at this stage, adolescent like taking actions without bordering about the negative outcomes especially when they must have gotten a positive or monetary reward from gambling in the past, they continue to gamble with the hope of getting more winning in the future even when they're losing, they don't give up trying. It may also be as a result of some problem gamblers having lower impulse control than the general population (Twumasi & Shergill, 2020). The findings also indicated that stress and impulsivity are associated. This may be as a result of one of the consequences of acting on impulse. When one acts on impulse, it shows that the person takes action before considering the consequences of the actions, and when this happens, it induces stress especially when the outcome is a negative one.

The result also showed that stress is associated with

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problem gambling among university students, thus, the second hypothesis which stated that stress will not predict problem gambling among the studied population, was not confirmed. This was because, the result of the finding showed a significant positive association between stress and problem gambling among the studied population. This reveals that the more stress students' experiences, the higher their chances of engaging in problem gambling behaviour. This finding finds support with Wang et al., (2020) study, which found a positive relationship between stressful life events and gambling problems. Ji et al. (2021) found a positive relationship between impulsivity and gambling behaviour level. Lightsey et al. (2002) study found that non-impulsive men in high stress conditions were most likely to result in problem gambling.

The positive association between stress and problem gambling among the studied population may be as result of stress students experiences not only academic stress but financial stress and peer influences which pushes them into gambling with the hope of getting more money in return. Some students even go the extent of using their school fees, while some go on borrowing money from friends and colleagues for betting, and when the outcome of the bet turns out to be negative, it induces more stress on the student because of the money he or she has invested on betting. When this happens, the urge to gamble more becomes intensified because they have every hope that one of the bets will generate huge amount of money that will help the gambler to settle their debts and in the cause of doing this, some of them become problem gamblers. This also can be as a result of looking for justification for the money the gamblers have invested on gambling as it was indicated in social exchange theory. From this theory one may say that it is gamblers efforts in trying to get justification for the money they have spent on betting without winning that induces stress on the gamblers thereby making them to gamble without minding the consequences of such actions.

The implication of these findings includes that problem gambling was found to be associated with depression, stress, unmanaged ADHD, bipolar disorder. Based on the findings of this study it can also be stated that problem gambling could result in excessive spending of one's finance, relationship problems due to time spent on gambling, legal problems, job loss, and mental health problems such as anxiety, depression, poor academic performance and even suicide. In general gambling disrupts or compromises gamblers lives and even those of their families.

The major limitation of this study is the sample size which is not enough to generalization about the studied variables. There are so many universities in Enugu state and the study was conducted in one out of many universities in the state. Another limitation of this finding is the study adopted a convenience sampling technique which do not give all the participant equally chance of participation. The researchers suggests that future researchers should use sampling technique that will give all the participants equal chance of participation and should adopt a longitudinal study to know how consistency the result will be over a period of time.

Conclusion

Clinical and counselling psychologists should be deeply involved in educating the students on the dangers of acting on impulse because of the consequences that follows such as actions such as stress, indebtedness, suicide and gambling related problems. Counselling programmes should also be organized in every town hall of all communities, and churches to sensitize and create awareness on the dangers associated with gambling. This will help in shaping and modifying peoples' positive views on gambling behaviour especially on online betting which can be done with smartphones. Government should also find means of controlling and monitoring where these gambling centers are situated and operates. This is because in almost every nook and cranny in Nigeria, you will find where online betting takes place especially bet9ja. Not only that, the government should find means of stopping and controlling of all these online bets advertisements that poops on the people phone especially when the internet is on. If this can be controlled, it will reduce the number of gamblers especially adolescents especially students in the university for most of them will find it difficult going out to bet.

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