

ENVIRONMENTAL DETERMINANTS OF SPORTS PARTICIPATION AMONG STATE ATHLETES IN ZAMFARA STATE, NIGERIA

Saratu, Kabir;¹ Okey A. Umeakuka² & Samuel I. C. Dibia³

¹Department of Early Childhood Care Education, School of Early Childhood Care and Primary Education, College of Education, Maru, Zamfara State

^{2&3}Department of Human Kinetics and Health Education, University of Nigeria, Nsukka

Abstract

The study investigated the environmental determinants of sports participation by state athletes in Zamfara State, Nigeria. The descriptive survey research design was adopted for the study. The study was conducted in Zamfara State. The population for the study comprised all the registered state athletes in Zamfara State with a total of 129 athletes. The entire population constituted the sample size; thus, no sampling was done. A researcher-designed questionnaire, known as “Environmental Determinants of Sports Participation Questionnaire (EDSPQ)” was used for data collection. The EDSPQ was subjected to face validity by five experts. The reliability index of DSPQ was 0.73. Frequencies and percentages were used to answer all the research questions while chi-square analysis was used to test the null hypotheses. The study revealed that environmental factors (geographical location (96.1%), training outfits (90.7%), training hours and duration (76.7%), transportation system and road network (74.4%), distance to sporting facility or playground (72.9%), quality of meal served (72.9%), accommodation (70.5%), weather condition (67.4%), quality drainage system and toilet facilities (65.1%), and waste disposal and management systems (59.7%) determine sports participation among state athletes in Zamfara State, Nigeria. There was no significant difference in the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on gender and location respectively. The state ministries of sports should make provisions of needed environmental facilities and supplies for athletes, coaches and team managers to sustain high level of sports participation for state athletes in Zamfara State.

Keywords: Environmental, Determinants. Athletes, Sports, Participation, Zamfara

Introduction

Worldwide, sport participation is a global phenomenon and an integral part of the society with huge economic impacts. Relevant studies (World Health Organization [WHO], 2019; Yeats et al., 2019) showed that more than 78.9 million people worldwide participate in one form of sports on daily basis with about 24 per cent of these individuals coming from developing nations such as Nigeria. Engaging in sports activities by individuals is highly interesting as well as entertaining (Yeats et al., 2019). Studies revealed that about 85.4% of athletes worldwide engage in sporting activities for personal pleasures and gains (Ferketich et al., 2018). In Africa, the motives for sports participation by athletes were reported. For instance, a descriptive study carried out in Africa reported that approximately 90% of athletes are intrinsically motivated to participate in sports (Crettende et al., 2018). Further evidences of sports participants among athletes abound in Nigeria. For instance, a report from the State Government Sponsored Sporting Activities (2020) showed that about 89 per cent of athletes participate in both team and individual sports for different motives. In Zamfara State specifically, it is reported that 90% of athletes in both team and individual sports engage in sports competition for personal and

club gains (Department of Planning, Research and Statistics Directorate of Sports Development Zamfara State, 2020).

Sports is an integral part of the society that accommodates participants of different categories and specialties including professionals (athletes). Edimok et al. (2017) defined sports as biological motor activity that enables individuals to develop and control their physique. According to Ransy et al. (2017), sports is described as any highly structured, goal directed physical activity governed by rules which has a high level of commitment that takes the form of struggle with oneself or involves competition with others but also have some form of the characteristics of play. In this study, sport refers to any form of organized and structured physical activity, governed by observable rules and regulations, involving skilled athletes, which provides opportunities to experience full competition and entertainment. Sports participation is a concept commonly applied in the field of physical education and sports. According to Wilson et al. (2016), sport participation is the act of engaging in sports activities either for personal or group gains or benefits. Kendra et al. (2018) also described sport participation as the act of engaging in sporting activities by athletes for the purpose of recreational activities, leisure, entertainment and self-gain. Contextually, sport participation is the act of engaging in sporting activities by state athletes in Zamfara State, Nigeria. Athletes of all categories often participate in sporting activities due to some underlying factors or determinants. However, the present study explored the environmental determinants of sports participation in both individual and team sports among state athletes.

The sporting environment is an important determinant to sports participation by athletes. The environment, which covers all aspects of pollution, climate, weather, cold, heat, terrain, humidity and altitude of a country or area can affect athlete's participation in sports and physical activities either positively or negatively (Bernhard, 2017; Levine, 2018). The climate may be too hot or cold to participate in some activities and some countries experience heat waves which make any sporting activity very difficult for athletes. Levine (2018) defined environment as the surrounding or circumstances that facilitate sporting activity in a given period and time. Similarly, Youngstedt and O'connor (2019) defined environment as forces or conditions of atmosphere that determine the athletes' performances or participation in sporting competition or activities. The above definitions are similar as they all focused on the circumstances or conditions that facilitate athletes' participation in sporting activities. The present study is focusing on all these circumstances and conditions as they instigate sport participation by athletes. In this study, environment refers to all the circumstances or condition relating to pollution, climate, weather, cold, heat, terrain, humidity and altitude that facilitate sports participation by athletes in Zamfara State. The environmental factors can influence athletes' sports participation either positively or negatively. It is considered positive when the sporting environment is conducive for athletes' performance in sports and becomes negative when the environment does not promote sporting activities. The environmental determinants of sports participation are grouped in three categories which an athlete must be acclimatized to. These are the altitude, temperature and time change (Levine, 2018). An interest in specific sports will encourage active participation in such sports by an athlete.

An athlete is an individual with unique skills in sporting activities. Anderson et al. (2018) described an athlete as a person who is trained or skilled in exercises, sports, or games requiring physical strength, agility, or stamina. Anderson et al. (2018) maintained that such individual must be humble, takes care of their body and eager to learn and

develop new skills. Isaa et al. (2018) added that an athlete must also respect other individuals involved in sports, including the opponents. Isaa et al. (2018) further described a good athlete as one who is able to control their emotions, not getting too angry when things go wrong before, during and after sporting activities including competitions. In this study, a state athlete is a person who is dedicated, trained or skilled in exercises, sports, or games requiring physical strength, agility, or stamina with motivation to achieve rewards in Zamfara State. Some socio-demographic variables could influence athlete's participation in sports.

Some socio-demographic variables can influence some sports participation among state athletes in Zamfara State. The present study adopted the socio-demographic variables of age, gender, and location in establishing the environmental determinants of sports participation by athletes in Zamfara State. The age of an athlete can influence the level of sports participation. This study was interested in age brackets of below 16 years, 16-20 years and 21 years and above. Contextually, age is defined as the length of time during which a being or thing has existed; length of life or existence to the time spoken of or referred to in a social context (Ringkat et al., 2017). As applied in this study, age is the number of years that an athlete has lived from the time of birth. Another variable of athletes that can influence sport participation is gender. According to Verapy et al. (2018), male athletes were actively involved in sports competition while the females constituted 87 per cent of the fans. The study concluded that male athletes participate in sports competition more than their female counterparts. Similarly, Troped et al. (2018) found female athlete participate in track events while male participate more in field sports in Bayelsa State, Nigeria. Troped et al. (2018) further reported that male athletes are more active in sports competition when compared to the female counterparts. The location of athletes can be an influencing factor in sport participation. Baranowski et al. (2019) asserted that athlete's location (rural or urban) can positively or negatively influence the outcome of a survey such as the present.

This study was carried out in Zamfara State. The state is one of the 36 states in Nigeria, located in Northwestern geopolitical zone of the country with 14 local government areas. The administrative headquarters of Zamfara State is situated in Gusau. The state is mainly populated by Hausas and Fulani people, with some members of Gobirawa, Kambari, Dukawa, Bussawa and Zabarma ethnic communities (The Nigerian Map, 2020). The main occupation of the people of the state is agriculture and its slogan "farming is our pride". Islam is the principal and major religion of the state and was the first state to introduce Shari'ah (Canback Global Income Distribution Database, 2020). Hausa is the official language of the state. Other main languages spoken in Zamfara are English, Fulfulde, and Arabic. The minority populations also speak languages like: Yoruba and Igbo (Maram, 2012). Athletes in Zamfara, like their counterparts elsewhere, participate in sports due to certain factors. However, little is known about these environmental determinants of sports participation by athletes. Also, these environmental determinants of sports participation might be linked to athlete's socio-demographic variables such as age, gender, level of education and location. Thus, the present study deems it necessary to investigate the determinants of sports participation among state athletes in Zamfara State, Nigeria. Achieving this aim was the gap the present study filled. The findings of this study presented both practical and theoretical significance. However, the findings may be of immense benefit to ministries of sports, physical education teachers, coaches, researchers, sports athletes, sports administrators, sports psychologists, students, government and educational

institutions and the general public.

Purpose of the Study

The purpose of the study is to investigate the determinants of sports participation by state athletes in Zamfara State, Nigeria. Specifically, the study found out the:

1. environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria;
2. environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on age;
3. environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on gender;
4. environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on location;

Research Questions

The following research questions are formulated to guide the study:

1. What are the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria?
2. What are the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on age?
3. What are the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on gender?
4. What are the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on location?

Hypotheses

1. There is no significant difference in the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on age.
2. There is no significant difference in the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on gender.
3. There is no significant difference in the environmental factors that determine sports participation among state athletes in Zamfara State, Nigeria based on location.

Methods

The descriptive survey design was adopted to carry out the study in Zamfara State. Zamfara state is one of the 36 states in Nigeria located in Northwestern geopolitical zone of the country. The population of the study comprised all the registered state athletes in Zamfara State, Nigeria, involving male (83) and female (46) athletes of different age categories. The entire population of 129 registered state athletes constituted the sample size for the study since the number is very small and of manageable size in line with the suggestions of Canfield et al., 2019 and Mullany et al., 2019. Researcher-designed questionnaire titled “Environmental Determinants of Sports Participation Questionnaire (EDSPQ)” was used for data collection. The instrument consisted of four sections A, and B. Section A contained the socio-demographic information of the state athletes (age, gender, level of education and location). The section B contained 11 statements on the environmental factors as determinants of sports participation. The response options for sections B were ‘agree’ and ‘disagree’. The respondents were asked to place a tick (✓) against the items as applied to them. Face validity of EDSPQ was established by five experts from the Department of Human Kinetics and Health Education, University of Nigeria, Nsukka. The internal consistency of EDSPQ was obtained through split-half

method using the Spearman-Brown Correlation formula. Reliability index of .73 was obtained and thus, adjudged appropriate and reliable enough for use in the study. This was in line with the assertion of Bartfield et al. (2017) who explained that in a reliability test, if the index value is .60 and above, the instrument is considered reliable for use in a study. An introductory letter from the Head, Department of Human Kinetics and Health Education, University of Nigeria, Nsukka was presented to the Director, Directorate of Sports Development Zamfara State, who acknowledged the letter in writing and further introduced the researcher to the prospective respondents in the secretariat. The researcher administered the questionnaire to the athletes with the help of three research assistants. The properly completed copies of the instrument were coded using statistical software (Statistical Package for Social Sciences- SPSS, version 22). Frequency and percentages were used to answer all the research questions. In determining the environmental determinants of sports participation among the state athletes, a 50% benchmark was adopted as suggested by previous researchers (Ringkat et al., 2017; Natasha et al., 2019). All the null hypotheses were tested using Chi-square statistics. The null hypotheses were rejected when the calculated p-values were less than .05 level of significance, whereas when the calculated p- values were greater than .05 level of significance, the null hypotheses were accepted.

Results

Table 1: Frequencies and Percentages of Environmental Factors that Determine Sports Participation among Athletes in Zamfara State, Nigeria (n=129)

S/ N	Items	Agree	Disagree
		f (%)	f (%)
1	The geographical location of the sporting or training arena motivates my participation in sports.	124 (96.1)	5 (3.9)
2	The distance to sporting facility and playground are parts of my motivation to participate in sports	94 (72.9)	35 (27.1)
3	The weather condition (rainy, dry, wind, sun) during training and sporting competition are parts of my motivation to participate in sports	87 (67.4)	42 (32.6)
4	I participate in sports due to the quality of toilet facilities and drainage systems in the camping arena	84 (65.1)	45 (34.9)
5	The quality of meals served during camping and sports competition are parts of my motivation for sports participation	94 (72.9)	35 (27.1)
6	I participate in sports due to the well-organized training hours and duration of training for all athletes	99 (76.7)	30 (23.3)
7	The measures adopted for solid waste disposal and management system motivates my participation in sports	77 (59.7)	52 (40.3)
8	The high levels of vector, insects and rodents controls in the playgrounds are parts of my motivation for participation in sports	63 (48.8)	66 (51.2)
9	I participate in sports due to good accommodations provided for athletes during sports training and competition.	91 (70.5)	38 (29.5)

10	I participate in sports due to sound training outfits provided for all athletes during sports training and competitions	117 (90.7)	12 (9.3)
11	The existing good transportation system and road networks are parts of my motivation to sports participation.	96 (74.4)	33 (25.6)
Cluster Mean Percentage		(72.3)	(27.7)

Keys: <50% = non determinant; >50% = determinant of sports participation.

Table 1 shows that overall, greater percentage of the respondents (72.3%) agreed that environmental factors determine sports participation among athletes in Zamfara State, Nigeria while only few (27.7%) disagreed. Specifically, the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria are geographical location (96.1%), training outfits (90.7%), training hours and duration (76.7%), transportation system and road network (74.4%), distance to sporting facility or playground (72.9%), quality of meal served (72.9%), accommodation (70.5%), weather condition (67.4%), quality drainage system and toilet facilities (65.1%), and waste disposal and management systems (59.7%).

Table 2: Frequencies and Percentages of Environmental Factors that Determine Sports Participation among Athletes in Zamfara State, Nigeria based on Age (n=129).

S/ N	Items	<16 years (n=6) f (%)	16-20 years (n=47) f (%)	>21 years (n=76) f (%)
1	The geographical location of the sporting or training arena motivates my participation in sports.	6 (100.0)	46 (97.9)	72 (94.7)
2	The distance to sporting facility and playground are parts of my motivation to participate in sports	6 (100.0)	29 (61.7)	59 (77.6)
3	The weather condition (rainy, dry, wind, sun) during training and sporting competition are parts of my motivation to participate in sports	4 (66.7)	36 (76.6)	47 (61.8)
4	I participate in sports due to the quality of toilet facilities and drainage systems in the camping arena	2 (33.3)	28 (59.6)	54 (71.1)
5	The quality of meals served during camping and sports competition are parts of my motivation for sports participation	2 (33.3)	36 (76.6)	56 (73.7)
6	I participate in sports due to the well-organized training hours and duration of training for all athletes	6 (100.0)	37 (78.7)	56 (73.7)
7	The measures adopted for solid waste disposal and management system motivates my participation in sports	4 (66.7)	39 (83.0)	34 (44.7)
8	The high levels of vector, insects and rodents controls in the playgrounds are parts of my motivation for participation in sports	4 (66.7)	25 (53.2)	34 (44.7)
9	I participate in sports due to good accommodations provided for athletes during	4 (66.7)	33 (70.2)	54 (71.1)

	sports training and competition.			
10	I participate in sports due to sound training outfits provided for all athletes during sports training and competitions	6 (100.0)	47 (100.0)	64 (84.2)
11	The existing good transportation system and road networks are parts of my motivation to sports participation.	6 (100.0)	34 (72.3)	56 (73.7)
	Cluster Mean Percentage	(83.3)	(75.4)	(70.1)

Keys: <50% = non determinant; >50% = determinant of sports participation.

Table 2 shows that overall, greater percentage of the athletes of different age groups in Zamfara State, Nigeria agreed that environmental factors are determinants of sports participation (<16 years = 88.3%; 16-20 years = 75.4%; >21 years = 70.1%). The Table also shows that smaller percentage of the athletes of different age groups in Zamfara State, Nigeria disagreed that environmental factors are determinants of sports participation (<16 years = 16.7%; 16-20 years = 24.6%; >21 years = 29.9%).

Table 3: Frequencies and Percentages of Environmental Factors that Determine Sports Participation among Athletes in Zamfara State, Nigeria based on Gender (n=129).

S/ N	Items	Female (n=46) f (%)	Male (n=82) f (%)
1	The geographical location of the sporting or training arena motivates my participation in sports.	44(95.7)	79(96.3)
2	The distance to sporting facility and playground are parts of my motivation to participate in sports	29(63.0)	65(79.3)
3	The weather condition (rainy, dry, wind, sun) during training and sporting competition are parts of my motivation to participate in sports	36(78.3)	50(61.0)
4	I participate in sports due to the quality of toilet facilities and drainage systems in the camping arena	28(60.9)	55(67.1)
5	The quality of meals served during camping and sports competition are parts of my motivation for sports participation	33(71.7)	60(73.2)
6	I participate in sports due to the well-organized training hours and duration of training for all athletes	41(89.1)	57(69.5)
7	The measures adopted for solid waste disposal and management system motivates my participation in sports	31(67.4)	45(54.9)
8	The high levels of vector, insects and rodents controls in the playgrounds are parts of my motivation for participation in sports	19(41.3)	43(52.4)
9	I participate in sports due to good accommodations provided for athletes during sports training and competition.	28(60.9)	62(75.6)
10	I participate in sports due to sound training outfits provided for all athletes during sports training and	42(91.3)	74(90.2)

	competitions		
11	The existing good transportation system and road networks are parts of my motivation to sports participation.	32(69.6)	63(76.8)
	Cluster Mean Percentage	(71.7)	(72.4)

Keys: <50% = non determinant; >50% = determinant of sports participation.

Table 3 shows that overall, greater percentage of the athletes of different gender groups in Zamfara State, Nigeria agreed that environmental factors are determinants of sports participation (<female = 71.7%; male = 72.4%). The Table also shows that smaller percentage of the athletes of different gender groups in Zamfara State, Nigeria disagreed that environmental factors are determinants of sports participation (<female = 28.3%; male = 27.6%).

Table 4: Frequencies and Percentages of Environmental Factors that Determine Sports Participation among Athletes in Zamfara State, Nigeria based on Location (n=129).

S/ N	Items	Urban (n=71) f (%)	Rural (n=58) f (%)
1	The geographical location of the sporting or training arena motivates my participation in sports.	70(98.6)	54(93.1)
2	The distance to sporting facility and playground are parts of my motivation to participate in sports	55(77.5)	39(67.2)
3	The weather condition (rainy, dry, wind, sun) during training and sporting competition are parts of my motivation to participate in sports	44(62.0)	43(74.1)
4	I participate in sports due to the quality of toilet facilities and drainage systems in the camping arena	51(71.8)	33(56.9)
5	The quality of meals served during camping and sports competition are parts of my motivation for sports participation	50(70.4)	44(75.9)
6	I participate in sports due to the well-organized training hours and duration of training for all athletes	49(69.0)	50(86.2)
7	The measures adopted for solid waste disposal and management system motivates my participation in sports	45(63.4)	32(55.2)
8	The high levels of vector, insects and rodents controls in the playgrounds are parts of my motivation for participation in sports	38(53.5)	25(43.1)
9	I participate in sports due to good accommodations provided for athletes during sports training and competition.	57(80.3)	34(58.6)
10	I participate in sports due to sound training outfits provided for all athletes during sports training and competitions	66(93.0)	51(87.9)
11	The existing good transportation system and road networks are parts of my motivation to sports	58(81.7)	38(65.5)

participation.

Cluster Mean Percentage (74.7) (69.4)

Keys: <50% = non determinant; >50% = determinant of sports participation.

Table 4 shows that overall, greater percentage of the athletes of different locations in Zamfara State, Nigeria agreed that environmental factors are determinants of sports participation (urban = 74.7%; rural = 69.4%). The Table further shows that smaller percentage of the athletes of different locations in Zamfara State, Nigeria disagreed that environmental factors are determinants of sports participation (urban = 25.3%; rural = 30.6%).

Table 5: Chi Square Statistics Testing Significant Difference in the Environmental Factors that Determine Sports Participation among Athletes in Zamfara State, Nigeria based on Age (n=129).

Environmental Variable Factors(Age)		O(E)	Agree O(E)	Disagree χ^2	df	P-value	Dec
Age	<16 years	6(5.4)	0(0.6)	1.671	2	0.434	NS
	16-20 years	44(42.6)	3(4.4)				
	21 years plus	67(68.9)	9(7.1)				

Note: NS = Not Significant; S = Significant; Dec. = decision; df = degree of freedom

Table 5 showed the calculated chi-square value and the corresponding p-value of the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on age ($X^2 = 1.671$; $p = 0.434$) which is greater than 0.05 level of significance at 2 degrees of freedom. The null hypothesis of no significant difference in the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on age was therefore accepted. This implies that the environmental factors that determine sports participation of the respondents did not differ significantly based on age.

Table 6: Chi Square Statistics Testing Significant Difference in the Environmental Factors that Determine Sports Participation among Athletes in Zamfara State, Nigeria based on Gender (n=129).

Environmental Variable Factors(Gender)		O(E)	Agree O(E)	Disagree χ^2	df	P-value	Dec
Gender	Female	41(41.7)	5(4.3)	0.293	2	0.864	NS
	Male	75(74.4)	7(7.6)				

Note: NS = Not Significant; S = Significant; Dec. = decision; df = degree of freedom

Table 6 showed the calculated chi-square value and the corresponding p-value of the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on gender ($X^2 = 0.293$; $p = 0.864$) which is greater than 0.05 level of significance at 2 degrees of freedom. The null hypothesis of no significant difference in the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on gender was therefore accepted. This implies that the environmental factors that determine sports participation of the respondents did not differ significantly based on gender.

Table 7: Chi Square Statistics Testing Significant Difference in the Environmental Factors that Determine Sports Participation among Athletes in Zamfara State, Nigeria based on Location (n=129).

Environmental Variable Factors(Location)		O(E)	Agree O(E)	Disagree χ^2	df	P-
valueDec						
Location	Urban	63(64.4)	54(52.6)	0.723	1	0.395
	Rural	8(6.6)	4(5.4)			

Note: NS = Not Significant; S = Significant; Dec. = decision; df = degree of freedom

Table 7 showed the calculated chi-square value and the corresponding p-value of the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on location ($X^2 = 0.723$; $p = 0.395$) which is greater than 0.05 level of significance at 1 degrees of freedom. The null hypothesis of no significant difference in the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on location was therefore accepted. This implies that the environmental factors that determine sports participation of the respondents did not differ significantly based on location.

Discussion

The findings in Table 1 showed that the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria were geographical location, training outfits, training hours and duration, transportation system and road network, distance to sporting facility or playground, quality of meal served, accommodation, weather condition, quality drainage system and toilet facilities, and waste disposal and management systems. These findings are expected and quite encouraging as they revealed certain environmental conditions responsible for sports participation among athletes particularly in Zamfara State. These findings share similarities with other assertions which indicate that when an athlete performs in warm and humid conditions, normal body circulation is affected and thus limits the supply of nutrients to the muscles (Hulshot et al., 2017). Also, a survey of athletes from a variety of sports showed that training at altitudes between 1.8km and 3km promotes and improves endurance-based activities (Bernhard, 2017; Markland et al., 2017). Also, an Indian-based survey reported that environmental factors actively contribute to improved sports participation by athletes (Matheri et al., 2018). The implication of this finding is that the athletes agreed that environmental factors determine their participation in sports in Zamfara State. According to Youngstedt and O'connor (2019), transportation (air travel) affects athlete's performance. In accordance with other findings, Ringkat et al. (2017) reported that secondary school student athletes in public secondary schools in Doha agreed that distance to sporting facility or playground, training outfits, geographical location, training hours and duration, transportation system and road network determine their participation in sports. Similarly, Makaya et al. (2017) revealed that interest, reward, development of personal skill, attainment of fitness and improvement of self-esteem are factors that determine sports participation athletes in Delta State, Nigeria. Similarly, Heyne et al. (2018) found that secondary school students with disabilities in Mozambique agreed that environmental factors determine their participation in sports. The authors summarized these factors among others to include developing and displaying

competence (from learning new skills), experiencing challenges and success, acquiring social benefits that arise from affiliation to a group or team, improving fitness, and having fun. There are obvious similarities in these studies as they addressed environmental factors that determine athletes' sports participation. It is therefore plausible to attribute these peculiarities in the findings to the participants' composition and the appropriateness of the research design used in the study.

The findings in Table 2 showed that greater percentage of the athletes of different age groups in Zamfara State, Nigeria agreed that environmental factors are determinants of sports participation. Also, the finding in Table 5 showed no significant difference in the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on age, signifying that the environmental factors that determine sports participation by the respondents did not differ significantly based on age. The findings were quite expected and not surprising as they demonstrate that all the athletes in varying age categories agreed that environmental factors determine sports participation in Zamfara State. One of the implications of the findings is that age of the athletes did not alter the responses on environmental factors as determinants of sports participation in Zamfara State. These findings are commendable and could be linked age-longed life experiences and personal exposures gained by the respondents during the course of training and sporting competitions. Interestingly, the majority of the athletes agreed that environmental factors determine sports participation in Zamfara State regardless of age. These findings are in accordance with Gong et al. (2017) who reported that college student athletes in public schools in Togo see environmental factors as determinants of sports participation. In addition, the study summarized other contributing factors to sports participation to include personal interest and satisfaction, skill acquisition and development, goal attainment, winning of trophy, rewards and self-esteem. However, the study showed no significant difference in determining factors to sports participation based on age. Similarly, in Brazil, college student athletes of different age cohorts agreed that environmental factors determine active sports participation (Wachira et al., 2017). The study further reported existing significant difference regarding environmental factors as determinant of sports participation among college student athletes based on age. There are obvious similarities in these studies as they addressed environmental factors as determinants of sports participation according to age. It is therefore plausible to attribute these peculiarities in the findings to the participants' composition and the appropriateness of the research design used in the study.

The findings in Table 3 showed that greater percentage of the athletes of different gender groups in Zamfara State, Nigeria agreed that environmental factors are determinants of sports participation. Also, the finding in Table 6 showed no significant difference in the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on gender, signifying that the environmental factors that determine sports participation by the respondents did not differ significantly based on gender. The findings are quite encouraging and expected as they demonstrate that the athletes regardless of gender agreed that environmental factors determine their participation in sports. This signifies that the gender of the athletes did not affect the responses of the athletes on the environmental factors as determinants of sports participation in Zamfara State. These expected findings are commendable and could be attributed both cultural and personality disposition which might have motivated the athletes regardless of gender to agree on environmental factors as determinants of sports participation. These findings are in accordance with Nashi (2018) who reported that all

the athletes regardless of gender agreed that environmental factors determine physical activity participation. The author further reported significant difference on environmental factors as determinant of physical activity participation by the respondents based on gender. Similarly, Isaa et al. (2018) reported that all athletes regardless of gender agreed that environmental factors are determinants of sports participation among professional athletes in Zaria, Nigeria. The study further reported no significant difference on the environmental factors as determinants of sport participation among professional athletes in Zaria, Nigeria based on gender. There are obvious similarities in these studies as they addressed environmental factors as determinants of sports participation according to gender. It is therefore plausible to attribute these peculiarities in the findings to the participants' composition and the appropriateness of the research design used in the study.

The findings in Table 4 showed that greater percentage of the athletes of different locations in Zamfara State, Nigeria agreed that environmental factors are determinants of sports participation. Also, the finding in Table 7 showed no significant difference in the environmental factors that determine sports participation among athletes in Zamfara State, Nigeria based on location, signifying that the environmental factors that determine sports participation by the respondents did not differ significantly based on location. The findings were expected and highly encouraging as they show that all the athletes regardless of location agreed that environmental factors determine sports their participation in Zamfara State. This implies that the location of the athletes did not alter the responses on the environmental factors as determinants of sports participation in Zamfara State. These encouraging findings are commendable and could be attributed to cultural background, quality exposures and life experiences which might have played crucial roles for all athletes regardless of location to agree on environmental factors as determinants of sports participation in Zamfara State. The findings are in accordance with Bukhala et al. (2018) who reported that student athletes in tertiary institutions in Southeast Asia regardless of location agreed that environmental factors determine sports participation among student athletes in tertiary institutions in Southeast Asia. The author further reported no significant difference on environmental factors as determinants of sports participation by the respondents based on location. Similarly, Horst et al. (2018) reported that the athletes in Douala, Cameroon regardless of location agreed that environmental factors are determinants of sport participation. The study further reported existing significant difference on the environmental factors as determinants of sport participation among athletes in Douala, Cameroon based on location. There are obvious similarities in these studies as they addressed environmental factors as determinants of sports participation according to location. It is therefore plausible to attribute these peculiarities in the findings to the participants' composition and the appropriateness of the research design used in the study.

Conclusions

The environmental factors that determine sports participation among athletes in Zamfara State, Nigeria are geographical location, training outfits, training hours and duration, transportation system and road network, distance to sporting facility or playground, quality of meal served, accommodation, weather condition, quality drainage system and toilet facilities, and waste disposal and management systems.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. The state ministries of sports should make provisions of needed environmental facilities and supplies for athletes, coaches and team managers to sustain high level of sports participation for state athletes in Zamfara State.
1. The prospective researchers should explore other variables such as income level, peer influence, religious affiliation, among others that would act as determining factors to active sports participation among state athletes.

REFERENCES

- Anderson, G., Heyne, B., Humariya, O., Sajid, K., Isamme, L., Muhammad, P., Rabeena, J., Gazi, S. & Amani, N. (2018). Determinants of physical activity participation among secondary school students with disabilities in Mozambique: a cross-sectional study. *Journal of Sports and Health Research*, 13 (11), 271-273.
- Baranowski, U., Mayanja, E., Nakamanya, A., Muhumuza, D., Beesty, L. & Resnicow, K. (2019). Determinants of sports involvement and physical exercise participation among secondary school student athletes, sports fans and supporters in Uganda. *International Journal of Sports and Preventive Medicine*, 18 (26), 229-238.
- Bartfield, L., Menadise, R., Fakipik, T., Malone, A., Filipe, M. & Khatibat, L. (2017). Determinants of sports involvement and physical exercise participation among athletes, and sports fans in Rangareddy district of Telangana. *International Journal of Health, Medicine and Sports Science*, 15 (8), 264-278.
- Bernhard, W. N. (2017). Acetazolamide plus low-dose dexamethasone is better than acetazolamide alone to ameliorate symptoms of acute mountain sickness. *Aviat Space Environ Med*, 69, 793-801.
- Bukhala, R., Brochado, D., Brochado, J., Brito, S. & Wong, H. (2018). Determinants of sports participation among student athletes in tertiary institutions in Southeast Asia. *Asian Journal of Physical Education and Sports*, 28 (1), 250-270.
- Canback Global Income Distribution Database. (2020). *Canback Dangel. Canback Global Income Distribution Database*. Retrieved on 05-02-2020 from: c-globalincomedistributiondatabase.gov.ng.
- Canfield, I., Gaskey, L., Lindau, D. & Alexander, W. (2019). Determinant of active engagement in sports activities and physical exercises among sports fans and sports supporters in Australia. *Australian Journal of Sports Medicine and Health Research*, 81 (10), 160-174.
- Crettende, B., Kirby, S., Gwapa, R., Evans, L. & Macree, H. (2018). Determinants of sports involvement, exercise and physical activities among athletes, supporters and sports fans in Republic of Zimbabwe. *Journal of Community Health and Sports Science*, 17(8), 134- 142.
- Dagkas, S., & Stathi, A. (2017). Exploring social and environmental factors affecting Adolescents' participation in physical activity. *European Physical Education Review*, 13(3), 369-384. DOI:10.1177/1356336X07081800.
- Deci, E. C. & Ryan, R. M. (2017). The what, why of goal pursuit, human needs, and the self- determination of behavior. *Psychological Enquiry*, 11(4), 227-268.
- Department of Planning, Research and Statistics Directorate of Sports Development Zamfara State (2020). *Sports involvement by athletes and fans*. Zamfara State Government.
- Edimok, T., Udom, L., Akite, E. & Effong, H. (2017). Sport involvement and social

- personality variables of students in secondary school in central senatorial district of Cross River State, Nigeria. *Journal of Education and Practice*, 6(15), 134-145
- England Department of Health. (2019). *Team sports, individual sports and sports involvement by athletes and fans in developed countries*. Official Report of the England Department of Health.
- Evan, H., Larry, D. & Nestal, C. (2017). *Participation and Motivation in Sport and in Relation to General Mental Health and Social Physique Anxiety*. Department of Psychology DBS School of Arts Dublin
- Ferketich, B., Arash, R., Toupin, P., Ali, E., Lessard, S. & Gholamreza, K. (2018). Determinants of active engagement in physical activity and sports among athletes and sports fans in Ohio Appalachia. *Journal of Community Health and Sports Science*, 17(8), 1434-1440.
- Heider, F. (1958). *The Psychology of Interpersonal Relations*. New York: Wiley.
- Horst, V., Lessard, P., Oenema, E., Brug, R., Toupin, E. & Lebouche, E. (2018). Determinants for sports involvement and physical activities among athletes, sports supporters and fans in Douala, Cameroon. *International Journal of Sports Psychology, Medicine and Health*, 26(5), 1266-1279.
- Hulshot, E., Takahashi, F., Blakemole, L. & Sluiter, G. (2017.) The spirit of sport, morality, and hypoxic tents: logic and authenticity. *Applied Physiology, Nutrition, and Metabolism*, 32(2), 289-296.
- Isaa, G., Ahmed, R., Sabitu, L., Idris, W., Breuer, O. & Ahmed, K. (2018). Determinants of sport participation in different sports among professional athletes in Zaria, Nigeria. *International Journal of Physical Education and Sports*, 161 (14), 69-86.
- Kendra, H., Jeans, K., Morris, L. & Sensat, U. (2018). Personality characteristics of team members may influence the way the group perform or participate in sports activities. *Interdisciplinary Research Journal of Sports*, 94(43), 53-67.
- Levine, B.D. (2018). Living high-training low: The effect of altitude acclimatization/normoxic training in trained runners. *Med Sci Sport Exerc*, 23(S25), 673-685.
- Maram, M. (2012). *Nigeria Gold Rush Exposes Children to Lead Poisoning - Bloomberg Business*. Retrieved on 05-02-2020 from: bloomberg.com.
- Markland, P., Dagkas, S., Silva, L., & Stathi, A. (2017). Intermittent hypoxic training: fact and fancy. *High Alt Med Biol*, 3, p. 177-193.
- Matheri, J., Wyrwich, R., Cavalheiro, N. & Lopes, B. (2018). Determinants of sports involvement and physical activity participation among secondary school student athletes and sports fans in South Rajasthan, India. *Research Journal of Sports Sciences*, 14(8), 1241-1256.
- Mullany, F., Cox, P., Coleman, E., Roker, R., Khatri, O. & Daremstadet, H. (2019). Determinants for sports involvement and physical exercise participations among athletes and fans in public tertiary institutions in Accra region of Ghana. *International Journal of Sports Science and Medicine*, 32 (8), 193-120.
- Nashi, J. (2018). Environmental factors that influence physical activity participation in children and youth: a synthesis of the literature. *Kinesiology, Sport Studies, and Physical Education Synthesis Projects*, 54.
- Natasha, Y., Jones, F., Latreille, S., Olds, G. & Slone, E. (2019). Determinants of sports participation, exercises and games among Kenyan undergraduate athletes, fans and sports supporters in public tertiary institutions. *International Journal of Physical Activity and Health Research*, 11(7), 521- 535.

- National Population Commission. (2006). *Primary Health Care Priority Tables. National Population Commission*. Retrieved on 05-02-2020 from: npc/population.gov.ng.
- Ransy, F., Pekaest, M., Zenda, L., Greft, A. & Jeffy, C. (2017). Expressed motives for informal and club associations in sports based involvement. *Journal of Leisure Research*, 36(6), 112-125.
- Records and Statistics Unit, Zamfara State Ministry of Youth Development, Sports, and Skill Acquisition, Gusua. (2019). *Estimation of total number of athletes and fans in Zamfara State*. Zamfara State Ministry of Youth Development, Sports, and Skill Acquisition, Gusua.
- Ringkat, T., Bulndi, D., Planks, M., Lelic, N. & Maniag, L. (2017). Determinants of sports participation and physical exercises among secondary school student athletes, sports fans and supporters in public secondary schools in Doha. *Journal of Physical Activity and Health Research*, 73(12), 152- 173.
- The Nigerian Map. (2020). *History of states of Nigeria*. Retrieved on 05-02-2020 from: <http://www.onlinenigeria.com/map.gif>.
- Troped, H., Wilson, A., Matthews, Q., Jassim, D., Abaaelddin, A. & Huddappan, O. (2018). Determinants of active sports involvement and physical exercises participation among secondary school student athletes and sports fans in Bayelsa State of Nigeria. *African Journal of Public Health and Sports Science*, 77(8), 1342-1355.
- Verapy, O., Loopy, R., Kasps, S., Marions, M. & Wasley, S. (2018). Determinants of sport participation in different sports among secondary school student athletes, sport fans and supporters public secondary schools of Ethiopia. *Ethiopian Journal of Sports Psychology and Health Research*, 17(9), 1278-1289.
- Wachira, T., Onywera, E., Bellady, O., Muthuri, D., Traih, J., Tremblay, S., Wellaant, L. & Loopy, B. (2017). Determinants of sports participation and physical exercise participations among college student athletes, sports fans and supporters in Brazil. *Sports Journal Educational Research*, 177(38), 42-55.
- Wilson, G., Benner, K., Sly, R. & Nechols, L. (2016). ABC body building of external rewards on intrinsic motivation for active sport participation in university settings. *Journal of Sports Science and Physical Education*, 5(4), 63-74.
- World Health Organization. (2019). *Promoting sport involvements and enhancing health in European Union countries*. World Health Organization, Geneva, Switzerland.
- Yeats, M., Neamins, R., Mohammed, M., Isamil, K. & Bepsam, L. (2019). Shifting training and competition session during athlete development and personal relations. *Journal of Sports Science and Education*, 67(3), 137-153.
- Youngstedt, S.D. & O'connor, P.J. (2019). The influence of air travel on athletic performance. *Sports Medicine*, 28(3), 197-207.