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Betting high, feeling low: a cross-sectional examination of gambling severity and psychological distress among Ghanaian youth

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Abstract

Background Little is known about the nexus between online gambling and psychological distress among youth, especially in Ghana. This study aimed to investigate the effects of online sports betting on psychological distress, focusing on depression, anxiety, and stress among young individuals in the Volta region of Ghana.

Methods A cross-sectional study was carried out at various betting centers in the Volta region of Ghana. Four hundred and three (403) participants were selected using a multi-stage sampling method. The study used a standardized questionnaire to assess psychological distress with the Depression, Anxiety, and Stress Scale (DASS 21) and problematic gambling with the Problem Gambling Severity Index (PGSI). The analysis included both descriptive and inferential methods. These include the implementation of the bootstrap technique within multiple regression models using the current versions of Jeffreys's Amazing Statistics Program (JASP) [0.18.2], Statistical Package for the Social Sciences (SPSS) [29.0.2], and Microsoft Excel (2019).

Results The study found a prevalence of 40% for problematic gambling and 44% for moderate gambling problems among participants, resulting in an overall gambling prevalence of 84%. Regarding psychological distress, the estimated prevalence of depression among participants was 43.6%, with stress reported at 31.1% and anxiety at 68.8%. The overall prevalence of psychological distress was 48%. When analyzing the link between gambling and psychological distress, the study noted that males were more prone to gambling-related psychological distress than females ($\beta = 2.036$, $p = 0.025$). Furthermore, individuals with problem gambling showed the highest probability of experiencing more significant psychological distress compared to other groups ($\beta = 9.228$, $p = 0.002$), followed by those with moderate gambling levels ($\beta = 3.283$, $p = 0.002$).

Conclusion We recommend that the mental health unit of the Ghana Health Service, in collaboration with the Gaming Commission of Ghana, should develop youth-friendly interventions to address the prevalence and onset of

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problematic gambling among the youth, especially males. This could, in turn, reduce the prevalence of psychological distress among youth engaged in online gambling in Ghana.

Keywords Gambling, Mental health, Psychological distress, Standardised psychometric tools, Volta Region

Introduction

In recent years, a growing area of public health concern is online gambling among the youth due to the accessibility and anonymity that online betting platforms provide [1, 2]. While online gambling may not be new to the developed world [3, 4], the phenomenon was rarely practiced on the African continent [5]. However, due to the widespread use of smartphones and the emergence of gambling centers, online gambling has become a social and public health concern in Africa [6, 7]. For instance, research has shown that at least 71% of Zambian youth indulge in online sports betting [8]. Additionally, in Kwara State, Central Nigeria, 58.7% of the youth were found to indulge in online sports betting [9].

Although the growth of the African betting industry has provided an additional revenue stream to governments and filled an unemployment gap, it has also led to a rise in gambling addiction [5]. In Ethiopia for instance, 53.9% of sports bettors aged 25 to 31 years were found to battle with problematic gambling [10]. Similarly, studies in the country revealed that 37% of school adolescents engaged in gambling were at risk of severe problematic gambling, with 7% already classified as problematic or pathological gamblers [11]. In South Africa, 10.8% of a representative urban sample were found to have developed a severe gambling problem [12]. Sharp and colleagues further suggest that while young males face a higher risk for problematic gambling, young females are increasingly getting involved in gambling, including mobile internet-based lotteries and games.

Indulgence in online betting could have a negative impact on the health and well-being of those involved in the practice, their families, and communities at large [13]. Betting can impact an individual's finances, relationships, employment, and psychological well-being [14]. For instance, studies indicate that individuals who gamble are at a higher risk of experiencing depression, anxiety, substance abuse disorders, and sleep-related problems [15, 16]. For problem gamblers, the risk of suicidal thoughts and attempts is notable [17], given the persistent pressure to win and the emotional fluctuations from losses that affect mental health [18]. Some individuals may also turn to alcohol or drug use to cope with the stress and emotions linked to gambling losses [19]. From a social perspective, gambling can result in engaging in illegal activities such as theft, fraud, or embezzlement to fund a gambling addiction, leading to legal consequences when it affects one's financial situation [20, 21]. At the family level, problematic gambling has been found to cause distress, resulting in greater dissatisfaction among family members. Additionally, subclinical depression, anxiety, and stress have been reported in such families. These families also experience emotional consequences of problematic gambling, including fear, anger, loss of safety and security, guilt, despair, and uncertainty [22].

Recently, gambling among Ghanaian youth has seen a marked increase. Studies have reported a prevalence of at least 30% of gambling among children and adolescents, including sports betting, lottery, and casino gambling [23, 24]. This highlights the significance of increasing awareness and taking steps to prevent and treat gambling-related disorders [25]. The World Health Organization's [WHO] inclusion of Gambling Disorder in the International Classification of Diseases further emphasizes the impact that gambling can have on individuals' health and well-being [14] and the importance of prioritizing gambling prevention, especially among the youth.

In an attempt to curb online gambling among the Ghanaian youth, the government has placed a 10% tax on bet winnings [26] but the impact of the measure is yet to be felt. Hence, the government's endeavors to tackle problematic gambling have achieved only limited success thus far. Despite implementing various initiatives, such as enforcing stricter regulations on betting activities, providing educational programs that highlight the risks of substance abuse and pathological gambling, and offering support for individuals dealing with gambling addiction through treatment centers and counseling services, the issue persists [27, 28].

Ghana has a sizable youth population, with 38% of the 31 million population aged 15–35 years [29]. Therefore, there is a need to prioritize issues of public health concern that affect the youth. However, despite the acknowledgment of problematic gambling among Ghanaian youth [27, 28], there is limited literature on gambling severity, and psychological distress is scarce to guide policy decisions. Previous studies have only focused on some facets of the subject. For instance, Kyei-Gyamfi and colleagues [23] only examined the prevalence, predictors, and consequences of gambling among coastal-dwelling Ghanaian children, while other studies looked into gambling initiation and its associated perceived beliefs among the youth [30]. Also, the attitudes and protective factors of youth gambling [31], the sociocultural and environmental determinants of youth gambling [32] as well as the prevalence and gender differentiation of gambling among adolescents in the country [24] have been investigated in the past. However, with the nexus

between gambling severity and psychological distress seldom addressed in the country, we aimed to empirically expound on the extent of the problem among the Ghanaian youth to inform youth gambling-related educational programs, policy, and research in the country and also add to the body of literature on gambling severity and psychological distress.

Materials and methods

Study site description

The Volta region of Ghana was used as a case for the conduct of this study. The Volta Region is one of Ghana's sixteen regions, with Ho as its capital [33]. The total population of the Volta Region is about 1,659,040 according to the 2021 population and housing census data [34]. The Volta Region, which borders the Oti Region in the north, the Gulf of Guinea in the south, the Eastern Region in the west, and the Republic of Togo in the east, lies within longitudes 000 15'W and 100 15'E and latitudes 600 15'N and 800 45'N [34]. It has a total land area of 9,504 square kilometers (km2), accounting for 8.7% of Ghana's total land area [35]. The Volta Region, like the rest of Ghana, has a tropical climate with mild temperatures ranging between 21 and 320 degrees Celsius for most of the year [36]. Like other regions of the country, the Volta region has seen a spike in online sports betting among the youth [37], which is of public health concern, hence its choice for the study. Figure 1 depicts the location of the Volta region of Ghana.

Study design

A cross-sectional design was adopted for this study. The design necessitated visits to betting centers in the Volta Region of Ghana for the collection of data from young adults engaged in sports betting at a point in time. To identify gambling centers in each town, data on registered betting firms operating in the town and their respective locations were obtained from the revenue departments of the various district/municipal assembly offices. To be considered as a betting center, the center needed to have an operational license, sell computerized betting tickets to their clients, and have its operations known to the respective district/municipal assembly.

Study population

The study was carried out among youths aged 18 to 35 years who engaged in sports betting and resided in the Volta Region of Ghana. Ghana's national youth policy [38] defines youth as individuals between the ages of 15–35 years. This categorization was adapted for this study because individuals under 18 years old are legally prohibited from participating in betting in Ghana and were therefore excluded. Moreover, potential participants who did not provide consent to participate in the study were excluded.

Sample size determination and sampling procedure

The study sample size was determined using Cochran's formula: $n = \frac{z^2\ p(q)}{d^2}$ [39]. In this sample size estimation, z represents the reliability coefficient corresponding to a 95% confidence interval (1.96), p denotes the estimated proportion of an attribute present in the population (assumed to be 50% due to unknown exact prevalence), q stands for the acceptable deviation from the assumed proportion (1 - P), and d indicates the margin of error around the proportion, estimated as 0.05 in this study. Plugging in the values: $n = \frac{(1.96)^2.\ 0.5(0.5)}{0.05^2} = 384.16$

A 5% non-response rate was added to account for possible non-response or incomplete data, resulting in a minimum total of 405 individuals to be interviewed.

The multi-stage sampling technique was used to recruit the participants for the study. First, the district capitals in the region with designated sports betting centers were identified. Ten of the eighteen districts/municipalities in the region were identified to have designated betting centers. Secondly, five of the districts/municipalities (50%) were then sampled for inclusion using the lottery method. These were Ketu South, Keta District, South Tongu District, Ho Municipality and the Hohoe Municipality. As the proportion of youth engaged in sports betting in each district was unknown, the sample size was distributed equally among the selected districts/municipalities by dividing the total sample size by the number of selected districts.

Thirdly, participants were recruited in each selected town within a district using a convenient sampling approach. Any potential participant who was readily available and willing to participate at any sports betting center was included in the study until the required sample size for the district was reached.

Study variables and instrument

The study made use of an interviewer-administered questionnaire. It focused on two primary constructs: gambling severity and mental health status. Gambling severity, the independent variable, was assessed using the nine-item Problem Gambling Severity Index (PGSI), which is a widely validated scale [40–42]. The nine-item 4-point Likert scale response questions rated from 0 (never) to 3 (almost always) start with the query, "When you think of the past 12 months, have you bet more than you could really afford to lose?" and end with "Have you felt guilty about the way you gamble or what happens when you gamble?" The scale demonstrated an overall coefficient alpha (α) of 0.80.

The dependent variable, mental health status, was evaluated using the Depression, Anxiety, and Stress

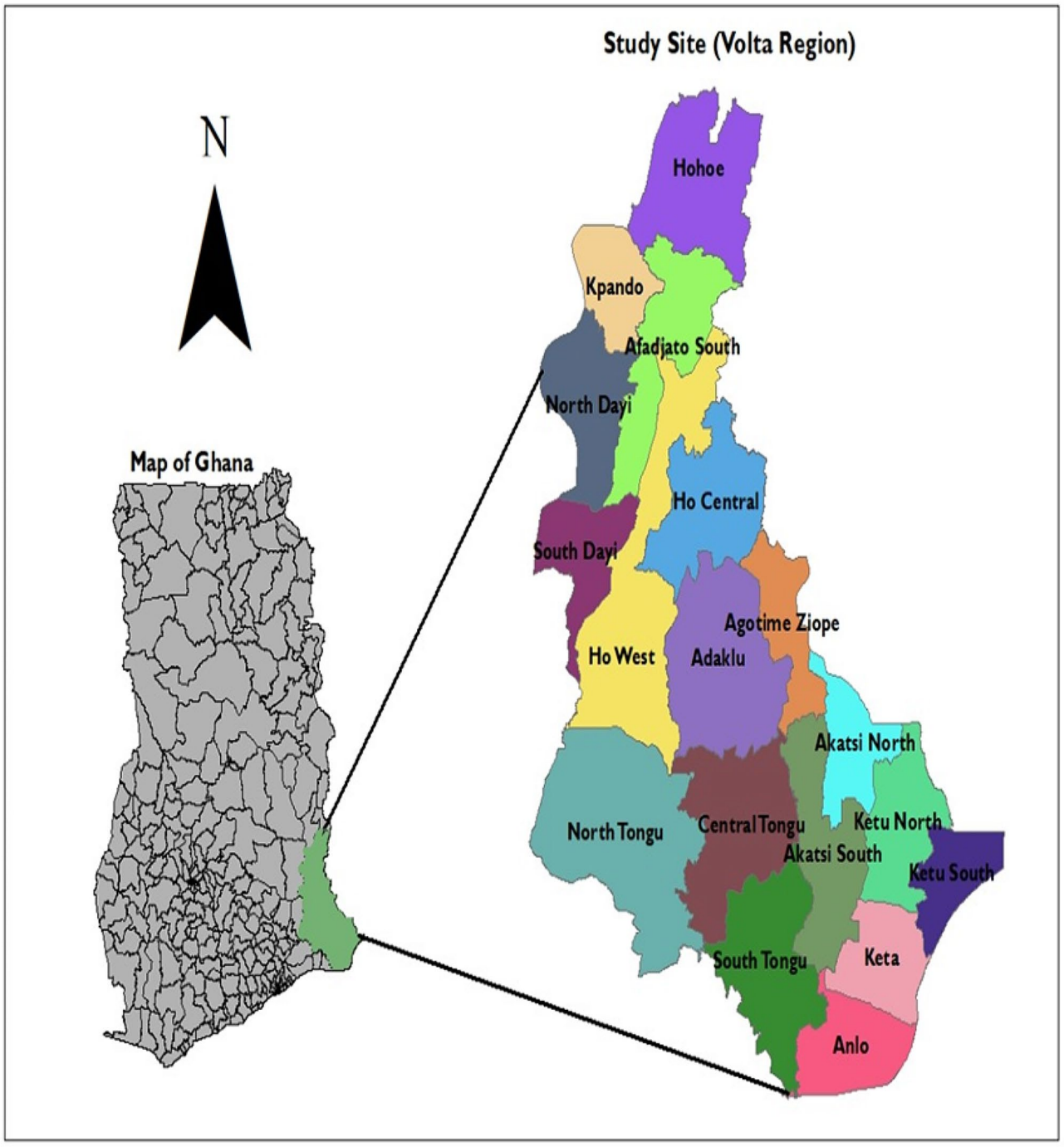


Fig. 1 Map of Ghana depicting the location of the Volta Region

Scale (DASS 21), an extensively validated instrument [43, 44]. Comprising 21 items, the scale is distributed evenly across three mental health domains: stress, anxiety, and depression, with seven items allocated to each. A comprehensive description of the scale is provided by Lovibond [45]. The internal consistency of the scale for this study was good, yielding $\alpha=0.85$ for both stress and depression domains, $\alpha=0.84$ for anxiety, and an impressive overall mental health composite score of $\alpha=0.94$. Further details on the utilization of the scale in this study can be found in Supplementary File. The study also collected data on demographic factors, including age, marital status, religion, occupation, education level, and ethnic background. Acknowledging the ethical considerations associated with these variables, all factors were designated as optional for participants, except age

and sex, which were deemed essential for conducting a thorough analysis and meeting sex/gender-based analysis considerations.

The interviewer-administered questionnaire was divided into three sections: socio-demographic information of participants, the assessment of mental health, and the assessment of problematic gambling. Five data collectors with degrees in public health were trained for two weeks on data collection techniques and related ethics, as well as on the Kobo Collect software, which is used to develop a questionnaire to assist with data collection [46]. Data collected with the Kobo Collect software is easy to export to any format for analysis, making it user-friendly, user friendly, hence its choice for questionnaire design and data collection. It also saves researchers from using paper-based questionnaires for data collection [47]. The interviews were conducted in secluded areas within the premises of the betting centers to avoid the glare of the crowd. It took participants an average of 35 min to complete the questionnaire. The data were collected from May to June 2023.

Table 1 Demographic characteristics of participants

Variable	Frequency (578)	Percentage
Age		
18–24	375	64.9%
25–30	155	26.8%
31 and above	48	8.3%
Marital Status		
Married	70	12.1%
Single	508	87.9%
Sex		
Female	35	6.1%
Male	543	93.9%
Religion		
African Traditionalist	29	5.0%
Christianity	508	87.9%
Islam	41	7.1%
Occupation		
Government workers	39	6.7%
Self-employed	245	42.4%
Student	234	40.5%
Unemployed	60	10.4%
Education Level		
None	21	3.6%
Primary	64	11.1%
Secondary	332	57.4%
Tertiary	161	27.9%
Ethnic Group		
Akan	85	14.7%
Ewe	426	73.7%
Ga	29	5.0%
Hausa	11	1.9%
Others	27	4.7%

Statistical analyses

The data collected, using Kobo-collect, was exported to Excel for cleaning and processing. Descriptive analysis involving participant characteristics, followed by reliability exploration and estimation of gambling prevalence and psychological distress status, was carried out with the help of Excel (2019) and Jeffreys's Amazing Statistics Program (JASP) [0.18.20] statistical software.

The Depression, Anxiety, and Stress Scale (DASS) employed in this study had a four-point response rating, coded from 0 to 3. Scores were multiplied by 2 to compute the final score, which was categorized into five levels for each domain (anxiety, stress, and depression) and overall psychological distress following Lovibond's recommendations [45]. Similarly, for the Problem Gambling Severity Index (PGSI) scale, a four-level classification was established based on the total scores derived from the nine items for each observation. Specifically, a total score of zero was classified as non-problematic, 1 or 2 as low level, 3 to 7 as moderate level, and 8 and above as problem gambling [40]. Directions and detailed analysis procedures for both the DASS and PGSI scales, which were strictly followed, are described in previous studies [40, 45].

The inferential analysis was conducted using the bootstrap technique within multiple regression models to ensure robust estimates. The bootstrap technique was employed due to a modest deviation of the data from normal data distribution. This method was used to quantify the uncertainty associated with violating critical parametric assumptions and, as a result, generate more robust estimates. The bootstrap method has been found to produce more "accurate estimates of a parameter than the analysis of any one of the samples" [48]. Statistical significance was determined at a p-value less than or equal to 0.05. Visual representations of the relationships between gambling severity and overall psychological distress were integrated into the inferential analysis for a clear visual understanding of the associations.

Results

Demographic characteristics of participants

Table 1 provides detailed information on the demographic characteristics of the study participants. Most participants were in the 18–24 age group (64.9%), single (87.9%), and male (93.9%). The predominant religion among participants was Christianity (87.9%), with self-employment being the most common occupation (42.4%). A majority of participants had secondary education (57.4%), with the Ewe ethnic group being the largest (73.7%).

Gambling severity among participants

One of the study's objectives is to describe the levels of gambling severity within the designated population. The subsequent analysis of PGSI scores within the cohort of interest revealed discernible patterns. Approximately 16.4% of the youth participating in sports gambling exhibited no moderate to problematic gambling behavior. Moreover, around 43.8% exhibited a classification within the moderate range of gambling problems, indicating potential negative consequences. Significantly, an estimated 39.8% of the cohort fell within the category of problem gambling, indicating a marked susceptibility to negative outcomes and potential loss of control. Hence, the total prevalence of gambling that can lead to negative consequences (moderate and problem gambling) is estimated at 83.6%. Figure 2 visually illustrates the distribution of problem gambling among the sampled youth. Further descriptive statistics pertaining to the PGSI scale outcomes can be found in the supplementary file.

Psychological distress of participants

This study also aimed to assess the psychological distress of youth involved in sports gambling, utilizing the Depression, Anxiety, and Stress Scale (DASS). As shown in Fig. 3, the prevalence of depression among the participants is 43.6%. This was obtained after summing up the percentages of the severe and extremely severe cases. Likewise, by combining severe and extremely severe cases of anxiety, its prevalence is estimated at 68.8%. The prevalence of stress is estimated at 31.1% using the same procedure. Therefore, averaging the three estimates results in a 47.89% overall prevalence of severe psychological distress. Additional descriptive statistics of the scale outcome (mean, standard deviation, etc.) can be found in the supplementary file.

To examine the impact of gambling severity on psychological distress, we conducted a correlation analysis to explore the relationships among demographic and key variables. Our analysis revealed several significant correlations, highlighting the complex interplay of these factors. Specifically, we found significant positive correlations between gambling severity and age, betting frequency, depression, and overall psychological distress. Surprisingly, we also found a significant negative correlation between stress and gambling severity.

Additionally, we observed positive correlations among the various dimensions of psychological distress as well as with the overall psychological distress variable.

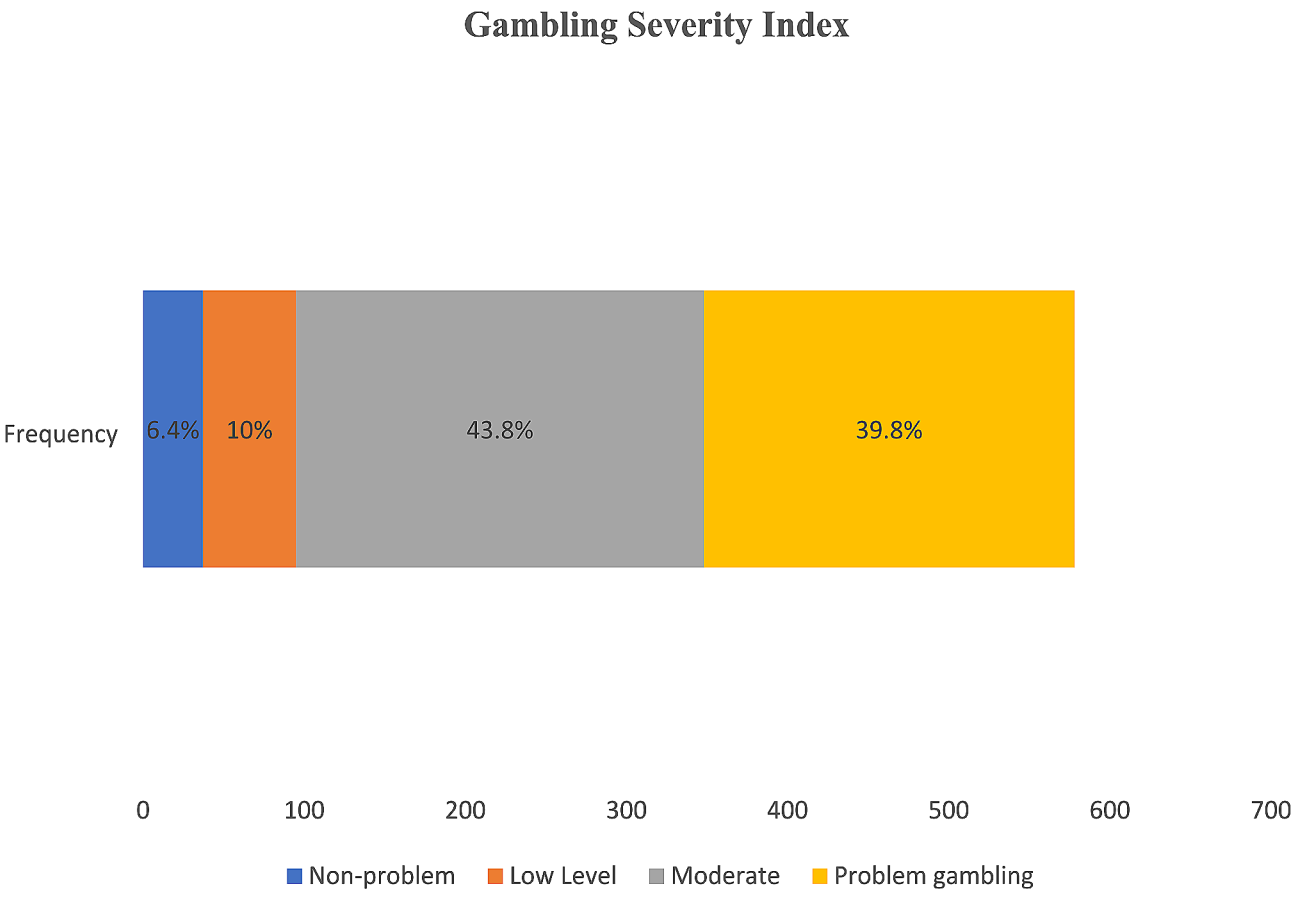
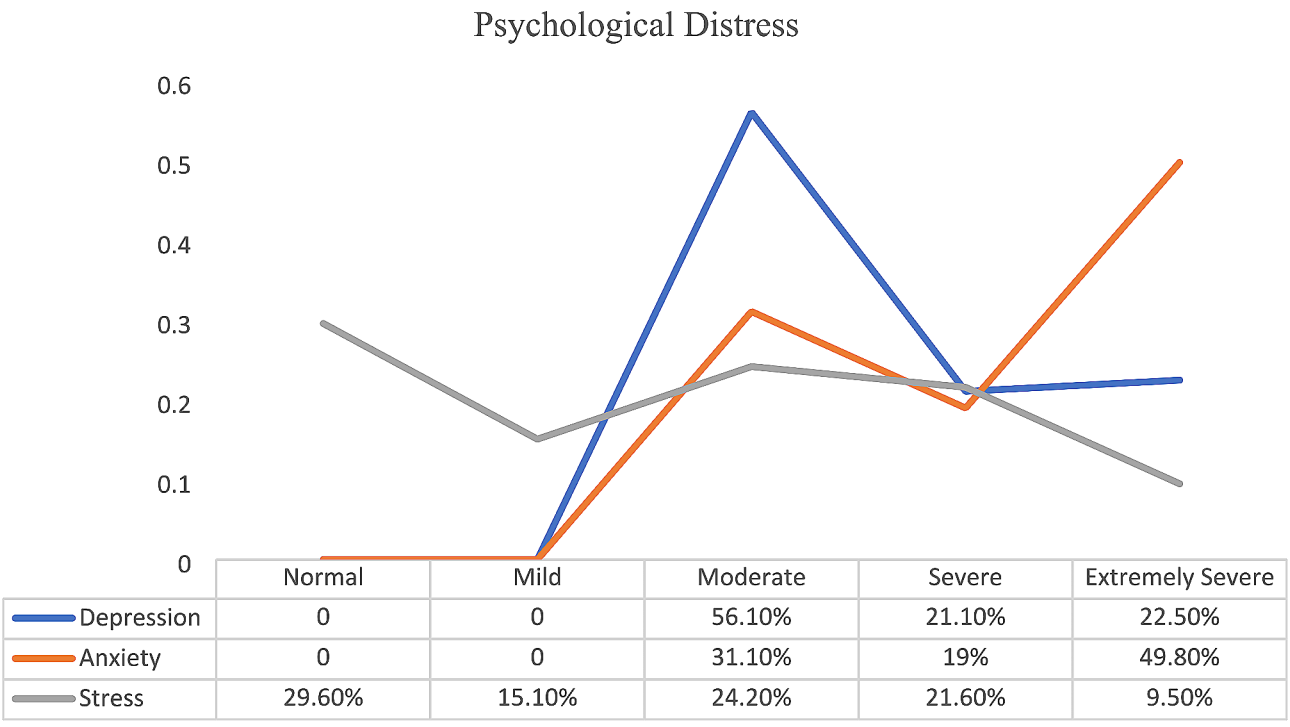


Fig. 2 Distribution of gambling severity among participants



	Normal	Mild	Moderate	Severe	Extremely Severe
Depression	0	0	56.10%	21.10%	22.50%
Anxiety	0	0	31.10%	19%	49.80%
Stress	29.60%	15.10%	24.20%	21.60%	9.50%

Fig. 3 Prevalence of psychological distress among participants

Table 2 Correlation matrix

	1	2	3	4	5	6	7	8	9
1. Age	1								
2. Marital Status	-0.45*	1							
3. Education Level	0.118*	0.031	1						
4. Bet Frequency	0.034	-0.078	0.052	1					
5. Gambling Severity	0.123*	-0.016	0.024	0.113*	1				
6. Depression	-0.03	0.05	-0.005	0.006	0.116*	1			
7. Stress	-0.018	0.067	-0.06	0.049	-0.094	0.138*	1		
8. Anxiety	-0.058	0.027	-0.007	0.096*	-0.316*	0.125*	-0.133*	1	
9. Overall Psychological distress	0.09*	-0.041	0.004	-0.065	0.539*	-0.257*	-0.081	-0.686*	1

* Indicate the Spearman's rho *p*-value reported is significant at 95% significance level

Table 3 Model fitness

Model	*R*	R2	Adjusted R2	Std error of estimate	R2 change	F change	df1	df2	Sig. F change
1	.199a	0.04	0.04	0.412	0.04	2900.32	13	912,648	<0.001
2	.515b	0.265	0.265	0.187	0.226	93398.6	3	912,645	<0.001

a. predictors: age, ethnic group, betting frequency, educational level, religion, sex, marital status

b. predictors: age, ethnic group, betting frequency, educational level, religion, sex, marital status, and gambling severity

However, most other relationships between variables did not reach statistical significance. For a detailed overview of these relationships, please refer to Table 2.

Impact of gambling severity on psychological distress

Table 3 presents the model fitness results for two regression models. Model 1, which excludes the impact of gambling severity on psychological distress, could only explain 4% of the variability observed in the dependent variable. In contrast, Model 2 illustrates a significant enhancement in model fitness compared to Model 1. By incorporating gambling severity into the analysis (Model 2), the model can now explain approximately 27% of the variability in the dependent variable, psychological distress. This improvement is backed by a significant F-statistic of 93,398.6, with a *p*-value less than 0.001.

The bootstrap results for both models are presented in Table 4. Among the variables, sex and religion exhibited statistical significance. In Model 2, sex did not remain statistically significant (β = 2.036, CI, 0.286–3.85), suggesting

Table 4 Bootstrap coefficients for both models

Model			B	Bias	Std. Error	Sig. (2- tailed)	BCa 95% CI	
							Lower	Upper
1		(Constant)	19.145	0.187	3.545	0.002	11.335	26.862
	Marital Status	Married (ref)						
		Single	0.062	-0.077	1.057	0.967	-1.785	1.901
	Sex	Female (ref)						
		Male	3.389	0.001	1.199	0.005	1.063	5.944
	Ethnic Group	Akan (ref)						
		Hausa)	-0.936	-0.047	2.583	0.719	-5.6	4.034
		Others	-2.297	0.005	1.643	0.155	-5.253	1.011
		Ga	0.06	-0.041	1.74	0.969	-3.483	3.159
		Ewe	-1.771	-0.019	0.913	0.056	-3.672	0.093
	Bet Frequency	Non-regular (ref)						
		Daily	0.595	-0.005	0.617	0.331	-0.614	1.752
	Education Level	No education (ref)						
		Primary	1.963	-0.055	1.929	0.303	-2.336	5.542
		Secondary	1.076	-0.059	1.801	0.528	-2.564	4.313
		Tertiary	1.847	-0.046	1.895	0.345	-2.035	5.191
	Religion	Others (ref)						
		Christianity)	-3.13	0.008	1.285	0.015	-5.828	-0.492
		Islam	-2.093	0.072	1.841	0.262	-5.84	1.941
	Age		0.075	-0.002	0.084	0.357	-0.093	0.231
2		(Constant)	18.27	0.173	3.148	0.002	11.796	25.492
	Marital Status	Married (ref)						
		Single	-0.447	-0.064	0.994	0.652	-2.305	1.308
	Sex	Female (ref)						
		Male	2.036	0.035	0.905	0.025	0.286	3.855
	Ethnic Group	Akan (ref)						
		Hausa	-0.321	-0.063	2.095	0.881	-4.126	3.51
		Others	-2.485	0.003	1.269	0.054	-4.975	-0.064
		Ga	-0.541	-0.031	1.48	0.728	-3.63	2.131
		Ewe	-1.602	-0.028	0.8	0.044	-3.142	-0.075
	Bet Frequency	Non-regular (ref)						
		Daily	-0.374	-0.025	0.58	0.522	-1.463	0.72
	Education Level	No education						
		Primary	1.094	-0.075	1.653	0.465	-2.546	4.241
		Secondary	0.38	-0.089	1.532	0.802	-2.75	3.325
		Tertiary	0.95	-0.082	1.605	0.537	-2.635	4.12
	Religion	Others (ref)						
		Christianity	-2.452	-0.001	1.03	0.023	-4.307	-0.486
		Islam	-1.727	0.063	1.49	0.262	-4.377	1.485
	Age	Age	-0.014	-0.001	0.077	0.839	-0.167	0.138
	Gambling	Non problem (ref)						
		Low level	-0.013	-0.031	0.898	0.99	-1.973	1.617
		Moderate level	3.283	0.008	0.82	0.002	1.594	4.736
		Problem gambling	9.228	-0.008	0.868	0.002	7.45	10.975

Note: Bootstrap results were derived from 1000 bootstrap samples. ref: reference category

that males were more susceptible to psychological distress issues associated with gambling than females. While most of the included variables did not show statistical significance, the primary variable of interest, gambling severity, demonstrated statistical significance. Individuals with problem gambling had a higher chance of experiencing psychological distress issues compared to the reference group, the non-problem gambling category (β=9.228, CI: 7.45–10.97), followed by those with moderate gambling levels (β=3.283, CI: 1.59–4.74). However, there was no statistically significant difference between the 'no gambling' and 'low gambling severity' categories

(β = -0.013, CI: -1.97-1.62). To better understand the relationship between psychological distress and levels of gambling severity, visual modeling was utilized. As can be seen in Fig. 4, increasing levels of gambling severity lead to increasing psychological distress status from zero (i.e., normal state) to abnormal levels.

Discussion

This study aimed to examine the severity of gambling and its influence on psychological distress among Ghanaian youth gamblers, with a particular emphasis on the Volta Region. It was estimated that 47.89% of gamblers experience psychological distress. Additionally, the study reported a high prevalence of 83.6% moderate to severe gambling among the youth and found that gambling severity worsened the psychological distress of gamblers. Furthermore, the study found that gender and religious affiliation are predictors of psychological distress among youth gamblers.

The prevalence of psychological distress among youth gamblers in Ghana was reported to be 47.89%. Generally, this study finding is consistent with other studies that have reported a higher prevalence of psychiatric disorders among gamblers [49, 50]. The genetic relationship found between depression and anxiety, and gambling may explain this finding [51, 52]. Alternatively, gambling may have contributed to the high depression, anxiety, and stress experienced by gamblers due to feelings of guilt and other stress associated with losing money [53–55]. Risky behaviors associated with depressed individuals may also account for the high prevalence of psychological distress among gamblers [52, 56].

On the contrary, other studies have reported a low prevalence of gambling-related psychological distress, with 5% in the US and 22% in England among youth gamblers [57, 58]. These discrepancies in findings may be due to the variety of screening tools employed to assess psychological distress [59, 60]. The challenges of cultural sensitivity and social desirability associated with self-report questionnaires may also account for these differences [60–62]. Moreover, while some studies focused on the general population of gamblers, others enrolled only those involved in sports betting [5, 31]. Furthermore, these differences might be attributed to contextual variations in addressing mental health issues. While there are generally targeted psychological health interventions in high-income countries that may have reduced the impact of gambling on psychological distress among young people, the same cannot be said for low-middle-income countries such as Ghana [63–65].

Sports betting should be recognized as a public health concern among Ghanaian youth and adequately addressed, as untreated gambling-related psychological distress issues may contribute to the high prevalence of psychological distress among the youth in general. Thus, the recent introduction of a 10% levy on betting earnings in Ghana [26], should be invested in sports betting-related psychological health education, screening, and services among the youth to improve their psychological health outcomes.

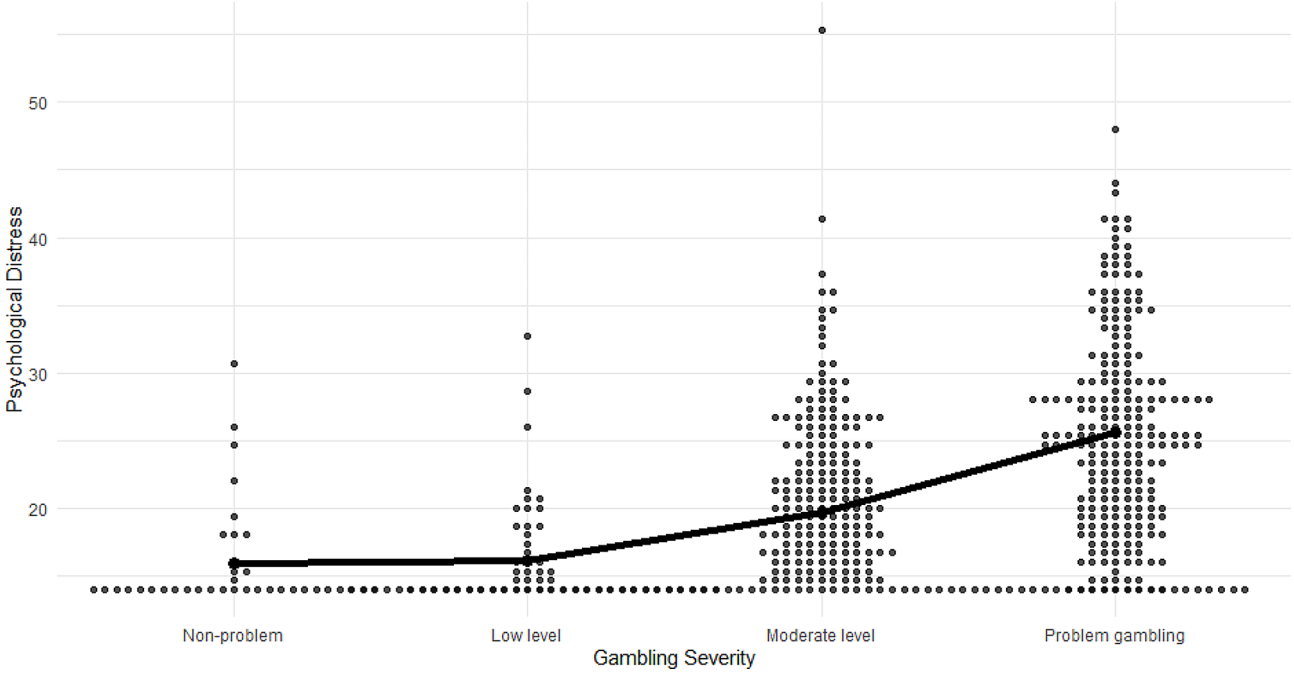


Fig. 4 Visual depiction of the correlation between gambling severity and psychological distress

Our findings also revealed a high prevalence of moderate to severe problem gambling (83.6%) among the study population. Comparatively, these findings are higher than those of other gambling-related studies. For example, a gambling severity of 31% was found among young people in the United States of America [66]. However, other studies recorded very low severe gambling rates between 4 and 8% among America and Europe youth populations [60, 67–70]. In Africa, the prevalence of problem gambling to severe gambling was estimated to be above 8% in the majority of the youth in various studies [5, 31, 68].

The etiology for the variations in findings is multifaceted. First, differences in the prevalence of severe gambling problems could be attributed to variations in economic stability within the different countries [5, 31, 62, 70]. Economic gains may account for the high prevalence of severe problem gambling in some low-middle-income countries [71]. For instance, while the majority of the youth in high-income countries may gamble as a hobby, those in low-middle-income countries such as Ghana are mainly motivated by the need to generate income due to the high unemployment rate [5, 31, 72, 73]. For instance, Opoku [70] found that most college students in Ghana were motivated to gamble on sports for monetary reasons. The high prevalence rate of problematic gambling may also be attributed to the elevated levels of depression, anxiety, and stress recorded in the current study, which may have contributed to the risky behavior of gambling [74]. Second, the majority of the studies enrolled students in tertiary education, which may have heightened their awareness of the negative impact of gambling on their academic performance. This could have contributed to the low prevalence of severe problem gambling found in the other studies [70]. Moreover, methodological variations may have contributed to the discrepancies in the prevalence of problematic gambling observed. While we administered the Problem Gambling Severity Index to assess problematic gambling, other studies utilized the Gambling Screen Revised for Adolescents (SOGS-RA), the Lie/Bet Scale, Canadian Adolescent Gambling Inventory (CAGI), and the Gamblers Anonymous Twenty Questions (GA20) [59, 75]. Early awareness and targeted educational interventions by the Ghana Mental Health Authority, the Gaming Commission, and other stakeholders are necessary to reduce problem gambling severity among Ghanaian youth.

When determining the predictors of gambling-related psychological distress, excluding gambling severity in model 1, the results indicated that sex and religion were the only significant predictors of gambling-related psychological distress, with males being at a higher risk of psychological distress than females (Table 4). However, upon including gambling severity in model 2, we observed that gender and gambling severity were predictive of gambling-related psychological distress.

Males being at a higher risk for gambling-related psychological distress than females have been reported in some studies [24, 76, 77]. The gratification associated with risky behaviors in males may explain these findings. The excitement of the activity, the desire for instant rewards, and the search for immediate satisfaction make males more prone to gambling-related psychological distress compared to females [78]. Additionally, gender disparity associated with sports may explain these findings. The majority of sports bettors are football bettors in Ghana because football fandom is male-dominated due to cultural barriers that prevent female participation and interest in football-related activities in the country [79–81]. These challenges may explain the reduction in female sports bettors, which subsequently led to a reduction in football gambling and gambling-related psychological distress. Targeted gambling-related interventions in Ghana should thus focus on gender disparity to address gambling-related psychological distress.

In relation to gambling severity, we found that the greater the severity of gambling, the more pronounced the increase in the gambling-related psychological distress among participants. This finding is consistent with studies that found associations between gambling severity and psychological distress among young people [82–84]. Sports betting is associated with losses, disappointments, anger issues, guilt, heightened financial strain, and a sense of loss of control [85–87]. These issues may sometimes lead to the development of psychological problems such as frequent headaches, insomnia, increased substance use, and psychological distress [88, 89], which may subsequently exacerbate the existing psychological issues experienced by severe gamblers and cause a deterioration in their mental health [90–92]. Therefore, interventions to address the onset of problematic gambling among the youth should be of prime importance to the Ghana Health Service and the Gaming Commission of Ghana.

Strengths and limitations of the study

The strength of this study lies in the use of standardized scales, meticulous control of various variables, and the application of the bootstrap technique, collectively contributing to enhancing the validity of the study's findings. Despite these methodological and statistical strengths, the study is not exempt from limitations.

For instance, the cross-sectional nature of the study implies an inability to establish temporality, hindering the determination of whether the psychological problems identified in the study result from the engagement in gambling activities. We also acknowledge that there was a considerable sample size disparity between genders.

Additionally, the convenient selection of participants could lead to an over-representation of individuals who visit gambling shops frequently, increasing the likelihood of having a gambling problem, potentially affects our results. Therefore, it is crucial to interpret the study findings with an awareness of these limitations. Future research endeavors should consider alternative study designs to address the temporal inference challenge and employ additional strategies to reduce response biases associated with the sensitive nature of gambling in the study context.

Conclusion

The study found that psychological distress is more prevalent among youth engaged in sports betting in Ghana, especially among males and individuals experiencing problematic gambling issues. Therefore, the mental health unit of the Ghana Health Service, in collaboration with the Gaming Commission of Ghana, should develop youth-friendly interventions to address problematic gambling among young individuals. Specifically, these programs should focus on adolescent males to discourage them from initiating betting or, at least, delay the onset of online sports betting to impede the progression and exacerbation of problematic gambling severity.

Abbreviations

CAGI	Canadian Adolescent Gambling Severity Index
DASS	Depresssion, Anxiety, and Stress Scale
JASP	Jeffreys's Amazing Statistics Program
PGSI	Problematic Gambling Severity Index
SPSS	Statistical Package for the Social Sciences
SOGS	RA-Gambling Screen Revised for Adolescents
WHO	World Health Organisation

Supplementary Information

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Supplementary Material 1

Supplementary Material 2

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Author contributions

E.M. and MAA conceptualized the study, and drafted the manuscript; F.A. analyzed the data, wrote the methods section, and proofread the manuscript; M.D. proofread the manuscript, and provided resources; E.A. and E.Z. collected the data and contributed to the initial draft. P.O.A. provided resources and proofread the manuscript.

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Data availability

The data used in this manuscript is available through the authors upon reasonable request.

Declarations

Ethics approval and consent to participate

Ethical approval for the study was sought from the University of Health and Allied Sciences Research Ethics Committee (UHAS-REC A.10[118]22–23). In addition, permission was obtained from the selected betting companies/center in the region. Informed consent was obtained from participants in the study. The study was conducted in accordance with ethical standards involving human subjects.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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