Development and Validation of Sports Betting Addictive Behaviour Scale

By Jacob Igo & Benjamin. O. Ehigie

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A total of 366 (Male = 325; Female = 39) sports bettors were selected from three major towns in Benue state including Makurdi, Gboko and Otukpo. Using literature review and focused group discussion, 59 items were generated. Using 5 lecturers and 2 Postgraduate students, content and face validity were established respectively. The already standardized gambling addictive behaviour for adolescents scale was used to establish convergent validity.

Results of the content and face validity at 70% level of item acceptance resulted to 46 items. All the 46 items that passed the content and face validity were further returned after item-total correlation using r = .30 criterion. Convergent validity of r = .965 was obtained by correlating Sports Betting Addictive Behaviour Scale and Gambling Addictive Behaviour for Adolescents Scale.

Keywords: sports, betting, addictive behaviour, reliability, validity.

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DEVELOPMENTANDVALIDATIONOFSPORTSBETTINGADDICTIVEBEHAVIOURSCALE

Strictly as per the compliance and regulations of:

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A total of 366 (Male = 325; Female = 39) sports bettors were selected from three major towns in Benue state including Makurdi, Gboko and Otukpo. Using literature review and focused group discussion, 59 items were generated. Using 5 lecturers and 2 Postgraduate students, content and face validity were established respectively. The already standardized gambling addictive behaviour for adolescents scale was used to establish convergent validity.

Results of the content and face validity at 70% level of item acceptance resulted to 46 items. All the 46 items that passed the content and face validity were further returned after item-total correlation using r = .30 criterion. Convergent validity of r = .965 was obtained by correlating Sports Betting Addictive Behaviour Scale and Gambling Addictive Behaviour for Adolescents Scale. The reliability coefficients obtained were; Cronbach alpha of internal consistency (α = .98) and full-scale reliability of r = .94. Factor analysis of Sports Betting Addictive Behaviour Scale with principal component and varimax rotation yielded four (4) factors when Eigen value above 1 was extracted. The factors which accounted for larger proportions of the total variance were given factor names as; Betting-relationship Conflict (α = 0.98), Betting Distress (α = 0.93), Betting-economic Interference (α = 0.83) and Sport Betting Anticipatory (α = 0.83).

The strength of the scale in assessing sports betting addiction was emphasized and it was recommended that the use of Sports Betting Addictive Behaviour Scale (SpBABS) should be done to identify those that are addictive to sports betting so that intervention can be provided to bettors. Also, clinicians and other non-governmental organizations should develop training/rehabilitation modules on the four (4) dimensions; to train individuals on ways of eliminating betting behaviours based on the categories of the behaviour identified.

Keywords: sports, betting, addictive behaviour, reliability, validity.

I. Introduction

Sports betting simply means placing a financial wager on the outcome of a sporting match, as well as on events that occur within the larger match or fixture (Palmer, 2015). Two important changes occurred in the mid-1990s. First, some bookmakers moved beyond horse and greyhound racing and started taking bets on the outcome of team sports. Secondly, in other part of the world, some bookmakers began taking bets over the telephone and then the Internet, and in 2008, telephone and Internet sports betting became possible in almost all part of the world (Palmer, 2015).

Research by Gainsbury (2013) also opined that sports betting appears to be the fastest growing form of gambling in the world, with preliminary findings indicating that gambling via electronic gaming machines fell from 39 to 19 per cent between 1999 and 2011, while participation in sports betting increased from six to 13 per cent over the same. In developing nations like Nigeria, many people suffer from gambling activities most of whom have become addicted even without being aware of it. An online report simply puts it that, many people suffering from a gambling addiction feel alone and perhaps they think that no one could possibly understand what it's like to be them but they are oblivion of the fact that, they are not alone and others know exactly what they are going through. This feeling is so common that the mental health field has a name for it – gambling disorder.

According to Eboh, (2015), public perceptions of sports betting are often misleading. On the one hand, people are usually aware that sport betting poses serious risks to those who are predisposed to stake bets excessively. However, on the other hand, it is also acknowledged that sports betting can have positive consequences for communities (e.g. via providing a source of revenue for sporting clubs or humanitarian causes) and can be an enjoyable pastime for individuals (Vong, 2009).

Gambling generally and problems associated with it have been linked with risky personality, risky decision-making, and pro-risk attitudes. Such personality traits as sensation-seeking, impulsivity, and low self-control have been associated with risky behavior in various domains (Zuckerman, 2007). Sensation-seeking describes a preference for varied, stimulating experiences and a willingness to engage in risk-taking in order to obtain such experiences (Zuckerman as cited in Eboh, 2015). While sports betting normally called sports gambling has, at times, been considered a socially deviant or immoral behaviour in some cultures and throughout history, the American Psychiatric Association only first defined it to be a medically diagnosable health problem in 1980 in the 3rd

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version of the Diagnostic and Statistical Manual (3rd ed.; DSM–III; American Psychiatric Association, 1980; Korn & Shaffer, 1999). When gambling behaviour results in behavioural, emotional, relationship, or financial problems, it may develop into a diagnosable condition known as problem or pathological gambling (Eboh, 2015).

Sport betting (as was classified in general gambling) has been associated with various forms of risky behavior, and shares correlates associated with general risky behavior (Stinchfield, Govoni, & Frisch, 2007). Few researchers such as Oyebisi, Alao and Popoola (2012) and Gupta and Derevensky (2000) have all carried out empirical research on the concept of gambling where sports betting has been identified as an aspects of gambling with no distinct instrument to measure it even as some of the items seems to measure sports betting though included in general gambling without items covering all the sports betting addictive behaviour. Furthermore, finding of some of these works lack generalisation to the population other than which sampling was selected. For instance, the study by Park and Jung (2012) who worked on development of a gambling addictive behaviour was limited to adolescents in Korea.

Furthermore, in as much as sports betting addiction has been seen to pose a serious societal threat and has become an issue of great concern to clinicians, organizations, health workers and even scholars from different works of life, the issues of contextualizing the concept has been difficult as sports-related problem gambling is not prevalence in surveys because problem gambling is assessed on the totality of gambling experiences rather than a single activity (Griffiths, 2017).

Looking at the society today, gambling has been shifting its base from other forms of gambling to sports gambling since most of those archaic methods are becoming obsolete. Careful literature search has shown that there is no distinct instrument to measure the direction of gambling. It therefore become pertinent to develop a specific scale that will measure sports betting addictive behaviour as none has existed based on research findings and even those available are found in general gambling as indicated by certain items which does not capture all the addictive behaviours of sports bettors. This study therefore seeks to develop and validate sports betting addictive behaviour scale.

a) *Hypotheses*

i. Items generated will concurrently satisfy conditions for content and face validity.
ii. Each Item in the scale will significantly correlate positively with total score on the scale.
iii. Exploratory factor analysis will significantly produce factors for the scale developed.

iv. Items in the developed scale with significantly be internally consistent among themselves.
v. Sports Betting Addictive Behaviour Scale (SpABS) will positively correlate significantly Gambling Addictive Behaviour for Adolescent Scale (GABSA).

II. METHODOLOGY

a) *Design*

The study adopted a cross-sectional research design to develop and validate Sports Betting Addictive Behaviour Scale (SpBABS). The research design offered the researcher the opportunity to gather data at one point in time from different categories of people in terms of age, gender, etc. as against longitudinal research that requires long period of data gathering.

b) *Settings*

The study was conducted in Makurdi, Gboko and Oturkpo of Benue state. These three towns are the major towns in Benue state (National Population Census, 2006) which share borders with Enugu state in the South, Kogi state in the West, Cross-River in the East state and Nasarawa and Taraba states in the North in terms of land mass. Makurdi precisely is the capital of Benue state of Nigeria and it is located in the heart of the state, inhabited by different ethnic groups; some of whom are not indigenes of the state. Gboko and Otukpo are located in the hearts of Tiv and Idoma nation which are the two major ethnic groups in Benue state.

Specifically, the study was conducted in different settings particularly in bookmaking houses (popularly known as bet shops) like BetNaija, Naira Bet, Merry Bet, 1960 Bet, among others scattered all over the towns in Makurdi, Gboko and Otukpo and of course all over Nigeria and beyond. These three major towns in Benue State have several outlets that have sports betting shops with thousands of bettors always seen in and around these outlets who are either staking bets or discussing betting activities.

c) *Population*

The general population for this study consists of all those who patronize sports betting outlets particularly those who have been found to be addictive to sports betting. As earlier mentioned, American Psychiatric association (2013) put certain conditions of addiction. They are indicated by five or more of the following: (1) is preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble) (2) needs to gamble with increasing amounts of money in order to achieve the desired excitement, (3) has repeated unsuccessful efforts to control, cut back, or stop gambling, (4) is restless or irritable when attempting to cut down or stop gambling, (5) gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings

of helplessness, guilt, anxiety, depression), (6) after losing money gambling, often returns another day to get even ("chasing" one's losses), (7) lies to family members, therapist, or others to conceal the extent of involvement with gambling, (8) has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling, (9) has jeopardized or lost significant relationship, job, or educational or career opportunity because of gambling and (10) relies on others to provide money to relive a desperate financial situation caused by gambling. This was achieved by first of all trying to observe the participants and a brief interview was also conducted on them before administering the scale on them to see if they will meet up with at least one of the aforementioned criteria.

d) Participants

The study considered all those who patronize bet houses all over the three locations mentioned above. Young adolescents and adults who are into betting who were found in these bookmaking houses or otherwise called betting shops were sampled and a brief interview was conducted on the participants before the questionnaire was given to them to know if they are addicted to sports betting.

A total of 500 copies of questionnaire were administered to purposively selected 500 sports betters across different locations in bet shops in Makurdi, Gboko and Otukpo in Benue state. However, only 366 were retrieved. Frequency distribution revealed that 325 (88.8%) were males, while the other 39 (10.7%) were females. Their ages ranged from 17 to 63 years old with average age of 33.07 (SD = 12.50). In addition, 237 (64.8%) of the respondents were single, 117 (32.0%) were married and 12 (3.3%) were divorced/separated. Also, among the sampled participants, 270 (73.8%) were Christians, 69 (18.9%) were from Islamic religion while 27 (7.4%) were from other religious affiliations. Furthermore, 36 (9.8%) of the participants had primary education, 50 (13.7%) had secondary education, 262 (71.6%) had tertiary education while 18 (4.9%) did not indicate their highest level of education.

e) Instruments

A well-structured questionnaire was designed to gather data from selected respondents. The instrument consisted of two (2) sections; A and B.

Section A: This section consisted of socio-demographic information of respondents. It consisted of five (5) socio-demographic information of respondents. The following variables were contained in section A; Gender, age, marital status, religion and highest educational qualification.

Section B: This section consists of Gambling Addictive Behavior Scale for Adolescents (GABSA). This is a 32-item scale developed by Park and Jung, (2012) to measure gambling addictive behaviour among students.

It has the following sub-scales; loss of control (9 – items), life dysfunction from problem gambling (4 – items), gambling experience (7 – items) and social dysfunction from problem gambling (5 – items). The scale was found to have adequate internal consistency as a whole (α = .94) and subscales (loss of control – α = .90, life dysfunction from problem gambling – α = .89, gambling experience – α = .88 and social dysfunction from problem gambling - α = .90). Response format for the scale ranged from SA – Strongly Agree (4), A - Agree (3), D - Disagree (2) and SD - Strongly Disagree (1). The Gambling Addictive Behavior Scale for Adolescents (GABSA) was used to carry out the convergent validity for the Sports Betting Addictive Behaviour Scale (SpABS). A cross validation was conducted and Gambling Addictive Behavior Scale for Adolescents was found to have adequate internal consistency as follows; loss of control – α = .93, life dysfunction from problem gambling – α = .84, gambling experience – α = .94 and social dysfunction from problem gambling - α = .94. As a whole, the internal consistency was found to be α = .96.

f) Procedure

The researcher first and foremost recruited and trained 2 research assistants for the purpose of the study. The researcher then went to the selected towns with the research assistants and located the sports betting shops in the selected towns, that is Makurdi, Gboko and Otukpo. Having met with the managers of sports betting shops or those in charge of the betting shops as the case may be, the researcher explained to them the purpose of the study. After successfully convincing the shop managers or those in charge of the betting shops, the researcher was allowed with the aid of the research assistants to administer the questionnaire on sports bettors found in each shop. In some shops, the researcher and the assistants could not locate many participants and as such, the research and his assistants left some copies of the questionnaires to the shop attendants to give to the participants on their behalf after being briefed on how to administer the questionnaire to those who will patronize the shops. The idea was to make the shop attendants have an idea of those who are expected to participate in the research which is those who are sports bettors who are addictive to sports betting. In totality, 500 copies of questionnaire were taken to the field and were divided into three which were taken to the three towns; Makurdi, Gboko and Otukpo respectively. After a careful administration of the 500 questionnaires and some given to the shop attendants, only 366 were retrieved for data analysis.

The study was conducted in various stages;

i. Item Generation

The first step in developing the new measure of Sports Betting Addictive Behaviour Scale was to create

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an initial pool of items designed to measure the construct. The aim of this stage was to generate items that adequately assess Sports Betting Addictive Behaviour. This was done through a careful literature search as well as a focused group discussion which was conducted with those who were seen to be addicted to sports betting. To ensure that the items are conceptually consistent with the construct, an assessment of content validity was conducted using a panel of experts which consisted of lecturers of the Department of Psychology, University of Ibadan for content validity to judge the appropriateness of each item. A preliminary set of 59 items was generated for Sports Betting Addictive Behaviour Scale (See Appendix I).

ii. *Content and face validity*

The generated items were subjected to two (2) different forms of validity, to determine the items that actually measure Sports Betting Addictive Behaviour. For face validity, the items were generated given to the supervisor who is an expert in the field. Thereafter, a total of five (5) professionals, consisting of selected lecturers of the Department of Psychology, University of Ibadan and two (2) post-graduate students of the same department were consulted for expert validity and face validity respectively on the generated items. The participants were requested to examine each of the items contained in the original scale and indicate whether or not the items measured Sports Betting Addictive Behaviour. Their responses were given as not related (0), somewhat related (1) and highly related (2). Items that received up to 70% of being related were retained in the scale (Appendix II).

iii. *Questionnaire Administration*

At this stage, the scaling method was determined. Respondents were asked to respond to the items using the following format comprising 1 – Not applicable to me, 2 – Mildly applicable to me, 3 – Applicable to me, 4 – Highly applicable to me.

Items remaining, after the content and face validity assessment, were administered to a sample of sports bettors. In addition, other data that were used to compute the convergent validity of the scale at this stage was also determined by putting them in the questionnaire and administering to the participants to achieve convergent validity which include Gambling Addictive Behaviour Scale for Adolescents. Sports Betting Addictive Behaviour Scale was administered to a total of 500 sports bettors in the three major towns in Benue state which include Makurdi, Gboko and Otukpo but only 366 were returned and properly filled. The instrument which consists of Sports Betting Addictive Behaviour Scale (SpBABS) was administered in a paper-and-pencil format to all the participants. The responses were then coded and entered into Statistical Package for Social Science by the researcher.

iv. *Initial Item Reduction*

When the scale was administered initially, item-total correlations were computed and those items that did not correlate at .30 or above with total score were removed. In the case of Sports Betting Addictive Behaviour Scale, all the items at this stage scaled through as they all had a correlation value above .30.

v. *Exploratory Factor Analysis*

The exploratory factor analyses were conducted for the purpose of determining if underlying dimensions were evident from the data. A total of six factors emerged but only four of them loaded up to 1.00 Eigen value and only the four were returned and named as Betting-relationship Conflict, Betting Distress, Betting-economic Interference and Sport Betting Anticipatory

vi. *Convergent validity*

To further assess the convergent validity of the new measure, the relations between the new measure and data collected on other constructs in the second stage were examined. Specifically, the data were examined to determine how much Sports Betting Addictive Behaviour Scale (SpBABS) correlate with another scale (Gambling addictive behaviour scale for adolescents) that assess similar constructs (convergent validity) as reported in chapter four of this study.

vii. *Data Analysis*

Gathered data were analyzed using descriptive and inferential statistics. Descriptive statistics such as simple frequencies and percentages were utilized to describe the demographic features of respondents as well as the content and face validity of the instrument. The inferential statistics made use of was the Pearson r correlation. Also, reliability analysis was done using split-half reliability, while internal consistency was calculated using Cronbach Alpha (α).

III. RESULTS

Hypothesis 1: Items generated will concurrently satisfy conditions for content and face validity.

Phase 1: Item generation, content and face validity

This section presents the initial items as they were used for content validity. These items are presented in the tabular form including experts and students rating. Any item with less than 70% rating is removed subsequently. Table 4.1 presents the initial item pool as well as the expert and student ratings of the items;

Table 4.1: Content and face validity of generated items

S/No	Items	Expert Rating (%)	Students Rating (%)
1	SpBABS1	100.00	94.23
2	SpBABS2	100.00	99.10
3	SpBABS3	77.10	78.90
4	SpBABS4	71.40	80.21
5	SpBABS5	57.10**	42.10**
6	SpBABS6	85.70	90.66
7	SpBABS7	71.40	80.12
8	SpBABS8	71.40	72.18
9	SpBABS9	57.10**	50.11**
10	SpBABS10	71.40	80.12
11	SpBABS11	100.00	99.10
12	SpBABS12	57.10**	56.12**
13	SpBABS13	57.10**	54.12**
14	SpBABS14	82.10	88.12
15	SpBABS15	57.10**	45.12**
16	SpBABS16	85.70	90.12
17	SpBABS17	85.70	76.12
18	SpBABS18	85.70	85.70
19	SpBABS19	100.00	100.00
20	SpBABS20	71.40	71.40
21	SpBABS21	100.00	100.00
22	SpBABS22	85.70	85.70
23	SpBABS23	100.00	100.00
24	SpBABS24	100.00	100.00
25	SpBABS25	100.00	100.00
26	SpBABS26	57.10**	50.12**
27	SpBABS27	71.40	71.40
28	SpBABS28	85.70	85.70
29	SpBABS29	71.40	71.40
30	SpBABS30	71.40	71.40
31	SpBABS31	85.70	85.70
32	SpBABS32	57.10**	47.22**
33	SpBABS33	57.10**	60.12**
34	SpBABS34	83.40	90.12
35	SpBABS35	76.90	88.14
36	SpBABS36	42.90**	50.22**
37	SpBABS37	57.10**	61.13**
38	SpBABS38	84.30	88.30
39	SpBABS39	75.40	76.40
40	SpBABS40	85.70	88.70
41	SpBABS41	77.90	87.90
42	SpBABS42	71.40	81.40
43	SpBABS43	84.40	94.40
44	SpBABS44	71.40	81.40
45	SpBABS45	42.90**	52.90**
46	SpBABS46	85.70	85.70
47	SpBABS47	87.50	77.50
48	SpBABS48	88.30	98.30
49	SpBABS49	42.90**	52.90**
50	SpBABS50	85.70	85.70
51	SpBABS51	57.10**	67.10**
52	SpBABS52	71.40	81.40
53	SpBABS53	85.70	85.70
54	SpBABS54	85.70	85.70
55	SpBABS55	71.40	81.40
56	SpBABS56	85.70	75.70
57	SpBABS57	71.40	71.40
58	SpBABS58	85.70	95.70
59	SpBABS59	84.40	94.40

*** Item deleted*

Table 4.1 presents a total of 59-items initially generated item pool for content and face validity and all the items were approved for further testing. When the content validity was conducted, 13-items were deleted (SpBABS5, SpBABS9, SpBABS12, SpBABS13, SpBABS15, SpBABS26, SpBABS32, SpBABS33, SpBABS36, SpBABS37, SpBABS45, SpBABS49 and SpBABS51). Sports Betting Addictive Behaviour Scale (SpBABS) had 46-items remaining. The forty-six (46) items that emerged were later administered to 500 sports bettors in three different towns namely Makurdi, Gboko and Otukpo but only 366 were returned and properly filled.

Hypothesis 2: Each item in the scale will significantly correlate positively with total score on the scale.

Item Analysis

The resultant item pool consisting of 46 - items administered to 500 sports bettors which 366 were returned and subjected to item analysis procedure to remove items that do not correlate with the total score and subsequently improve on the construct validity of the instrument. Items were selected if they met the benchmark of .30. Table 4.2, present the item-total correlation result;

Table 4.2: Item-total correlation of Sports Betting Addictive Behaviour Scale (SpBABS)

S/No	Items	Item-total correlation	α if item deleted
1	SpBABS1	.636	.976
2	SpBABS2	.601	.976
3	SpBABS3	.472	.977
4	SpBABS4	.425	.977
6	SpBABS6	.459	.977
7	SpBABS7	.521	.977
8	SpBABS8	.458	.977
10	SpBABS10	.342	.977
11	SpBABS11	.622	.976
14	SpBABS14	.485	.977
16	SpBABS16	.521	.977
17	SpBABS17	.798	.976
18	SpBABS18	.521	.977
19	SpBABS19	.709	.976
20	SpBABS20	.755	.976
21	SpBABS21	.829	.976
22	SpBABS22	.784	.976
23	SpBABS23	.741	.976
24	SpBABS24	.794	.976
25	SpBABS25	.839	.976
27	SpBABS27	.828	.976
28	SpBABS28	.788	.976
29	SpBABS29	.760	.976
30	SpBABS30	.749	.976
31	SpBABS31	.638	.976
34	SpBABS34	.770	.976
35	SpBABS35	.673	.976
38	SpBABS38	.667	.976
39	SpBABS39	.791	.976
40	SpBABS40	.795	.976
41	SpBABS41	.692	.976
42	SpBABS42	.680	.976
43	SpBABS43	.723	.976
44	SpBABS44	.759	.976
46	SpBABS46	.773	.976
47	SpBABS47	.814	.976
48	SpBABS48	.783	.976
50	SpBABS50	.807	.976
52	SpBABS52	.746	.976
53	SpBABS53	.816	.976
54	SpBABS54	.756	.976
55	SpBABS55	.641	.976
56	SpBABS56	.782	.976
57	SpBABS57	.634	.976
58	SpBABS58	.662	.976
59	SpBABS59	.669	.976

Table 4.2 presents the item-total correlation analysis on the SpBABS. The table presents all the 46-item meets the .30 correlation value requirement.

Hypothesis 3: Exploratory factor analysis will significantly produce factors for the scale developed.

Factor Analysis

The next step was to conduct the factor analysis of Sports Betting Addictive Behaviour (SpBAB) scale.

The method of Principal Component Analysis was used to perform the factor analysis of the scores of the remaining 46-items on the SpBAB scale. The results show that 6 factors but only 4 had Eigen values greater than 1 which were extracted. The results are presented on Table 4.3;

Table 4.3: Eigen values and percentage of variance of the factors extracted

SN	Factors	Eigen-values	% of variance	Cumulative %
1	Factor 1	23.07	50.15	50.15
2	Factor 2	2.95	6.41	56.56
3	Factor 3	2.10	4.56	61.12
4	Factor 4	1.11	2.41	63.53
5	Factor 5	.961	2.09	65.61
6	Factor 6	.687	1.49	67.11

The results show that six factors emerged but only four of them had the Eigen value of 1.00 which is appropriate figure to return a factor (Kaiser, 1960). The four (4) factors whose value met the required criteria ranged in order of magnitude from 1.11 to 23.07 Eigen-value and they accounted for 63.53% of the total variance for the scale. These four factors were named Betting-relationship Conflict, Betting Distress, Betting-economic Interference and Sport Betting Anticipatory. This tends to suggest the appropriateness of the scale in this study. After the varimax rotation, the loading of each of the items of SpBAB scale on each of the factors was found and the results are presented on table 4.4;

Table 4.4: Summary of factor analysis of SpBAB scale

S/No	Extracted factors	1	2	3	4
	Betting-relationship Conflict				
1	SpBABS40	0.859			
2	SpBABS19	0.847			
3	SpBABS48	0.808			
4	SpBABS39	0.796			
5	SpBABS47	0.793			
6	SpBABS22	0.778			
7	SpBABS59	0.742			
8	SpBABS17	0.723			
9	SpBABS21	0.715			
10	SpBABS53	0.707			
11	SpBABS41	0.695			
12	SpBABS28	0.674			
13	SpBABS56	0.64			
14	SpBABS25	0.638			
15	SpBABS50	0.622			
16	SpBABS24	0.619			
17	SpBABS34	0.607			
18	SpBABS30	0.598			
19	SpBABS27	0.587			
20	SpBABS29	0.564			
21	SpBABS20	0.562			
22	SpBABS52	0.518			
23	SpBABS18	0.515			
24	SpBABS23	0.498			
25	SpBABS42	0.477			
	Sports Betting Distress				
26	SpBABS54		0.672		
27	SpBABS44		0.546		
28	SpBABS38		0.538		
29	SpBABS43		0.516		

30	SpBABS46	0.569	
31	SpBABS35	0.516	
32	SpBABS57	0.743	
33	SpBABS58	0.691	
34	SpBABS55	0.699	
Sports Betting Economic Interference			
35	SpBABS7		0.604
36	SpBABS6		0.643
37	SpBABS8		0.713
38	SpBABS14		0.666
39	SpBABS16		0.598
Sports Betting Anticipatory			
40	SpBABS1		0.495
41	SpBABS31		0.372
42	SpBABS11		0.591
43	SpBABS2		0.553
44	SpBABS4		0.609
45	SpBABS10		0.451
46	SpBABS3		0.757

Data on the forty-six (46) items, obtained from 366 participants were subjected to factor analysis to detect factorial structure or the relationships among variables on the 46-items and to unravel the inter-relationship of the items and to detect items with least latent roots for deletion according to Ford, McCallum and Talt's (1986) and Schwab's (1980) proposition. Principal component factoring procedure with varimax rotation was used to factor analyze the data. From the result, according to the cluster of items, four (4) factor solution ensued and are labelled as; Betting-relationship Conflict, 25-items, Betting Distress, 9-items, Betting-economic Interference 5-items and Sport Betting Anticipatory 7-items.

Further, Meryer-Olkin (KMO) measure of sampling adequacy and Barlett's test of sphericity were computed. The result revealed acceptable KMO, and significant chi-square following Brace, Kemp and Snelgar's (2006) proposition. This confirmed that the instrument is indeed factorable and useful. It also shows clearly that the respondents perceived four (4) sports betting addictive behaviour traits.

The varimax rotation shows that out of the four (4) SpBAB scale factors with Eigen values greater or equal to 1, 25 items distinctively loaded on Betting-relationship Conflict, with item 40 (I have missed significant activities in my life because of sports betting) having the highest loading of .859. On Betting Distress, a total of 9 items loaded distinctively with item 57 (—I feel aggressive each time I loss a bet) having the highest loading of .743. Betting-economic Interference had 5 items that loaded distinctively with item 8 (—I stake sports bets repeatedly with the hope of winning at least one of the many tickets) having the highest factor loading of .713. As regards Sport Betting Anticipatory, there are a total of 7 items that loaded distinctively with item 3 (-I think of staking sports bets always) having the highest loading of .757.

Hypothesis 4: Items in the developed scale will significantly be internally consistent among themselves.

Reliability Analyses

The Sports Betting Addictive Behaviour Scale (SpBABS) scale reliability is defined as the extent to which it provides the same results. The SpBAB scale adopted the Pearson Product Moment Correlation Statistics to test for the split-half reliability, while Spearman Brown Prophecy was utilized to get the full scale reliability; the following split half and full scale reliability coefficients were obtained; whole scale (SpBABS) (split half = .946; full scale = .942;), Betting-relationship Conflict (Split-half = 0.969, full-scale = .958), Betting Distress (Split-half = 0.889, full scale = .886), Betting-economic Interference (Split-half = 0.738, full-scale = 0.804) and Sport Betting Anticipatory (Split-half = 0.765, full-scale = 0.750). Internal consistency analyses were conducted using Cronbach's alpha coefficient to obtain reliability estimates. All the four (4) factors as well as composite combining the items on the four (4) factors, demonstrated strong internal consistency estimates as follows; whole scale (SpBABS) α = .977, Betting-relationship Conflict α = .978, Betting Distress α = .926, Betting-economic Interference α = .828 and Sport Betting Anticipatory α = .827. The result is presented on Table 4.5;

Table 4.5: Reliability and internal consistencies of the SpBAB Scale and sub-scales

S/No	Scale	Split-half (r)	Full-scale (r)	Cronbach alpha (α)
1	Whole scale	0.946	0.942	0.977
2	Betting-relationship Conflict	0.969	0.958	0.978
3	Betting Distress	0.889	0.886	0.926
4	Betting-economic Interference	0.738	0.804	0.828
5	Sport Betting Anticipatory	0.765	0.750	0.827

Hypothesis 5: Sports Betting Addictive Behaviour Scale (SpABS) will positively correlate significantly Gambling Addictive Behaviour for Adolescent Scale (GABSA).

Construct Validity

In order to determine the construct validity (convergent), the Pearson product Moment Correlation Coefficient (r) was adopted to run the relationship between factors of Gambling Addictive Behaviour Scale for Adolescents (GABSA) and Sports Betting Addictive Behaviour Scale (SpBABS). Table 4.6 presents the inter-relationship between the two scales;

Table 4.6: Pearson r correlation between whole scale of GABSA and SpBABS

Variable	Mean	SD	Df	r	p
Sports Betting Addictive Behaviour Scale (SpABS)	97.51	38.92			
			318	.965	<.000
Gambling Addictive Behaviour for Adolescent Scale (GABSA)	87.85	28.56			

Result in table 4.6 shows that, there is a significant relationship between sports betting addictive behaviour scale (SpBABS) and gambling addictive behaviour for adolescent scale (GABSA) r = .956; p<.001. This is an indication that sports betting addictive behaviour scale has high convergent validity.

To further test the validity of the factors, correlation matrix was conducted on the factors of Sports Betting Addictive Behaviour Scale (SpBABS) and Gambling Addictive Behaviour Scale for Adolescents (GABSA). The results are presented in table 4.7.

Table 4.7: Correlation Matrix among sub-scales of GABSA and SpBABS

S/No	Variable	1	2	3	4	5	6	7	8	Mean	SD
1	Betting relationship conflict (SpBABS)	-								48.59	23.99
2	Betting distress (SpBABS)	.484**	-							23.10	9.65
3	Betting economic interference (SpBABS)	.333**	.258**	-						16.16	5.94
4	Sport betting anticipatory (SpBABS)	.649**	.248**	.246**	-					16.09	5.94
5	Loss of Control (GABAS)	.371**	.217**	.115**	.399**	-				28.09	11.35
6	Life dysfunction from problem gambling (GABAS)	.733**	.416**	.293**	.586**	.338**	-			79.09	51.96
7	Gambling Experience (GABAS)	.695**	.303**	.275**	.562**	.411**	.462**	-		101.09	42.13
8	Social dysfunction from problem gambling (GABAS)	.403**	.272**	.165**	.284**	.752**	.374**	.338**	-	17.56	7.16

** Significant at the 0.01 level
* Significant at the 0.05 level

Table 4.7 presents the inter-relationship among the sub-scales of sports betting addictive behaviour scale and gambling addictive behaviour for adolescents. It is shown on table 4.7 that betting-relationship conflict of SpBABS correlated positively with loss of control (r = .371; p<.01), life dysfunction from problem gambling (r = .733; p<.01), gambling experience (r = .695; p<.05) and social dysfunction from problem gambling (r = .403; p<.01). Betting distress of SpBABS dimension had significant positive

relationship with loss of control (r = .217; p<.01), life dysfunction from problem gambling (r = .416; p<.01), gambling experience (r = .303; p<.01) and social dysfunction from problem gambling (r = .272; p<.01). Betting economic interference dimension of SpBABS has significant positive relationship with loss of control (r = .115; p<.01), life dysfunction from problem gambling (r = .293; p<.01), gambling experience (r = .275; p<.01) and social dysfunction from problem gambling (r = .165; p<.01). Sports betting anticipatory dimension of SpBABS had significant positive relationship with loss of control (r = .399; p<.01), life dysfunction from problem gambling (r = .586; p<.01), gambling experience (r = .562; p<.0.01) and social dysfunction from problem gambling (r = .284; p<.015).

IV. DISCUSSION

The purpose of this study was to develop and validate the Sports Betting Addictive Behaviour Scale (SpBABS) and to determine the associated psychometric properties utilizing the Rasch rating scale measurement model. Subsequently, the study led to the development and validation of Sports Betting Addictive Behaviour Scale (SpBABS). The study has been able to describe the development and factor structure of the Sports Betting Addictive Behaviour Scale and presented the results that provide strong evidence of reliability and validity of the scale.

This study uncovered four (4) factors from Sports Betting Addictive Behaviour Scale which includes; Betting-relationship Conflict, Betting Distress, Betting-economic Interference and Sport Betting Anticipatory. Not surprising it had significant and positive relationship with Gambling addictive Behaviour Scale dimensions, as they share similar factors. This confirmed Sports Betting Addictive Behaviour Scale (SpBABS) to be a valid measure of one who is addicted to sports betting. It is pertinent to note that someone who is addicted to sports betting will manifest such traits as they appear in the factors that emerged from Sports Betting Addictive Behaviour Scale.

In a related study, Castro, Fuentes & Tavares (2005) looked at gambling follow-up scale specifically on development and reliability testing of a scale for pathological gamblers under treatment. The main objective was to provide preliminary data on the gambling follow-up scale, a new scale assessing recovering gamblers. The secondary goals included assessing the impact of "work status", "family relationship", "leisure" and "enrolment" in gamblers anonymous on gambling together with the impact of treatment. Using GFS, 3 independent raters interviewed gamblers under treatment. The sample was collected in 2 university centers in the city of SoPaulo, Brazil. Patients attended psychotherapy coupled with psychiatric follow-up, participation in GA, or both. The researcher interviewed 47 pathological gamblers; 13 were interviewed twice, with a minimum interval of 6 months, for a total of 60 GFS interviews. Interviews took average of 60 minutes SD = 2.7. Interater concordance ranged from 82% to 95% (intraclass correlation coefficient range 0.85 to 0.99, P<0.001). a factorial analysis showed a 1-factor solution (Eigenvalue = 2.4, 47.6% of total variance accounted). "Leisure," "frequency and time gambling," and "family relationship" showed considerable loadings (0.84; 0.71; 0.71), whereas "enrolment in GA" and "work status" showed moderate loadings (0.59; 0.56). A linear regression model significantly correlated gambling (R2 = 0.356; P < 0.001) with "leisure" and length of treatment. Treatment modalities affected "leisure" (F2, 43 = 5.00, P = 0.011), with GA attendees reporting more regular and gratifying activities. The GFS showed interrater reliability and construct validity. More leisure and lengthier treatment were significantly related to less gambling. GA enrolment seemed to particularly benefit the quality of leisure. Future studies could profit from the quickness and simple structure of the GFS in providing shareable outcome measures.

Generally, sports betting is a form of behaviour that has been identify to have serious consequences on gamblers health, study-habit, academic performance, and has been reported to be related to some criminal related behaviour (Oyebisi, Alao, & Popoola, 2012). Also, betting has been generally defined as betting or wagering money or something of value on an event that has an uncertain outcome with the possibility of winning money or materials (Korn & Shaffer, 1999; Potenza, Fiellin, Heninger, Rounsaville & Mazure, 2002). Public perceptions of betting are often misleading. On the one hand, people are usually aware that gambling poses serious risks to those who are predisposed to gamble excessively. However, on the other hand, it is also acknowledged that gambling can have positive consequences for communities (e.g. via providing a source of revenue for sporting clubs or humanitarian causes) and can be an enjoyable pastime for individuals (Vong, 2009).

For the occasional bettors, these behaviors may provide an innocuous opportunity for excitement, socialization, or boredom relief. When these behaviors increase, however, problem and pathological gambling create negative consequences in an individual's financial, social, and overall health. Gambling explored through the public health perspective looks at the effect of gambling on individual wellbeing and health, familial health, community health, health care system and public policy. Korn and Shaffer (1999) identified eight negative health and social consequences of gambling: gambling disorders, family dysfunction and domestic violence, youth and underage gambling, alcohol and other drug problems, psychiatric conditions, suicide and suicide

ideation, significant financial problems, and criminal behavior.

V. Conclusions

This study sought to achieve three specific objectives; to develop a sports betting addictive behaviour scale that is in line with the change in gambling activities from the general gambling to sports betting; to design a useful and effective tool for identifying and assessing those who are addicted to betting which affects their daily functioning even at home and in work places; and to outline the necessary sub-categories of the kind of behaviours exhibited by sports betters who are addicted to this form of gambling. Based on the findings, the following conclusions were drawn;

i. 56 items were first generated using careful literature review as well as focused group discussion and 46 of these items were returned after face and content validity were conducted.

ii. The findings provided psychometric evidence for sports betting addictive behaviour scale which included measure of validity and reliability as well as convergent validity.

iii. Also, Sports Betting Addictive Behaviour Scale (SpBABS) was a significant positive correlate of the dimensions of Gambling Addictive Behaviour for Adolescent (loss of control, life dysfunction from problem gambling, gambling experience and social dysfunction from problem gambling).

iv. Finally, it is concluded that Sports Betting Addictive Behaviour Scale (SpBABS) is a good predictor of betting addiction particularly in sports and as such, organizations, clinicians, researchers and other NGOs can use to measure the implications of betting addiction as it affects the general society.

VI. Implications of Findings

The items of the Sports Betting Addictive Behaviour Scale (SpBABS) are valid; therefore, clinicians, organizations, NGOs and academicians can be confident that the dimensions of Sports Betting Addictive Behaviour Scale (SpBABS) are effectively measuring betting addiction. More importantly, the inference made from such measures is sound, credible, and precise. The Sports Betting Addictive Behaviour Scale (SpBABS) correlated significantly and positively with gambling addictive behaviour for adolescents. This finding provides evidence for convergent validity and demonstrates that the dimensions of the Sports Betting Addictive Behaviour Scale (SpBABS) are valid and critical to the measurement of sports bettors. The Sports Betting Addictive Behaviour Scale (SpBABS) provides the basis for measuring those who are addicted to sports betting. Essentially, high scores of the dimensions of Sports Betting Addictive Behaviour Scale

(SpBABS) are an indication that they are addicted to sports betting and such negative behaviour exhibited by addiction to sports betting can manifest in such an individual as such, urgent intervention needs to be provided.

Sports betting addiction is detrimental to both physical and emotional aspect of an individual and there is need to provide a viable tool to measure such behaviour so that possible solutions can be provided for those who are addicted. Sports Betting Addictive Behaviour Scale is a validated tool that measures betting addictive behaviour that are congruent with the emerging trend in gambling. Many of the previously published gambling scales are based on general gambling with little or no specific items to measure sports betting addiction, whereas the Sports Betting Addictive Behaviour Scale (SpBABS) is eclectic and rooted to sports betting addiction specifically as it measures the emerging trend of gambling.

The Sports Betting Addictive Behaviour Scale (SpBABS) does not measure academic aptitude and/or knowledge content. The Sports Betting Addictive Behaviour Scale (SpBABS) measures frequency of betting addictive behaviour. Frequency is a measure of how often the behavior is used. The frequency measure of behavior is a standard behavior measure and is the most concrete of all psychometrics. Behavior can be measured or counted reliably. The underlying assumption of this measure is that all betting behaviours are uniformly manifested.

Results from this study generated a total of four (4) factors; (Betting-relationship Conflict Betting Distress, Betting-economic Interference and Sport Betting Anticipatory and) and 46 items. The Sports Betting Addictive Behaviour Scale (SpBABS) is able to guide guild clinicians, academicians and NGOs to development strategies that will help individuals stay away from gambling.

VII. Recommendations

On the basis limitation, this study involves a vast population and so there was need for larger sample but the researcher was constrained in that aspect. Also, the researcher was constrained on the basis of accurate response from the participants. It was therefore recommended based on the findings of this study that;

1. This study should be replicated in other locations of the world.
2. Use the Sports Betting Addictive Behaviour Scale (SpBABS) to identify those that addictive to sports betting so that intervention can be provided to adductors.
3. Develop training/rehabilitation modules for the four (4) dimensions; to train individuals on ways of eliminating betting behaviours based on the categories of their behaviour identified.

4. Academicians should use Sports Betting Addictive Behaviour Scale (SpBABS) to research on the how the behaviour affects other aspects of individual behaviour.

5. Clinical psychologists should ensure maximum use of Sports Betting Addictive Behaviour Scale (SpBABS) to measure sports betting addiction as addiction is identified in DSM as a maladaptive behaviour.

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Appendices

FINAL ITEMS OF SPORTS BETTING ADDICTIVE BEHAVIOUR SCALE

Key: 4 = Highly applicable to me; 3 = Moderately applicable to me, 2 = Mildly applicable to me; 1 = Not applicable to me

S/No	Items	1	2	3	4
1	I bet on sports everyday				
2	I bet on sports every week				
3	I think of betting on sports always				
4	I dream of betting sports				
5	I bet on sports because I hear people win huge amount of money				
6	I bet on sports because of my economic situation				
7	I bet on sports repeatedly with the hope of winning atleast one of the many tickets.				
8	I bet on sports because of the fun attached to it				
9	Each time I loss a bet, I tell myself never to go into it again but I find myself staking sports bets over and over again				
10	I feel anxious each time my stake is on				
11	When I stake sports bets, I feel like the money is already in my pocket as my hope is always very high				
12	I borrow money from friends, family members and significant others severally to stake sports bets				
13	Sometimes I involve myself into dubious activities just to get money and stake sports bets.				
14	I sell personal belongings to stake sports bets				
15	I feel sad and worried when I don't have money to bet on sports				
16	I lie to family, friends and significant others just to get money to bets				
17	I pick money from relatives without their knowledge to bet on sports				
18	I use the last money even when am starving to bet on sports				
19	Am no longer trusted with money because of my sports betting attitudes				
20	I have had issues with my family and friends because of my sports betting attitudes				
21	I sometimes stay in sports betting shops all day to stake bets				
22	I ignore many other activities because of sports betting				
23	Am always on my gadget staking bets or checking updates on my bets				
24	When am walking on the road, I constantly check my bets on my phone/tab				
25	I talk people into staking sports bets				
26	I lie to family, friends and relatives to cover my sports betting activities				
27	I do not benefit from staking sports bets considering what I lost compared to the one I gain in sports betting, yet I keep staking sports bets				
28	Virtual games takes my time and resources more than other games				
29	I have marital/relationship problems because of my sport betting attitudes				
30	I have missed significant activities in my life because of sports betting				
31	My life is preoccupied with sports betting such that I think of nothing else than sports betting				
32	I need to stake sports bets with increasing amounts of money in order to get the desired money				
33	I have repeated and several times had unsuccessful efforts to control, cut down, or stop sports betting				
34	I become restless or irritable when each time I try to reduce my sports betting activities.				
35	After loosing a bet, I often return the next day to get even more to recover my loss				
36	I have jeopardized or lost significant relationship because of sport bet				
37	I have committed fraudulent acts to raise money to stake sports bets				
38	I rely on others most times to provide money to relive a situation I find myself in because of sports betting				
39	I feel like am losing when I don't have money to stake bets				
40	I forfeit other important activities to meet up with time on sports betting				
41	I transfer aggression to others each time I lost a bet				
42	Losing a bet to me is like losing money I already have				
43	Am always ready to risk anything to get money to stake sports bets				
44	I feel aggressive each time I loss a bet				
45	I feel sad and moody each time I loss a bet				
46	I have lost a job and similar opportunities because of sports bets				

45

Method of Administration: Pen and paper and no limited time for administration

Scoring

  Add all the scores to constitute the composite scores of the participant on sports betting. Average scores can be taken to determine those who score high or low on sports betting. For the dimensions, the following scoring method should be used;

Sports Betting-Relationship Conflict: Item 30, 14, 37, 29, 36, 17, 46, 12, 16, 40, 31, 22, 43, 20, 38, 19, 26, 24, 21, 23, 15, 39, 13, 18, 32.

Sports Betting Distress: Item 41, 34, 28, 33, 35, 27, 44, 45, 42.

Sports Betting Economic Interference: Item 6, 5, 7, 10, 11.

Sports Betting Anticipatory: Item 1, 25, 9, 2, 4, 8, 3.