

Perception of Nigerian School Boys on the Influence of Contrasting Geographical Locations on Participation in Soccer

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ABSTRACT The paper investigated the extent to which geographical locations influenced male secondary school students' level of participation in amateur soccer within Zaria and Benin metropolis in the 2006/2007 school year. It also sought to ascertain if relative changes in geographical locations influenced the welfare of soccer players and examined the influence of landscape patterns on participants. A total of 836 respondents formed the sampling unit. Percentages were used to analyse the data for the study. Hindrances to soccer participation in Zaria were cold weather which was attested by (81.5%) respondents, hot weather (78.94%), low humidity (71.05%) and cold winds (69.46%). In Benin metropolis, impediments to soccer participation were reported to be rainfall (83%), thunderstorms (78%), hot weather (70%) and lightning (53.9%). Amateur soccer participants in Zaria were influenced by expenditure on accommodation (84.21%), feeding and first aid treatment (60.42%). However, in Benin metropolis influence on feeding and accommodation recorded (66.82%) while first aid treatment attracted (55%) rating. Although (63.1%) respondents in Zaria, indicated that soccer pitches were undulating, (73.68%) claimed they were dry during the dry season. Some soccer pitches remained dry between May and July, a period that usually experiences some rainfall in Nigeria. Also, (92%) respondents in Benin metropolis remarked that soccer pitches were waterlogged particularly during periods of heavy rainfall, between April and October yearly. The results call for differential planning strategies in organizing soccer training and competition in these two divergent geographical areas in Nigeria.

INTRODUCTION

Soccer is the most popularly organized game in the world with over 40 million registered players across the globe, consisting mainly of youths (Emiola 1990). It is the most popular sport in Nigeria and the country has had a long history of successful participation in soccer at the international level. Soccer is widely played in most Nigerian communities. Available resources as well as utilization could have a relationship with students participation in soccer either positively or negatively (Gbadamosi 1999). Adesanya (1989) remarked that a high correlation exists between the standard of available pitches and participation levels, not only in soccer but also for other sports. Leong (1975) asserted that sun rays travel through a shorter distance at low latitude around the equator and its concentrated solar isolation heats up a smaller surface which brings about high temperature. It is such condition that increases

body temperature thereby causing sweating, dehydration, fatigue, muscle cramp, heat exhaustion and heat stroke (Astrand and Rodahl 1986). On the other hand, the Bureau of Meteorology in Australia has provided guidance on lightning protection measures for structures and people who work or play inside them. Similarly, researchers at James Cook University's Psychology Department linked the unusually hot 2002-2003 summer in North Queensland with mood problems among people in the region. This is probably why the "mean relative strain index" (RSI, an index of thermal sensation) has become an issue of fundamental concern to those who play ball games because it is potentially fatal.

Sporting organizations such as those for soccer in Australia have guidelines for event planning and cancellation based on thermal conditions prevalent at certain times of the day or year. In addition, the World Health Organization (2003) has begun work in estimating the "Global Burden of Diseases" attributable to exposure to high energy and hot red rays of the sun (www.bom.gov.au/inside/eiab/reports/caa03/chapters3/health.safety.shtml). Similarly, participation in recreational soccer presents some problems during hot or cold weather. This is because considerable body heat is generated

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when syntactic clothing is worn. Since the hands, feet and head which are used in soccer are particularly sensitive to extreme cold, gloves, extra socks and stockings are strongly advised (Ravanagh 1983). Other environmental and landscape variables such as altitude, pitches surrounded by forests, waterlogging (arising from drop in riverine elevation) inclement weather, steep, stony, sandy and undulating terrains, soil texture, unavailability of play spaces, high and low atmospheric humidity, as well as unsafe neighbourhoods which have the potential to create negative environment for recreational soccer and other physical activities (Lei et al. 2004) have been identified to influence participation levels (Odjugo 2005). For the purpose of clarity, the following terms have been defined in the context they are used in this study. Ultraviolet radiation is referred to as high energy hot red rays of the sun. Mild weather is a condition that is neither cool nor hot. Hot weather could be regarded as temperature greater than 18°C in tropical climate and desert conditions. On the other hand, cold weather is also experienced during cool weather similar to the harmattan haze. Furthermore, low atmospheric humidity is a situation where moisture or dampness in the air is less than 60% in northern Nigeria and such seasons could be dry in the southern part of the country. During periods of high atmospheric humidity, moisture or dampness of the surrounding air is greater than 70% as often experienced in southern Nigeria especially during the rainy season. Relative humidity can equally be defined as the amount of moisture in the atmosphere as compared with that of complete saturation at a given temperature. The aforementioned terms were explained to the secondary school boys used for the study during the process of administering the questionnaire forms. Against this backdrop, convenient access to equipment, first aid facilities; adequate attention to the welfare of players and social amenities may encourage regular participation in soccer (Okunbor and Agwubike 2004). Above all, balanced diets in which the six classes of food are taken into consideration for improved performance are equally essential (Ogunde 1999). It is in recognition of this that the present study set out to compare the influence of two contrasting Nigerian geographical locations on male secondary school boys in participation in soccer.

Problem Statement

The researchers decided to carry out this study in Zaria (Northern Nigeria) and Benin City (Southern Nigeria) because these cities are situated in two contrasting geographical locations. Zaria is located approximately within latitude 11°10'N and longitude 7°40'E on the northern fringes of the Jos Plateau in the Sahel Savannah zone. It has an altitude of 6355m above sea level and experiences an annual rainfall of 39.7mm to 79.4mm between May and July. Benin metropolis has an altitude of 55m above sea level and it is situated approximately within latitudes 6°20'N and longitude 5°35'E near the flood plain of the Niger Delta in the equatorial forest region. It records an annual rainfall of 3176mm to 4764mm yearly between March and September (Federal Surveys Nigeria, 1979). Sub-optimal climatic and landscape conditions for sport participation in Nigeria have been studied (Odjugo 2005). Also substandard sporting facilities have been identified as high ranking obstructions among perceived barriers to participation levels in recreational soccer within the secondary school system in Nigeria (Onifade and Adedaja 1990). Although climatic and landscape impediments to adolescent participation levels in soccer have been identified, they have not been thoroughly and comparatively examined. On the contrary, a review of related literature on the influence of climatic and landscape conditions and the level of participation in amateur soccer showed that this area has been neglected. It is essential to understand the impacts of climatic, landscape and welfare conditions on soccer participants because of the teeming number of adolescent males who participate in the game in Nigeria. The focus of this paper therefore, was tripartite. Firstly, to investigate the extent to which climatic conditions can influence male secondary school students' level of participation in amateur soccer in Zaria and Benin metropolis. Secondly, to find out if changes in climatic conditions influence the welfare of this group of soccer players. Thirdly, to examine the influence of landscape patterns on such soccer players in the two locations used for the study. Data generated from this study may enable soccer coaches, games masters and curriculum planners to become more aware of the inherent dangers associated with several climatic, welfare and landscape issues which are likely not only to bedevil participation levels but also

influence planning, organization and management of sports in Nigeria.

Research Questions

Three research questions were generated to guide this investigation:

1. Are there differences between the geographical locations that influence the level of participation of amateur male secondary school soccer players located in Zaria and Benin metropolis?
2. Do changes in geographical locations differently influence the welfare of male secondary school amateur soccer players in Zaria and Benin metropolis?
3. Do landscape patterns differently influence the level of participation of male secondary school amateur soccer players in Zaria and Benin metropolis?

METHODOLOGY

Participants and Setting

Participants in the study were 1000 male senior secondary two students drawn from 10 private and 14 public secondary schools located in urban and semi-urban areas of Zaria in Kaduna State (north-central zone) and Benin City, Edo State (south-south geo-political zone) of Nigeria. Their ages ranged between 13 years and 17 years, with a mean age of 15.2 years. The population of the study consisted of all the students in the selected secondary schools drawn from Zaria and Benin metropolis. Stratified random sampling was employed as it is considered a viable and efficient method of sampling large populations (Gay 1996). This involved randomly selecting form 2 of every school in which the students were listed and through lucky-dip by replacement, the required sample was selected. Amateur soccer players (students) were informed of the purpose of the study and they volunteered to take part after signing informed consent forms. Soccer participants that signed the informed consent forms constituted the sample for the study.

Research Instrument

A self-structured 26 item questionnaire was validated by a juror of three experts in sport management, recreation and geography. They ascertained the authenticity of the instrument's

face and content validity. The questionnaire had three sections: A, B and C. Section A had eleven items which dealt with the influence of climatic conditions on male secondary school amateur soccer players while section B had three items which assessed the influence of geographical locations on welfare of such soccer players. Section C contained eleven items which assessed the influence of landscape patterns on the same group of soccer players. Activities included in soccer participation programmes which were organized on Mondays, Wednesdays and Fridays were running, walking, kicking, throwing, trapping, shooting, dribbling, volleying, heading, jabbing, swerving and goal-keeping. Skills such as catching, diving and punting, road-walks were the focus on Saturdays of each week. The reliability of the instrument through a test-retest method with a two week interval yielded an r of 0.84. All sections of the questionnaire were scored on a four-point likert scale with 4 being on the maximum point and 1 the minimum score.

Data Collection Procedure

A total of 500 copies of the structured questionnaires were circulated in each state among 5 private and 7 public secondary schools in the two cities used for the study. A total of 836 questionnaire forms retrieved from the respondents (380 from Zaria and 456 from Benin metropolis) were considered adequate for data analysis. The descriptive survey research design used in this study is considered an important tool for those interested in sports-related issues because problems can be solved and practices improved through objective and thorough observation, analysis and description (Thomas and Nelson 1996).

Statistical Analysis

Data obtained were analysed descriptively using the SPSS/PC software. In some cases percentages in the columns were collapsed horizontally for meaningful interpretation.

RESULTS

Research Question I

Are there differences between geographical locations that influence the level of participation

of male secondary school amateur soccer players located in Zaria and Benin metropolis?

The respondents were asked to evaluate some selected climatic conditions and the extent to which they influenced their participation in soccer within Zaria and Benin (Table 1). In order of importance, a glance at the percentages horizontally revealed that the major climatic conditions that had high probability of influencing soccer participation in Zaria were cold weather (81.57%) (item iii), hot weather (item ii) (78.94%), low atmospheric humidity (71.05%) (item vi) and cold winds (69.46%) in (item viii). Other climatic conditions appear not to hinder soccer participation. On the contrary, in Benin metropolis, several respondents attested to the fact that major hindrances to participation in soccer were rainfall (83%) (item i), thunderstorm (78%) (item vii), hot weather (70%) (item ii) and lightning (53.9%) (item ix).

Research Question II

Do changes in weather differently influence

the welfare of male secondary school soccer players in Zaria and Benin metropolis?

In Table 2, the influence of changes in climatic conditions on welfare of male secondary school amateur soccer players is reflected. In order of importance, a cursory look at the percentages horizontally indicated that the players' welfare was influenced mainly by expenditure on accommodation (84.21%) (item iii) and first aid treatment (84%) (item ii) while expenditure on feeding recorded (60.42%) (in item iii). In Benin metropolis, influence on feeding and expenditure on accommodation recorded (66.82%) and (84.21%) in (items i and iii) respectively while expenditure on first aid treatment recorded (55%) (in item ii).

Research Question III:

Do landscape patterns differently influence the level of participation of male secondary school amateur soccer players in Zaria and Benin metropolis?

Table 1: Perception on extent to which geographical locations can influence participation of male secondary school amateur soccer players

S. No.	Climate conditions	Types of climatic conditions and their influence on amateur soccer players							
		Zaria (Northern Nigeria) N = 360				Benin metropolis (Southern Nigeria) N = 456			
		Very high probability	High probability	Fairly low probability	Low probability	Very high probability	High probability	Fairly low probability	Low probability
		Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %
i.	Rainfall	50 13.16	80 21.05	200 52.63	50 13.16	255 56	123 27	46 10	32 7
ii.	Hot weather	140 36.84	160 42.1	60 15.78	20 5.26	269 59	50 11	91 20	46 10
iii.	Cold weather	220 57.89	90 23.68	70 18.42	-	91 20	100 22	128 28	137 30
iv.	Mild weather	40 10.53	100 26.32	220 57.89	20 5.26	59 13	68 15	228 50	100 22
v.	High atmospheric humidity	30 7.89	140 36.84	170 44.74	40 10.53	57 12.5	93 20.4	133 29	173 38
vi.	Low atmospheric humidity	20 5.26	250 65.79	70 18.42	40 10.53	91 20	59 13	169 37	137 30
vii.	Thunderstorm	50 13.16	60 15.79	60 15.79	210 55.26	127 28	228 50	46 10	55 12
viii.	Cold wind	30 8.94	230 60.52	80 21.65	40 10.53	91 20	96 21	255 56	14 3
ix.	Lightning	40 10.53	40 10.53	70 18.42	230 60.52	18 3.9	228 50	91 20	119 26
x.	Ultra-violent radiation	0 -	50 13.16	250 65.79	80 21.65	169 37.06	137 30	140 30.75	10 2.19
xi.	Heat exhaustion	80 21.65	30 7.89	60 15.79	210 55.26	91 20	100 22	128 28	137 30
xii.	Cold strain	40 10.53	50 13.16	260 68.42	30 7.89	82 18	73 16	137 30	164 36

Table 2: Perception on differential influence of changes in climatic conditions on welfare of male secondary school amateur soccer players

S. No.	Welfare of amateur soccer players and changes in environment	Types of climatic conditions and their influence on amateur soccer players							
		Zaria (Northern Nigeria) N = 360				Benin metropolis (Southern Nigeria) N = 456			
		Very high probability	High probability	Fairly low probability	Low probability	Very high probability	High probability	Fairly low probability	Low probability
		Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %
i.	Changes in environment and influence on feeding	70 18.42	160 42	140 36.84	10 2.63	136 29.82	169 37	73 16	78 17
ii.	Changes in environment and influence on expenditure on first aid treatment	160 42	160 42	50 13.16	10 2.63	137 30	114 25	91 20	114 25
iii.	Changes in environment and influence on expenditure on accommodation	190 50	130 34.21	80 21.65	- -	169 37	136 29.82	78 17	73 16

Various landscape patterns were presented to the respondents to ascertain how probable they influenced amateur soccer players' participation.

The data are in Table 3. Data in the columns for "very high probability" and "high probability" were combined horizontally for meaningful interpretation.

Table 3: Perception on influence of landscape patterns in male secondary school amateur soccer players' participation

S. No.	Landscape patterns and influence on soccer players	Types of climatic conditions and their influence on amateur soccer players							
		Zaria (Northern Nigeria) N = 360				Benin metropolis (Southern Nigeria) N = 456			
		Very high probability	High probability	Fairly low probability	Low probability	Very high probability	High probability	Fairly low probability	Low probability
		Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %	Freq and %
i.	Waterlogged pitches	50 13.16	150 39.47	110 28.94	70 18.42	214 47	205 45	17 3.72	20 4
ii.	Dryness of pitches all year round	50 13.16	60 15.79	240 63.16	30 7.98	48 10.5	100 21.9	169 37	139 30
iii.	Pitches dry during the rainy season	100 26.32	110 28.94	150 39.4	20 5.26	32 7	46 10	182 40	196 43
iv.	Pitches-filled with potholes	30 7.89	80 21.05	220 57.89	50 13.16	46 10	27 6	201 44	182 40
v.	Undulating soccer pitches	40 10.53	200 52.63	130 34.21	10 2.63	91 20	64 14	137 30	164 36
vi.	Flatness of pitches	60 15.79	160 42.11	110 28.94	40 10.53	182 40	160 35	68 15	46 10
vii.	Sandy pitches	40 10.53	140 36.84	190 50	10 2.63	123 27	91 20	128 28	114 25
viii.	Stony pitches	40 10.53	60 15.79	220 57.89	60 15.79	36 8	18 3.9	201 44	201 44
ix.	Pitches surrounded by forest	30 7.89	90 23.68	210 55.26	50 13.16	18 4	18 4	214 47	206 45
x.	Pitches dry during dry season	60 15.79	220 57.89	80 21.05	20 5.26	182 40	255 56	5 1	14 3
xi.	Pitches surrounded by poorly drained piece of land	10 2.63	60 15.79	150 39.49	160 42.11	37 19	91 20	137 30	141 31

tation. It was observed that, in order of importance, (73.68%) respondents in Zaria (item x) indicated that soccer pitches remained dry during the dry season. Similarly, in (items v and vi) it was observed that there were several undulating and flat soccer pitches which recorded (63.16%) and (57.9%) percentage ratings respectively. On the contrary, in Benin metropolis majority of the respondents, (96%) in (item x) remarked that although such pitches were also dry during the dry season, (92%) pointed out that several pitches remained waterlogged especially during the rainy season (in item i). In spite of this, (75%) respondents (in item vi) attested to the fact that the pitches on which they played soccer were flat.

DISCUSSION

This study marks the first attempt to provide information on the perceptions of school soccer players' on the climatic influence of welfare and landscape conditions on their participation in soccer. There are several findings that merit attention. Data in Table 1 showed that several respondents (81.57%) identified cold weather, (78.94%) hot weather and (69.46%) cold winds in Zaria as factors that were most likely to influence youth participation in soccer engagements. In contrast, respondents located in Benin metropolis remarked that the vagaries of weather also influenced soccer participation. For example, the impact of heavy rainfall was recorded by (83%) of the respondents, thunderstorm, 78%, hot weather and lightning (53.9%). These findings are consistent with those of Leong (1975), Ravanagh (1983), Astrand and Rodahl (1986), Lei et al. (2004), Odjugo (2005) who asserted that intense heat, inclement weather conditions, high altitude problems, as well as coarse sand, tend to create negative environment for recreational soccer players as they predispose them to injuries and poor performances.

In Table 2, more than 80% of respondents in Zaria, observed that changes in environment had high likelihood of influencing expenditure on accommodation for soccer engagements and first aid treatment probably because of problems arising from acclimatization. Similarly, two-thirds of the respondents (60.42%) also identified adequate feeding as another important factor enhancing the welfare of amateur soccer players. These views are in conformity with Ogundele's 1999 suggestion that balanced diets helped to improve sports performance. Data gathered from

Benin metropolis presented a different picture, as 66.82% rating was recorded as having high likelihood of influencing feeding and expenditure on accommodation while 55% respondents regarded expenditure on first aid treatment as a vital factor influencing soccer-participation. The above findings are consistent with the views of Okunbor and Agwubike 2004 which stated that access to equipment, adequate feeding, welfare of players, availability of first aid facilities and social amenities have the tendency of encouraging participation in soccer.

Analysis of data in Table 3 revealed that (73.68%) respondents indicated that soccer pitches remained dry during the dry season in Zaria. This is not surprising as there is scanty rainfall for nine months throughout the year in Zaria. Also, the existence of undulating pitches was identified by (63.16%) respondents as impediments to better participation in soccer. In Benin metropolis, (96%) respondents reported that soccer pitches were also dry during the dry season, while (92%) pointed out that such pitches remained waterlogged for some hours especially during the rainy season, thus rendering the pitches inaccessible for use. Majority of the respondents, (75%) attested to the fact that pitches on which they played soccer were flat and devoid of pot-holes. These findings agree with the views of Adesanya (1989) who reported that a high correlation exists between the standard of available pitches and participation levels not only in soccer but also in other sporting activities.

Implications for Amateur Soccer Development

The co-authors realized while carrying out this study in Zaria and Benin that male secondary school soccer players, coaches and games masters paid lip service to issues concerning climatic, welfare and landscape conditions. In view of the findings of the present study, a reform of the status quo is necessary. Reforms documented by O'Neil (1999) and the co-authors of this paper should take the following forms:

- High atmospheric humidity coupled with high temperatures spell extreme danger because under these conditions evaporation of sweat is highly hindered. This inhibits cooling and so soccer players need to be adequately acclimatized through long camping periods.
- The choice of jersey materials should be based on the type that will ensure faster and easier

sweat absorption and evaporation than on appearance as is usually the case. Jerseys made of cotton fabrics should be preferred while performing in hot and humid environments prevalent in Nigeria; and countries within the equatorial region.

- Adequate attention should be paid to feeding, expenditure on first aid treatment and accommodation during intramural, extra-mural and intercollegiate soccer engagements.
- Priority attention should be given to inclined soccer pitches, proper drainage and elimination of pot holes and other hazards in order to minimize injuries.
- Soccer officials, coaches and players should work together towards preventing heat stroke, shock, coma, drowsiness and even death during football engagements. The danger of over-crowding must be understood by the fans and this has implications for sitting and standing arrangement in several stadia and sports arena.
- Provision should be made for cold water (5°C) of 400-600ml to be ingested 10 to 20 minutes before and about 250ml at regular intervals during play, to ensure adequate rehydration of soccer players.
- Ingestion of cold fluid low in sugar and protein but palatable should be encouraged. This may compliment diets high in fruits, vegetables, grains and nuts.
- Amateur soccer players must learn to understand the warning signs of heat stroke which include throbbing in the head, chilling, nausea, dry skin, erection of the hair and unsteadiness so that the ailment can be prevented.

CONCLUSION

The two geographical locations in Nigeria experience differential climatic conditions with attendant varying modalities for planning, organization and management of youth soccer in those areas. This has tremendous implications for youth soccer development in Nigeria. Playing soccer during hot weather should attract precautions since youths will not stop playing soccer completely due to poor weather conditions. Since Nigeria and some other countries are within hot equatorial region, fans, coaches, referees, referee assistants, (linesmen) and soccer players

ought to be educated on the health implications of various weather conditions.

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