

Predictors of PGSI: A Study of Pakistan Stock Exchange

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Abstract

This study used PGSI to measure the motives of online stock exchange gamblers according to their responses about their online gambling. The main aim of the current study is to holistically explore the impact of motivational factors that motivate more usage of online gambling in Pakistan and behavioral factors that investigate the level of implementation of responsible gambling practices on PGSI in Pakistan's online stock exchange gamblers. We collected data through questionnaires and for analysis we used SEM, multiple regression and multinomial logistic regression. Results indicated that motivational factors that significantly impact PGSI are excitement, financial motivation, escape and relaxation and in terms of responsible gambling practices, game design and transparent terms and conditions are the key elements of behavioral factors while self-exclusion and self-help (SE and SH) are not considered as significant factors.

Keywords

Factor analysis, regression, gambling

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Introduction

Gambling is the betting of cash or something of significant worth and “Gambling can be defined as placing something of value at risk in the hope of gaining something of greater value” (Potenza, Fiellin, Heninger, Rounsavila, & Mazure, 2002). According to Jassinove (1996), gambling is “any risky behavior, based on a combination of skill or chance, or both, in which something of value can be won or lost”. “Gambling problems have been increased day by day by the accessibility and availability of opportunity of gambling regardless of the fact that the effect is moderated by means of different factors” (Reith, 2012). Teenagers and adolescents are influenced to gamble for various reasons like excitement, amusement, entertainment, accomplishing and learning and also, extreme cognitive bias, risk and upper stages of anxiety and stress. Individuals who bet without a doubt do as such for an assortment of reasons including incentive and the trust of winning cash. According to Smith, Battersby, Harvey, Pols, Baigent, and Oakes (2011), depression, relation, family conflict and financial strain are the reasons why gambling becomes problematic for people. It is critical to investigate the motives why individuals bet? The two main purposes of this research are, first, **H1:** There is a positive and significant relationship between behavioral factors and problem gambling severity index, second, **H2:** There is a positive and significant relationship between motivational factors and problem gambling severity index.

Motivational factors are the factors which urge us to bet, differentiate what sorts of betting people take part in and decide the sum they will play and wager. Motivation is a mixture of intrinsic and extrinsic factors which start directly and offer power to behavior (Clarke, 2004). Internal (intrinsic) inspiration depends on requirements, perceptions and feelings whereas external (extrinsic) inspiration for the most part originates from the cultural, social and environmental factors (Reeve, 2009). This research takes three motivational factors including excitements, financial motivation, escape and relaxation. Excitements and escape and relaxation are

among internal motivational factors that urge the gamblers to behave whether gambling relieves gamblers' boredom or is a source of relaxation, and financial motivation is included in external motivational factors that peruse whether gambling is a source to win money or to earn money. The PGSI is a curtailed version of the first apparatus called the Canadian Problem Gambling Index, comprising of nine items instead of thirty one. Customers can utilize it as a self-evaluation apparatus, or one can utilize it as a major aspect of his screening procedure. PGSI containing nine items with a four-point Likert scale is utilized to measure the problem gambling severity. The index score and order are 0=never, 1=sometime, 2 =most of the time, 3 = almost always .On the basis of gamblers' responses, the scores are attained in the subsequent arrangements of 0=non-problem group; score of 1 or 2=low problem group; score of 3 to 7=moderate problem group and score of 8 or more=problem group.

Behavioral finance provides us with a clarification why individuals make irrational financial decisions. Behavioral finance is a moderately new field that tries to consolidate behavioral and intellectual mental hypotheses with ordinary financial aspects. This research covers three behavioral factors SE and SH, transparent term and condition, and game design .SE and SH or voluntary exclusion "usually refers to a policy enacted by some governments and/or individual casinos as a way of addressing the issue of problem gambling" and transparent term and condition refers to a method, action or procedure that needs concealed motivation condition and conforms to the exposure prerequisites or straightforwardness in word and aim. Game design "is the art of applying design and aesthetics to create a game for entertainment or for educational, exercise, or experimental purposes". (Blaszczynski & Nower ,2002)

The purpose of this research is to inspect the tendencies of financial decision making and spending behavior in different parts of individuals' finance that are connected with different data handling styles and to analyze the relationship among elements that encourage more use of web betting among online stock exchange gamblers in Pakistan. The target of this study is to enlighten the psychological

mental process that may account for people's propensity to take part in betting exercises, and furthermore to investigate more information about online gambling in Pakistan that how many people are involved in online gambling and to evaluate the motives regarding dependable gambling practices, behavioral components (Blaszczynski, Steel & McConaghy, 1997). This study tries to cover up the gap and observe the irrational financial decision of Pakistan stock exchange gamblers.

In previous studies, financial factors were recognized as one motive, but in our study financial motives are treated as far as to win money or to earn money. This reaction has course of action proposals as there may be a necessity for healthy signage. According to Baker and Kim (1971), "item response theory analysis of the problem gambling severity index" is a worldview for the outline examination and scoring of tests, polls, and comparable instruments measuring capacities, attitudes or different factors. It is a hypothesis of testing in view of the relationship between individual's exhibitions on a test item and the test takers' levels of execution on a general measure of the capacity that item was intended to gauge. A few diverse factual models are utilized to address to both the test item and test taker attributes.

The Theory of Reasoned Action (TRA) which is presented by Terry, Gallois, and Mccamish (1977) shows that before acting specific behavior, individuals should study the behavior consequences. Therefore intention is considered a fundamental component in measuring change in behaviors. as indicated by icekajzen, "Intention changes by the thinking style of individuals together with the individual's impression of the way their general public sees a similar behavior weather it is positive or negatives"(Boyce, Wood & Powdthavee, 2013). Accordingly, individual mentality and social intention are fundamental to the execution of a behavior and thusly, behavioral change.

Yet there is a gap in the relationship of PGSI with motivational factors and behavioral factors and that should be investigated (Mulkeen, Abdou, & Parke, 2016). This research has been both concrete and hypothetically important, because the results of this

research are very practical for stock exchange gamblers. It gives you information regarding the relationship between PGSI and motivational factors, and the relationship between PGSI and behavioral factors.

Review of Relevant Literature

Within this section, we evaluate the relevant literature in the concept of predictors of PGSI including motivational factors, behavioral factors and personality traits. As said above, the two main purposes of this research are, first, to explore the relationship among motivational factors and problem gambling severity index that motivates more usage of online gambling in Pakistan, second, to investigate the relationship of behavioral factors and PGSI that investigates the level of implementation of responsible gambling practices (PGSI) in Pakistan.

According to Mulkeen et al. (2016), this research utilizes PGSI to decide the contrasts in UK web players' answers to their thought processes in betting on the web. It likewise assesses their perspectives identifying with mindful betting practices and behavioral elements. A three-phase examination covering Structural Equation Modeling (SEM), numerous relapse, and multinomial strategic relapse is utilized. The primary research tool is a web-based questionnaire. Our discoveries for the inspiration components climax that the maximum vast elements which players observe are escape and unwinding, monetary inspiration, and status rivalry. As far as a player sees in connection to capable betting practices and behavioral components, both self-rejection and self-improvement, and amusement configuration are distinguished as the main variables. Different variables, for example, proactive capable betting, straightforward terms and conditions, and utilization of player's data are not recognized as critical components by players. This investigation likewise recommends that the monetary rationale to bet ought to be separated into the accompanying sub-intentions: to win cash and to gain pay. Our principle arrangement suggestion incorporates the requirement for a more straightforward framework that spots accentuation on substantial or auditable methods for exhibiting moral duties, and to determine ranges of change.

Numerous hypotheses and research articles throw light on the significance of personality traits and its impact on problem gambling severity index, yet, there is a black box in the relationship of problem gambling and personality traits in Pakistan stock exchange gamblers and there should be more investigations (Callan, Ellard, Shead, & Hodgins, 2008). Our research objective is to explore the differences between individuals and non-problem gambling with high, moderate, low and other severe problem gambling in Pakistan stocks exchange. According to Wittek et al. (2016), gambling problem exists in high level among men, and those people who are living alone, who are unemployed, who are uneducated and their results demonstrate that non-problem gambling exists with high scores of neuroticism and low scores of agreeableness and conscientiousness. While numerous researchers recommend that there is a satisfactory level of consistency inside PGSI scores then a player's inspiration to bet (Rick, 1998; Gujarati, 2003).

Betting, including obsessive betting and issue betting, has got expanded consideration from clinicians and analysts in the course of recent decades, since betting open doors has extended the world over. Betting disarranges influence 0.2–5.3% of grown-ups around the world, despite the fact that estimation and pervasiveness differ as indicated by the screening instruments and strategies utilized, and accessibility and availability of betting open doors. A few particular treatment approaches have been positively assessed, for example, intellectual behavioral and brief treatment models and pharmacological medications. Albeit promising, family treatment and support from Gamblers Anonymous program are less well exactly bolstered. Betting scatters are very comorbid with other emotional well-being and substance utilize clutters, and a further comprehension is required of both the causes and treatment ramifications of this issue. This article audits definition causes and connected elements with substance manhandle, screening and conclusion, and treatment approaches (Habil, 2012).

In another study, Abdi (2014) conducted a survey that is a book audit in which the writer investigated betting inspirations and the

effect of betting on personal satisfaction of the bettors and families, groups and social orders of the speculators. In the audit, the creator tended to social parts like social esteems and cultural assimilation impact on teenagers and youthful grown-up bettors to start and upkeep betting and issue betting. In the survey, the specialist likewise tended to believe that teenagers and youthful grown-ups are persuaded to bet for different reasons like diversion, fervor, entertainment, learning and fulfilling, and furthermore, genuine subjective inclination, chance inclined states of mind, and more elevated amounts of stress and uneasiness. Additional investigation showed that there is a sexual orientation distinction on what arouse speculators to start and keep up betting and issue betting. At last, regarding the effect of betting on the personal satisfaction and general well-being position, it is perceived that betting yields both potential costs (like an extensive variety of challenges on the people, families, and groups either in a roundabout way or straightforwardly, additional contrary outcomes of betting like issue) and advantages (like feeling of connectedness and socialization through optional relaxation time amusement, upgrading the wage of the people, fortifying memory, adapting methodologies and so on) that influence all parts of the group, including well-being and financial measurements.

The point of the present examination was to enhance the shortcomings of the three-dimensional gambling motives questionnaire and to look at the psychometric properties and variable structure of the Gambling Motives Questionnaire-Revised. The gambling motives questionnaire was distributed to an example of 418 speculators (92% men, mean age 19.5 years). Members finished the gambling motives questionnaire and an extra item tapping boredom, and in addition an assortment of measures of betting conduct and betting issues as the foundation measures. Results demonstrated that the Gambling Motives Questionnaire-Revised is better spoken to as a four element structure tapping the following four betting thought process components: Upgrade, adapting, social, and self-delight, $\Delta\chi^2 \Delta(df) = 24.76$ (prob=0.001). Expelling two problematic items from the Gambling Motives Survey and including an extra item tapping

boredom likewise enhanced the fit of the Gambling Motives Questionnaire-Revised. The subscales improvement, social, and adapting were all important indicators of a variety of betting practices (prob=0.05), while upgrade, adapting, and self-satisfaction anticipated the recurrence of betting practices (prob=0.01). Adapting and self-satisfaction anticipated loss of control (prob=0.01), though self-satisfaction anticipated betting issues (prob=0.001). The Gambling Motives Questionnaire-Revised comprising of the four measurements upgrade thought processes, social intentions, adapting thought processes and self-delight intentions, is a dependable and substantial instrument to measuring betting thought processes (Myrseth, 2016).

The following paper tells us about the current flow about SEM (Structural Equation Model) and fit indices. The paper exhibits a choice of fit indices that are broadly viewed as the most useful files accessible to scientists. And laying out each of these records, rules are displayed on their utilization. The paper additionally gives revealing procedures of these files and finishes up with a talk on the eventual fate of fit indices (Hooper, 2008).

Methodology

In this research, we used convenient sampling techniques because it is difficult to collect data from all stock exchange gamblers by two Pakistani agencies (AKD securities and Zafar securities) or other gamblers who are conveniently available by other sources and generalized it on all the population and distributed questionnaires by conducting a survey in companies or businesses and searched for stock exchange gamblers. So our target population is Pakistan's stock exchange gamblers. A similar study has been conducted in UK on internet gambling, but this research wants to check the impact of motivational and behavior factors on PGSI (Mulkeen, Abdou, & Parke, 2016). Since it is a wider research topic we chose this population.

So, we extended our data analysis into broad stages. We started with the collection of relevant data through questionnaires. The questionnaire holds 33 questions containing both open and close

question (no more material is given related to behavioral and motivational components in open questions) and was classified into four areas. First, it was intended to acquire the assent from gamblers and gather data on their behaviors including which type of games they want to play and how frequently they play. The questionnaire based on PGSI containing nine items with four-point Likert scale were utilized to measure the problem gambling severity index score and ordering of 0=never, 1=sometime, 2=most of the times, 3=almost always. On the basis of gamblers' responses, the scores are attained in the subsequent arrangements of 0=non-problem group, score of 1 or 2 =low problem group, score of 3 to 7 =moderate problem group, and score of 8 or more = problem group.

Second area concentrates on gamblers' perception that encourages them to play. These incorporate variables such as financial motivation, escape and relaxation and excitements. Third area builds up player's mentalities towards 16 responsible betting practices on dependable betting practices and behavioral components utilizing a seven-point Likert scale with 1=strongly disagree to 7=strongly agree. These reports identify transparent terms and conditions, SE and SH, and game design in research. The last part of the survey deals with demographic data including age, gender, qualification, experience and designation. It ought to be stressed that PGSI is resolved utilizing set up measures while rest of the questions incorporated into our poll are created particularly for this review. For data analysis, we used SPSS21 software (statistical package for social sciences) and applied a multiple regression to check the impact of motivational factors and behavioral factors on PGSI. Since the variable which is not measured directly while based on some items for this purposes, we need a latent variable to calculate factor analysis. Our dependent variable is a categorical variable, which is why we applied multiple logistic regression and used STATA for structure equation model to check motivational factors and behavioral factors. Cronbach's alpha is calculated to check the reliability of scale items. Moreover, Cronbach's alpha is ascertained for both phases accomplishing 0.716 and 0.967 for motivational and behavioral elements correspondingly.

Too many difficulties have been confronted during collection of data. Some respondents responded quickly and some took a lot of time. In average, 10 respondents responded in ten days and collection of data was completed within six months and some respondents refused to give us their personal information that is why convenient sampling will be used. That is the reason from 412 respondents, 300 gave back the polls. There were 412 questionnaires distributed to Pakistan's stock exchange gamblers out of which 300 were reliable (72.81% response rate), and the final samples for females are 103 (35%), for males are 197 (66%), their average age lies between 28-36 years old, and the frequency of the game is 4 intervals a week. Repliers are arranged regarding the PGSI problem as 21(7%) no problem gambling group, 45(15%) low problem gambling group, 169(57%) moderate problem gambling group, 65(21%) high problem gambling group. we used three stages for data analysis.

First Stage: SEM (Structural Equation Modeling)

It is a multivariate technique that is used for measuring the relationship among observed and latent variables and is used to find out the error in the model and also to measure the complicated and structural model relationship (Hair Jr, Barry, & Kr, 2017). The aim of this model is to measure the quality of instruments and to check the internal consistency, reliability and validity. In PLS-SEM, we used partial least square techniques. These incorporate the composite reliability and construct validity and it means how much an instrument measures the construct. Construct validity is further divided into two types, they are convergent validity and discriminant validity. Convergent validity attempts to measure the correlations between theoretically similar measures and discriminant validity means the construct that should not be the same as other related constructs and we used AVE that tells us about the variance of items which is measured by any latent variable to assess both types of validity. According to Kock (2015), if $AVE > 0.05$, then convergent validity is acceptable and discriminant validity is acceptable when the square root of AVE is greater than the correlation of inter construct.

Reliability refers to “a statistical measure of how reproducible the survey instruments are”. It is determined by ascertaining Cronbach’s alpha that is generated through the scale of different items, and also Composite Reliability (CR) is calculated which tells about the error and validity of the construct.

Second Stage: Multiple Regressions

In multiple regressions, we used PGSI scores as predictor variables and motivational factors and behavioral factors as criterion variables by using results of SEM.

Regression 1:

$$PGSI = \alpha + E\beta_1 + RE\beta_2 + FM\beta_3 + e_i$$

In Regression 1, we used PGSI scores as predictors and results of SEM of motivational factors as criterion variables where α refers to intercept which calculates the mean of the replies when dependent variables are 0 (zero); β delta tells us about the change in predictors when there is one unit

Change in independent variables: PGSI stands for problem gambling severity index and E denotes excitements, RE shows escape and relaxation, and FM represents for financial motivation and e signifies error term in the model.

Regression 2:

$$PGSI = \alpha + TTC\beta_1 + SESH\beta_2 + GD\beta_3 + e_i$$

In Regression 2, we used PGSI scores as predictors and results of SEM of behavioral factors as criterion variables where α refers to intercept which calculates the mean of the replies when dependent variables are 0 (zero); β delta tells us about the change in predictors when one unit changes in independent variables, PGSI stands for problem gambling severity index, TTC denotes transparent term and condition, SESH represents SE and SH, GD shows game design, and e signifies error term in the model.

Third Stage: Multinomial Logistic Regression

We used multinomial logistic regression when the predictor variables are nominal. We took PGSI categories as predictor variables and made a two multinomial logistic regression for both motivational factors and

behavioral factors.

MR1:

$$\text{Log}\left(\frac{p}{1-p}\right) = \alpha + \beta_1 E + \beta_2 RE + \beta_3 FM + \varepsilon_i$$

In Regression 1, we used PGSI categories as predictors and results of SEM of motivational factors as criterion variables where α refers to intercept which calculates the mean of the replies when dependent variables are 0 (zero), β delta tells us about the change in predictors when one unit changes in independent variables, PGSI stands for problem gambling severity index and E denotes excitements, RE shows escape and relaxation, and FM represents financial motivation, and ε signifies error term in the model.

MR2:

$$\text{Log}\left(\frac{p}{1-p}\right) = \alpha + \beta_1 TTC + \beta_2 SESH + \beta_3 GD + \varepsilon_i$$

In this regression, we used PGSI categories as predictors and results of SEM of behavioral factors as criterion variables where α refers to intercept which calculates the mean of the replies when dependent variables are 0 (zero); β delta tells us about the change in predictors when one unit changes in independent variables, PGSI stands for problem gambling severity index, TTC denotes transparent term and condition, SESH represents SE and SH, GD shows game design and ε signifies error term in the model.

Reliability of the instruments. “Reliability quality has been essential for any researcher (Shook, Ketchen, Hult, & Kacmar, 2004), as per the respondents must ensure that they had given genuine data about the investigation. The reliability quality has been attained to gauge the consistency. It is not a statistical test while it has been a reliability quality procedure. The ideal estimation of Cronbach’s alpha is "1" as portrayed by Sekaran (2003). Along these lines, the reliability quality of the instruments was registered from SPSS (Statistical Packages for Social Science) programming. The outcomes of reliability quality test has been given below.

Table 1 explains the ratability and validity and it is found that AVEs are showing convergent validity and the square roots of AVEs

are larger than the inter construct of the model that shows there is discriminant validity and the model is reliable. Table 2 displays the ratability and validity and it is found that AVEs signify convergent validity and the square roots of AVEs are larger than the inter concept of the model that shows the existence of discriminant validity, and the model is reliable because Cronbach's alpha standards are 0.915 and the AVEs and CR values are 0.605 and 0.914.

Table 1. The Dimension Model of the Player's Motivational Factors (SEM1).

Constructs	Indicators	Loading	AVE	α	CR
Excitement	Is exciting for me	-0.88	0.73	0.61	0.84
	relieves boredom for me	-0.82			
Escape and relaxation	To relax	-0.72	0.53	0.6	0.7
	To vent animosity in a socially adequate manner	-0.61			
	To take my brain off different things	-0.84			
Financial motivation	Is a source to win money for me	-0.84	0.71	0.92	0.95
	Is a source to earn income for me	-0.85			
Problem gambling severity index	Convenience	0.72	0.64	0.93	0.94
	Confidentiality and secrecy	0.81			
	Accessibility of higher jackpots	0.85			
	Accessibility of well odds	0.88			
	Quicker games	0.86			
	The detail that you are not playing through real cash or e cash	0.79			
	The detail that you can play a number of games at a time	0.81			
	The detail it's not as thrilling by way of land gambling	0.71			
	The accessibility of improved tools to the relief that you gamble safer	0.67			

Table 2 . The Measurement Model of Responsible Gambling Practices and Behaviors SEM₂

Constructs	Indicators	Loadings	Ave	α	CR				
Transparent terms and conditions	Terms and conditions for rewards are unmistakably conveyed	0.66	0.60	0.91	0.91				
	Terms and situations for plusses are fair	0.73							
	gambling websites are open and true	0.82							
	Terms and conditions are essential to confirm players do not misuse the system	0.73							
	Online arbitrary number producers are used to define the game's result	0.81							
	Terms and conditions for plusses are deceiving	0.88							
SE & SH	gambling software is rational	0.77							
	Self-exclusion is fruitless as players can merely select to play at alternative site	0.83	0.66	0.95	0.90				
	It is casual to get round the self-avoidance plot for any site	0.69							
	Fundamental for all sites to co-work to have a far reaching 'self-avoidance' framework	0.75							
	betting sites must deliver material about gambling problem	0.89							
	gambling sites should deliver material on someplace to get help	0.86							
Play times for version of an amusement ought to be precisely the same as the genuine version	0.88								
Game design	Betting administrators should not configure recreations utilizing addictive qualities	0.79	0.705	0.92	0.92				
	The primary need for client benefit is to keep consumer glad to continue spending	0.62							
	Having point by point data on my gaming and wagering decisions is valuable	0.93							
	Betting administrators should NOT be considered responsible to controllers	0.92							
	Problem gambling severity index	Availability				0.72	0.64	0.93	0.94
		Confidentiality and secrecy				0.81			
Accessibility of advanced jackpots		0.85							
Accessibility of well chances		0.88							
Quicker games		0.86							
The way that you are not playing with genuine money but rather e-money		0.79							
The reality you can play in excess of one amusement at any given moment		0.81							
The reality it's not as energizing as land based betting		0.71							
The accessibility of better instruments to enable you to bet more securely		0.67							
Advancements		0.83							

Results and Discussion

We used three types of analyses of multiple regression, SEM and multinomial logistic regression to identify behavioral factors and motivational factors. The Problem Gambling Severity Index (PGSI) is employed as a dependent variable for analysis, and the purpose for applying three types of analysis is that a phase result is utilized as a contribution for the following phase. For instance, the results of our first phase, to be specific, SEM results are utilized as contributions for the second phase modeling that is multiple regression. This conforms reliability in this method and has the ability to interface fundamental attributes of our unpredictable modeling through one another. The third type of analysis, multinomial logistic regression, tells us about the relations between the gambling groups.

The verified conclusion of this study has yielded the reliable connection between variables. The objective of this research is to inspect the tendencies of financial decision making and spending behavior of individuals' finance and to check the relationship among elements that encourage more use of web betting among online stock exchange gamblers in Pakistan. The target of this study is to enlighten the psychological mental process that may account for people's propensity to take part in betting exercises and furthermore to investigate more information about online gambling in Pakistan that how many people are involved in online gambling and to evaluate the motives regarding dependable gambling practices, behavioral components according to their personality. Data were analyzed through SPSS by using the following techniques: Regression (simple and multiple) factor analysis, SEM, multinomial logistic regression.

Do Motivational Factors Affect PGSI That Motivates More Usage of Online Gambling in Pakistan?

In this hypothesis, three motivational factor estimation, financial motivation and escape and relaxation are taken into account, all these three factors are reliable and the value lies between (0.53-0.73). According to the Shook, Ketchen, Hult, and Kacmar (2004), respondents must make sure that they have provided true information

about the study. The reliability has been referred to measure the consistency. The ideal estimation of Cronbach's alpha is "1" as depicted by Sekaran (2003).

Result of multiple regressions shows that models are significant with 99% (pb0.000) confidence level and their R^2 value is 0.732. Escape and relaxation and financial motivation are positively linked with PGSI representing that the greater the scores are, the more essential escape and relaxation and financial motive are. While excitement has a negative relationship with PGSI which represents the greater the scores are, the less essential excitement is as a motivational factor. Moreover, escape and relaxation and finance are the key motivational factors that urge a player to gamble. Results show all the variables are highly significant.

Factors analysis results indicate that all the questions which are related to each item are acceptable because the correlation matrix in Appendix 1 for motivational factors shows no value is more than 0.5 which indicates the acceptable level of multicollinearity, and thus explains discussing the factors independently (Alm, 1998; Gujarati, 2003).

Multinomial logistic regression results indicate moderate problem gambling is more liable and gambling classification is more disposed to be inspired by financial motivation as compared to other categories. Financial motivation is considered as the core motive for Pakistan's stock exchange gamblers and escape and relaxation are considered as less motivational as compared to others categories.

What Is the Effect of Behavioral Factors on Problem Gambling Severity Index?

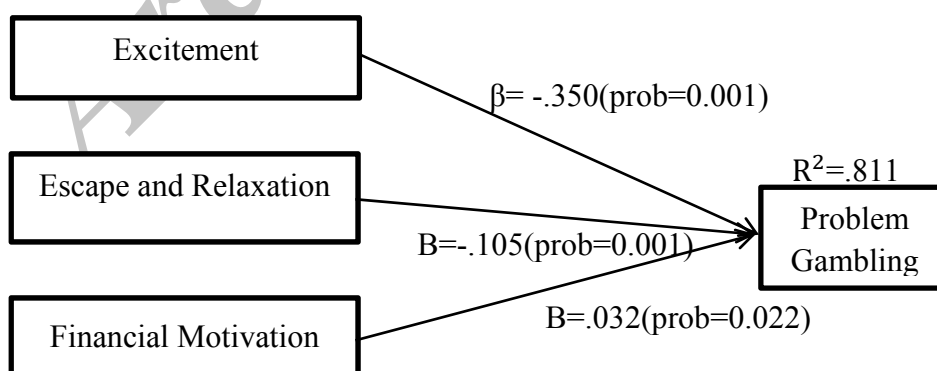
The model is reliable because Cronbach's alpha estimation is 0.915 and the AVEs and CR values are 0.605 and 0.914 respectively. In this hypothesis, three behavioral factors, transparent term and condition, SE and SH, and game design are employed. Transparent term and condition, SE and SH, and game design are positively linked with PGSI which represents the greater the scores are, the more essential transparent term and condition, SE and SH, and game design are. Moreover, transparent term and condition, SE and SH are the main behavioral elements in our

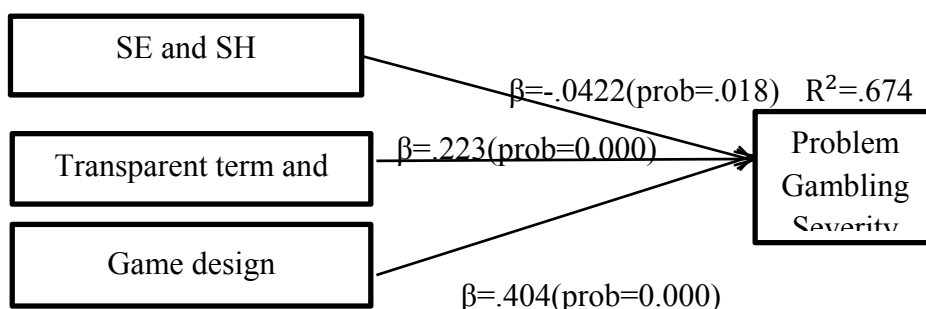
study that urge a player to gamble. Our outcomes support the past reviews that game design is a significant factor which affects the player's behavior (Griffiths, 2009; Mulkeen et al., 2016).

Factors analysis results indicate that all the questions which are related to each item are acceptable because the correlation matrix in Appendix 1 for behavioral factors shows no value is more than 0.5 which indicates low level of multicollinearity and, thus explains discussing the elements independently (Alm, 1998; Gujarati, 2003).

Multinomial logistic regression results indicate that game design is considered as the most important factor that creates the difference between problem gambling and non-problem gambling. Results indicate that moderate problem gambling is more liable and gambling classification is more disposed to be inspired by game design that is the most important factor as compared to other categories. Game design is considered the core motive for Pakistan's stock exchange gamblers, and SE and SH are considered as less motivational as compared to other categories. This research recommended that moderate problem gambling is the strongest category. Transparent term and condition are insignificant in non-problem gambling and low problem gambling, and SE and SH are insignificant in moderate problem gambling.

First stage: Structural equation modeling. In our model for motivational factors and behavioral factors, we categorized SEM into two areas, the first area measures the validation and model estimation and the second area examines the causal connection among the constructs.





Note: Independent variable is PGSI individual score; VIF refers to variance inflation factor.

Figure 1. Structural equation modeling

Second stage: Multiple regression model. Multiple regression is run by using elements which are recognized by SEM and by using single scores of PGSI.

Player motivational factors. Table 3 shows that models are significant for player motivational factors with 99% (prob 0.000) confidence level and their R^2 value is 0.732 (adjusted $R^2 = 0.531$).

Table 3. Regression Model₁ - (N=300)

Factors	β	SE	t	p	VIF	Model
Constant	0.54	0.97	5.63	b0.00	–	–
Excitement	-0.08	0.02	-3.96	b0.00	1.63	–
Escape and relaxation	0.18	0.03	5.68	b0.00	2.02	–
Financial	0.25	0.02	12.89	b0.00	1.31	–
Model parameters						
F value						113.97
Df						3
R^2						0.73
R^2 adjusted						0.53
P-value						b0.00

Player behavioral factors. Table 6 shows that models are significant with 99% (prob 0.000) confidence level and their R^2 value is 0.821 (adjusted $R^2 = 0.671$).

Table 4. Regression Model2: Responsible Gambling Practices and Behavioral Factors and PGSI Individual Scores (N=300)

Factors	β	SE	t	P	VIF	Model
Constant	-0.53	0.11	-4.62	b0.00	–	–
Transparent terms and conditions	0.22	0.04	5.061	b0.00	3.30	–
SE & SH	0.04	0.03	-1.31	0.18	2.54	–
Game design	0.40	0.39	10.50	b0.00	3.06	–
Model parameters						
F value						203.31
df						3
R ²						0.82
R ² adjusted						0.67
P-value						b0.00

Third stage: Multinomial regression models. In stage three we regressed PGSI categories on independent variable that shows the relationship of PGSI categories with each independent variable which is impossible to calculate through SEM and multiple regressions of motivational and behavioral factors.

Player motivational factors. We apply multinomial logistic regression among PGSI categories (as a reference group) and motivational factors are shown in Table 5 and the model is significant with 99% (prob 0.000) confidence level and their R² value is 0.813.

Table 5. Player Motivational Factors with PGSI Categories

PGSI group	Factors	β	SE	df	p
No problem	Intercept	26.08	5.00	1	0.00
	Excitements	0.44	0.71	1	0.05
	Escape and Relaxation	-0.15	1.05	1	0.03
	Financial Motivation	-8.53	1.95	1	b0.00
Low problem	Intercept	35.21	5.45	1	0.00
	Excitement	0.72	0.69	1	0.02
	Escape and Relaxation	-1.63	1.08	1	0.013
	Financial Motivation	-10.22	2.06	1	b0.00
Moderate problem	Intercept	9.03	1.20	1	0.00
	Excitement	0.40	0.12	1	0.00
	Escape and Relaxation	-1.21	0.22	1	0.00
	Financial Motivation	-0.85	0.16	1	b0.00

PGSI group	Factors	β	SE	df	p
Model		Fitting criteria (-2 log likelihood)		Chi- square	
Intercept only		508.30			
Final		237.96	368.56	0.00	b0.00
Pseudo R ²		0.81			

Note: Independent variable is PGSI individual score; VIF refers to variance inflation factor.

Behavioral factors. We apply multinomial logistic regression among PGSI categories (as a reference group) and behavioral factors are shown in Table 6 and the model is significant with 99% (prob 0.000) confidence level and their R² value is 0.972.

Table 6. Responsible Gambling Practices and Behaviors with PGSI Categories

	Factors	β	SE	df	p
No problem	Intercept	175.95	39.36	1	0.00
	self-exclusion and self help	-4.026	4.62	1	0.78
	Transparent term and condition	-0.932	3.47	1	0.039
	Game design	-39.35	9.42	1	b0.00
Low problem	Intercept	180.731	33.68	1	0.00
	self-exclusion and self help	-13.044	5.05	1	0.85
	Transparent term and condition	-0.6	3.28	1	0.01
	Game design	-31.229	6.96	1	b0.00
Moderate problem	Intercept	133.309	31.28	1	0.00
	self-exclusion and self help	-5.83	2.17	1	0.05
	Transparent term and condition	0.756	3.12	1	0.00
	Game design	-22.622	6.18	1	b0.00
Model parameters		Fitting criteria (-2 log likelihood)		Chi- square	
Intercept only		608.46			
Final		50.77	557.69	9	0.00
Pseudo R ²		0.97			

The reference category is high problem at point 8 and above.

In light of our three phase investigation, motivational factors and

behavioral variables, and personality traits were studied. we propose an arrangement suggestion to the internet betting area as follows: they should develop more successful frameworks for SE and SH (e.g., increase their performers' learning of how to get and use nutrition gadgets, institutionalize the route in which responsible gambling data are exhibited on betting sites, decrease players' doubts of utilizing the encouraging instruments, present necessary setting for successful time and money related cutoff points, and build up a compelling broad self-avoidance framework); and be awake, know about addictive parts of diversion outline. Extra research could be coordinated to decide if the betting business might have the capacity to add to advantages of some practices right now being created in different segments such as moral fund.

Several studies have been accomplished on PGSI, yet at the same time they have been inactive to test the comprehensive impact of motivational, behavioral factors on problem gambling severity index. Hence, in this research, we would tentatively test this question. The results of the study would help us to have more insights and observations particularly about the impact of motivational and behavioral factors on PGSI. This study emphasizes on the behavioral and motivational factors that efficiently affect the PGSI.

Conclusion

The purpose of gamblers is to earn money but this strategy suggestion relates particularly to problem gamblers who in our review will probably bet to win money and the market is socially highlighting that betting is an excitement and not an approach to gain money. Outcomes disclose that all motivational factors have significant impact on PGSI and future researches are expected to shed light on the connection among factors and to recognize PGSI categories through application of SEM, multiple regression, and multi nominal logistic regression. We conclude that financial motivation is the maximum significant element in moderate problem gambling category while escape and relaxation are in low problem category. In terms of responsible gambling practices, game design and transparent terms

and conditions are the key elements of behavioral factors and SE and SH are not considered as significant factors and as well as the relationship between problem gambling severities. This research also recommends that moderate problem gambling is the strongest category.

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Appendix 1

Factor Analysis - Principle Component Analysis (PCA)

Table 7 indicates the PCA1 for motivational factors and check the level of agreement of respondents with their records of motivational factors by using Oblimin rotation; “it’s exciting; to relieve boredom; to win money; to socialize, to take my mind off other things; to earn income; to compete with others; to vent aggression; it's fun; to be mentally challenged; and to do something I enjoy for a change”. KMO confirmed the sampling capability for analysis (KMO = 0.86) which is worthy (Field, 2009) and the KMO values of each item is $0.613 > 0.5$ which is acceptable and the Bartlett’s test of Chi square approximation shows the connection among items which is appropriately high for PCA ($\chi^2=1223.311$, $df =21$ and $prob =0.000$), and Table 7 shows rotate component matrix for motivational factors, the loadings show the connection among variables and tell which variables contribute more.

Table 7. Rotated Component Matrix of Motivations to Gamble (PCA1)

Variable\factor	Factor ₁	Factor ₂	Factor ₃
To relieve boredom	0.813	–	–
It's exciting	0.785	–	–
To relax	–	0.82	–
To take my mind off other things	–	0.788	–
To vent aggression in a socially acceptable way	–	0.74	–
To win money	–	–	0.954
To earn income	–	–	0.778

“Note: Factor₁: Excitement - factors that allow the individual to be delighted and invigorated; Factor₂: Escape and Relaxation - factors that provide an outlet enabling the individual to forget about current problems and challenges; Factor₃: Financial Motivation- to earn income and win money; Each of these three extracted factors relating to ‘gambling motivation’ are subject to a Cronbach’s Alpha test as follows: Factor₁ with 2 items and a Cronbach's Alpha of 0.614; Factor₂ with 3 items and a Cronbach's Alpha of 0.626; Factor₃ with 2 items and a Cronbach's Alpha of 0.929; 0.719 with a total of 12 items”

Results show that all the questions which narrate to each item are acceptable because the correlation matrix in Appendix 1 for motivational factors shows no value is more than 0.5 which indicates acceptable level of multicollinearity and, thus explains discussing the factors s independently (Alm, 1998; Gujarati, 2003).

Table 8. Rotated Component Matrix of Responsible Gambling Practices and Behaviors (PCA2)

Variable\factor	Factor ₁	Factor ₂	Factor ₃
Terms and conditions for bonuses are fair.	0.949		
Terms and conditions are necessary to ensure some players do not abuse the bonus system.	0.949		
Terms and conditions for bonuses are deceptive.	0.885		
Online random number generators are used to determine the outcome of games.	0.845		
Terms and conditions for bonuses are clearly communicated.	0.833		
Internet gambling sites are open and honest regarding the terms of conditions of gambling on their site.	0.814		
Internet gambling software is fair.	0.483		
It is easy to get around the self-exclusion system for any one site (self-exclusion being where a player requests to be denied access to a site for a specified period of time).		0.868	
Self-exclusion is ineffective since players can simply choose to play at another site.		0.858	
Internet gambling websites should provide information regarding how to spot problem gambling.		0.856	
Internet gambling websites should provide information regarding where to get help.		0.845	
For self-exclusion to work all sites need to co-operate to have an industry-wide 'self-exclusion' system.		0.798	
Having detailed information on my gaming and betting choices is useful.		-	0.904
Gambling operators should not design games using characteristics they know to be addictive.			0.802
The main priority for customer service staff is to keep consumers happy so they keep spending money.			0.595
In relation to player protection and social responsibility, gambling operators should			0.513

Variable\factor	Factor ₁	Factor ₂	Factor ₃
NOT be held accountable to regulators provided they are operating within the limits of the law.			
Play-for-free versions of a game should be exactly the same as the real version.			0.48

“Note: Extraction method: principal component analysis of 6 factors. Rotated method: Direct Oblimin. Converged in 23 iterations Factor₁: Trans-parent terms and conditions; Factor₂: SE & SH; Factor₃: Game design. Each of these three extracted factors relating to ‘responsible gambling practices are subject to a Cronbach's Alpha test as follows: Factor₁ with 7 items and a Cronbach's Alpha of 0.915; Factor₂ with 5 items and a Cronbach's Alpha of 0.955; Factor₃ with 5 items and a Cronbach's Alpha of 0.922;; and overall Cronbach's Alpha is 0.952 with a total of 17 items”.

Table 8 specifies the PCA2 for behavioral factors and check the level of agreement of respondents with their records of behavioral factors by using Oblimin rotation. KMO confirmed the sampling capability for analysis (KMO = 0.86) which is worthy (Field, 2009), and the KMO values of each item are $0.633 > 0.5$ which is acceptable and the Bartlett's test of Chi square approximation shows the connection among items which is appropriately high for PCA. ($\chi^2=9327.021$, $df=136$ and $prob=0.000$, and Table 8 shows rotate component matrix for behavioral factors, the loadings show the connection among variables and tell which variables contributes more.

Results show that all the questions which narrate to each item are acceptable because the correlation matrix in Appendix 1 for behavioral factors shows no value is more than 0.5 which indicates low level of multicollinearity, and thus explains discussing the factors independently (Alm, 1998; Gujarati, 2003).