Cardiovascular Diseases Risk Factors Amongst Footballers in National Stadium, Surulere, Lagos State, Nigeria

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ABSTRACT

Background: *Cardiovascular disease (CVD) is a leading cause of death globally and is a major public health concern. In recent years, there has been an increased focus on the health of footballers, given the physical demands of the sport and the potential for lifestyle-related risk factors for cardiovascular diseases.*

Objective: *This study was conducted to assess the cardiovascular disease risk factors among footballers in National Stadium Surulere Lagos State.*

Methods: *The study employed a cross-sectional design that involved 225 footballers at the National Stadium Surulere, Lagos State. Structured questionnaire was used to obtain socio-demographic and economic characteristics, lifestyle practices, as well as dietary pattern data from the respondents. The blood pressure of the respondents was measured with the use of digital blood pressure monitor. Obtained data was analyzed with statistical package for social sciences (SPSS) version 23.0.*

Results: *About half (44%) of the footballers were within the age ranges of 15 and 20 years. Almost all the footballers (83.1%) consume sports/energy drinks. About one-third (33.8%) of the respondents had tertiary education and approximately half of the respondents (53.8%) had secondary education. Majority had optimal systolic of <120mmHg and fewer proportion had systolic BP values of stage 1 and stage 2 hypertension (16.9% and 6.2% respectively).*

Conclusion: *This study showed that majority of young footballers consume sports/energy drinks, highlighting a potential area for nutrition education and guidance. Additionally, the study shows that despite high energy intake, the footballers generally have healthy blood pressure levels, with only a small proportion showing signs of hypertension.*

INTRODUCTION

Cardiovascular disease (CVD) is a leading cause of death globally and footballers are at increased risk of developing CVD due to a combination of factors, including genetics, lifestyle, and the physical demands of the sport (1). Despite the many physical and mental benefits of the sport, footballers are also at risk of developing cardiovascular disease (CVD) (2). The physical demands of the sport and the potential for lifestyle-related risk factors, poordiet, and smoking, mean that footballers are at increased risk of developing CVD (2). Given that cardiovascular disease is a leading cause of death in young footballers, maintaining a healthy diet may be fight against its development (3).The risk factors for cardiovascular illnesses include obesity, smoking, high blood pressure, high cholesterol,

cardiac arrest, alcohol use, and physical inactivity (4).Studies have indicated suboptimal dietary choices among football players, such as excessive consumption of unhealthy fats and inadequate intake of fruits and vegetables (5)..The importance of addressing CVD risk in footballers cannot be overstated. While high-intensity exercise is generally beneficial for cardiovascular fitness, it can lead to structural and functional adaptations in the heart (6). These adaptations may pose challenges in accurately assessing CVD risk and necessitate further investigation. Assessing cardiovascular disease risk factors among footballers is crucial for optimizing their health and well-being.

There is dearth in knowledge and limited researches that have been conducted to assess the nutritional status and risk of cardiovascular diseases among footballers in Nigeria. This study thereby bridges this gap by contributing to nutrition body of knowledge by providing data and insight about the cardiovascular risk of footballers at Lagos State.

METHODS
Study design
This study was a cross-sectional study.

Study area
This study was carried out in National Stadium Surulere, Lagos State. The National Stadium in Surulere, Lagos, Nigeria, serves as a prominent sporting venue and training ground for footballers. The stadium was built by the General Yakubu Gowon military administration in 1972 as a 55,000-capacity sporting facility. It was later redesigned 1999 to a 45,000 capacity. With its rich history and significance in the Nigerian sports landscape, the National Stadium Surulere is a valuable study location for assessing cardiovascular disease (CVD) risk factors among footballers.

Selection criteria
All footballers who use the stadium were included in the study.

Sampling technique
Total population sampling was used. All the 225 footballers who use the stadium (Sport Council Lagos).

Sample size determination
In the stadium were 9 registered teams of which each team consisted of a 25-man squad summing up to a total population of 225. Therefore, a total sample size of 225 was used for this research.

Instruments for data collection
An interviewer-administered structured questionnaire was used which are divided into sections; socio-demographic and economic characteristics, lifestyle practices, dietary pattern, and cardiovascular history. Blood pressure of the respondents was measured with the use of digital blood pressure monitor. The data was collected over the period of one month
.
Data analysis
Data from this survey was subjected to statistical tools for data analysis specifically using statistical package for the social science (SPSS), Version 23.0. The blood pressure was categorized according to American Heart Association classification. The analysis involved descriptive statistics (frequencies, percentage, mean and standard deviation) and inferential statistics (chi-square) with p value set at 0.05.

Ethical consideration
Ethical approval was obtained from College of Medicine, University of Lagos Health Research Ethics Committee CMULHREC Number: CMUL/HREC/03/23/1146 and informed consent was sought from the respondents. This research was done under strict confidentiality in accordance with the Declaration of Helsinki.

RESULTS
Socio-demographic and socio-economic characteristics of the respondents
Table 1 below shows the distribution of the football players according to their socio-demographic characteristics. Majority (44%) of the footballers fell within the age ranges of 15 – 20 years, about a third (34.2%) of the population were within 21 – 26 years and just few fell within the ranges of 27 – 32 years and above 33 years (11.1% and 10.7% respectively). A larger proportion (68%) of the footballers are Christians while more than a quarter (27.6%) are Muslims and the remaining few belonged to other religions. About one-third (33.8%) of the respondents had tertiary education while majority (53.8%) of them had secondary education and very few had no formal education (14%). Assessing their employment status, 44.5% of the population are self-employed while 43.6% are unemployed and only few (12%) are civil servants.

Table 1: Socio-demographic and socio-economic characteristics of the respondents

Socio-demographic and socio-economic characteristics	Frequency (225)	Percentage (%)
Age(years)		
15 - 20	99	44
21 - 26	77	34.2
27 - 32	25	11.1
Above 33	24	10.7
Religion		
Christianity	153	68.0
Islam	62	27.6
African Traditional Religion	2	9
Others	8	3.6
Educational Level		
Primary	14	6.2
Secondary	121	53.8
Tertiary	76	33.8
No formal Education	14	6.2
Marital Status		
Single	194	86.2
Engaged	11	4.9
Married	19	8.4
Divorced	1	4
Ethnicity		
Yoruba	123	54.7
Hausa	15	6.7
Igbo	62	27.6
Others	25	11.1
Employment status		
Civil servant	27	12.0
Self employed	100	44.4
Unemployed	98	43.6
Average Monthly Income(₦)		
Less than 20,000	70	31.1
20,000- 39,999	49	21.8
40,000- 79,999	29	12.9
Above 80,000	55	24.4
No income	22	9.8

Lifestyle practices of respondents

Table 2 below shows the lifestyle practice of the respondents. Most (60.4%) of the respondents did not take alcoholic drinks while about 39.6% of them consume alcoholic drinks. In terms of frequency only very few (9.3%) of the respondents drink regularly, 21.3% drink occasionally and 17.8% rarely. Similarly, a high proportion (87.6%) of the population do not engage in smoking and 12.4% of the population do smoke. About 5.3% of the population smoke occasionally, 2.7% smoke regularly and about 7% of the population rarely smoke. High proportion (83.1%) of the footballers consume sports/energy drinks, while the remaining few (16.9%) do not.

Table 2: Lifestyle practices of respondents

Lifestyle practices	]Frequency (225)	Percentage (%)
Alcoholic drink intake		
Yes	89	39.6
No	136	60.4
Alcoholic drinks consumption frequency		
Never	116	51.6
Rarely	40	17.8
Occasionally	48	21.3
Regularly	21	9.3
Smoking		
Yes	28	12.4
No	197	87.6
Smoke frequency		
Never	190	84.4
Rarely	16	7.1
Occasionally	12	5.3
Regularly	6	2.7
Everyday	1	0.4
Smoking type		
Nothing	198	88
Tobacco	2	0.9
Cannabis	9	4
Cigarette	10	4.4
Others	6	2.8
Herbal or traditional remedy or concoction intake		
Yes	105	46.7
No	120	53.3
Sport or energy drinks intake		
Yes	187	83.1
No	38	16.9

Dietary habits of respondents

Table 3 below shows the dietary habits of the respondents. A large proportion (38.7%) of the footballers eat whenever they are hungry, about a quarter (24%) responded to eating 3 – 4 times a day, 11.6% eat strictly breakfast, lunch and dinner, while 16% of the population responded to eating less than 2 times a day. Most of the footballers (60%) skip breakfast, 91.1% eat fried foods. Majority (39.6%) of the footballers consume fried foods 1 – 2 times a week, more than a quarter (26.6%) consume fried foods every day and only about 12% of them claimed to consume fried foods less than once a week.

The study showed that 95.1% of the footballers consume fruits and vegetables. Majority (33.8%) of the footballers consumed fruits and vegetables once or twice in a week, 32.9% consumed fruits and vegetables 3 – 5 times a week and only about 20.9% consumed daily, the remaining few consumed fruits and vegetables once a month and occasionally (5.3% and 7.1% respectively). The study showed that majority (95.6%) of the population drink water more than 3 times daily, and 2.7% drink water only when eating and 1.8% less than 3 times daily.

Table 3:Dietary Habits of respondents

Dietary Habits of respondents	Frequency (225)	Percentage (%)
Daily meal consumption frequency		
More than 4 times a day	22	9.8
Whenever hungry	87	38.7
Less than 2 times a day	36	16
3 - 4 times a day	54	24
Strictly breakfast, lunch and dinner	26	11.6
Breakfast consumption		
Yes	135	60
No	90	40
Fried foods consumption		
Yes	205	91.1
No	20	8.9
Fried foods consumption frequency		
Less than once a week	27	12
1 - 2 times a week	89	39.6
3 - 6 times a week	49	21.8
Everyday	60	26.6
Fruits and vegetables consumption		
Yes	214	95.1
No	11	4.9
Fruits and vegetables consumption frequency		
Once or twice a week	76	33.8
3 - 5 times a week	74	32.9
Daily	47	20.9
Once a month	12	5.3
Occasionally	16	7.1
Water consumption frequency		
Less than 3 times daily	4	1.8
More than 3 times daily	215	95.6
Only when eating	6	2.7

Cardiovascular disease history of respondents

Table 4 below shows the cardiovascular disease history of the respondents. Many respondents (46.7%) are actually aware of what cardiovascular diseases (CVDs) are and slightly more than half (53.3%) of the population do not know. Most of the footballers (93.3%) have not been diagnosed of any of the CVDs, while just 6.7% of the population have been diagnosed. The results also showed that about a quarter (24.9%) of them agreed to using herbal remedies for raised blood pressure while majority (75.1%) of the population do not. Statistical results showed that precisely only 5.3% of the footballers have family history of cardiovascular diseases while vast majority (94.7%) of them do not

Table 4: Cardiovascular disease history of respondents

Cardiovascular Disease History	Frequency (225)	Percentage (%)
Awareness of what cardiovascular disease is		
Yes	105	46.7
No	120	53.3
Cardiovascular disease (atherosclerosis, stroke, heart failure/heart attack or cardiomyopathy) diagnosis		
Yes	15	6.7
No	210	93.3
Anti-hypertensive medications or drugs intake		
Yes	19	8.4
No	206	91.6
Family history of cardiovascular disease (Hypertension, heart attack, stroke, angina, hardening of the arteries)		
Yes	56	24.9
No	169	75.1
Taking herbal or traditional remedy for raised blood pressure		
Yes	12	5.3
No	213	94.7

Blood pressure measurement of respondents

Figure 1 below shows the systolic blood pressure classification of the respondents. For systolic blood pressure ranges, it was revealed that majority of the footballers have optimal blood pressure of <120mmHg (75 respondents; 33.33%) and few have systolic blood pressure values of stage 1 and stage 2 hypertension (38 respondents; 16.9% and 14 respondents; 6.2%) respectively. Figure 2 below shows the diastolic blood pressure classification of the respondents. Majority (121 respondents; 53.8%) of them have optimal blood pressure of <80mmHg and few have diastolic blood pressure values of stage 1 and stage 2 hypertension (21 respondents; 9.3% and 19 respondents; 8.4%) respectively.
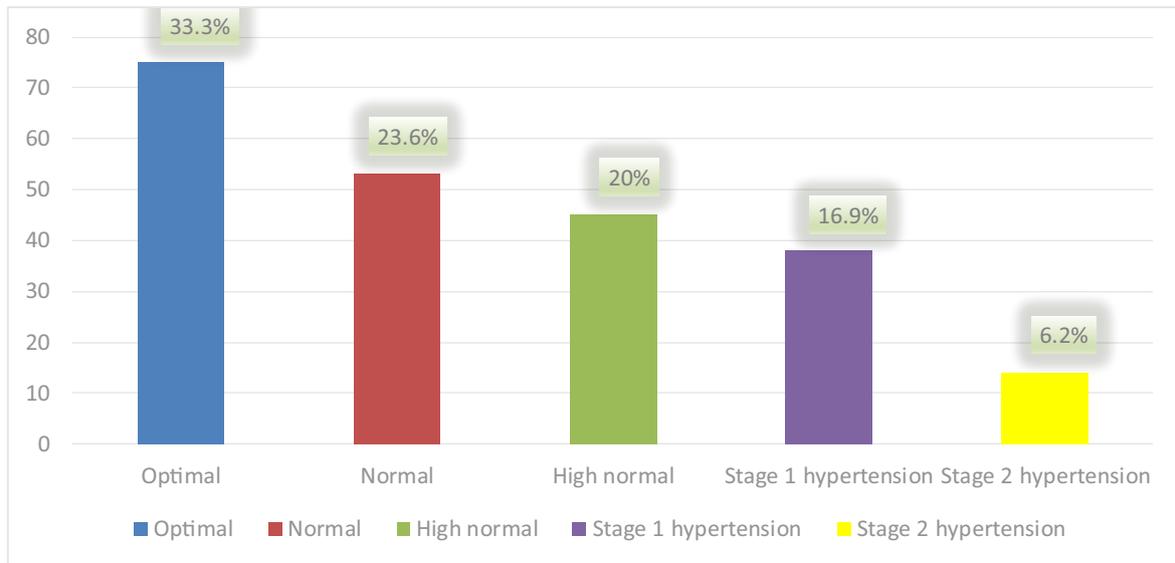
Figure 1: Proportion of Respondents According to Systolic Blood Pressure Classifications
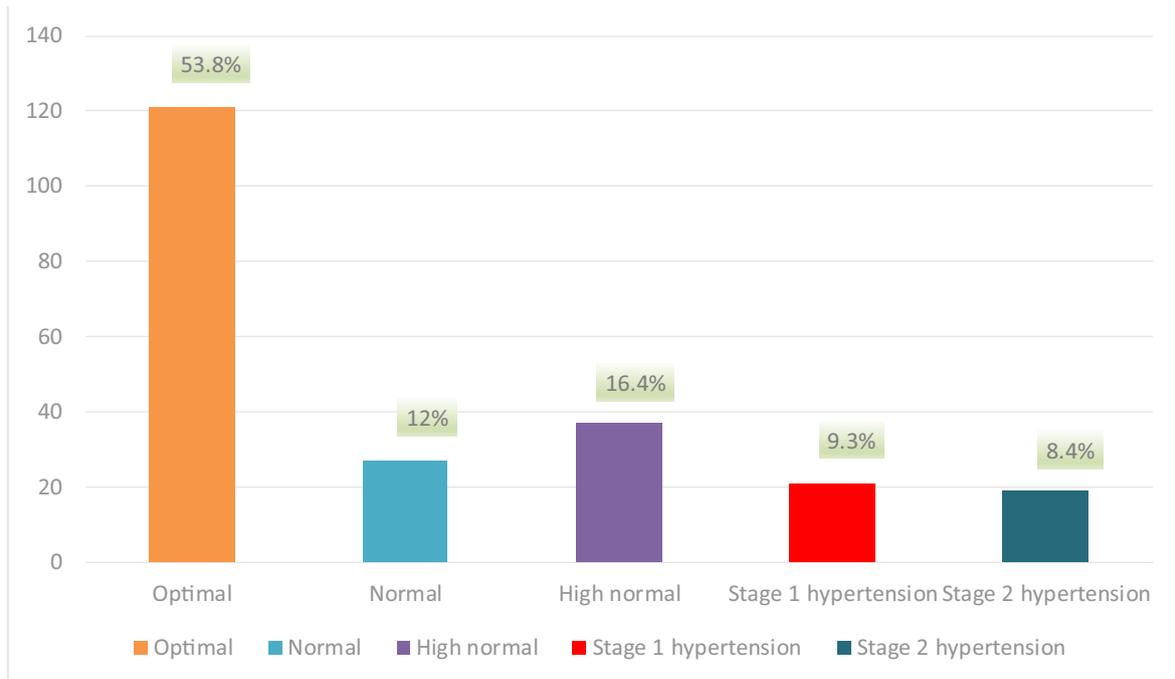

Figure 2: Proportion of respondents according to diastolic blood pressure classifications
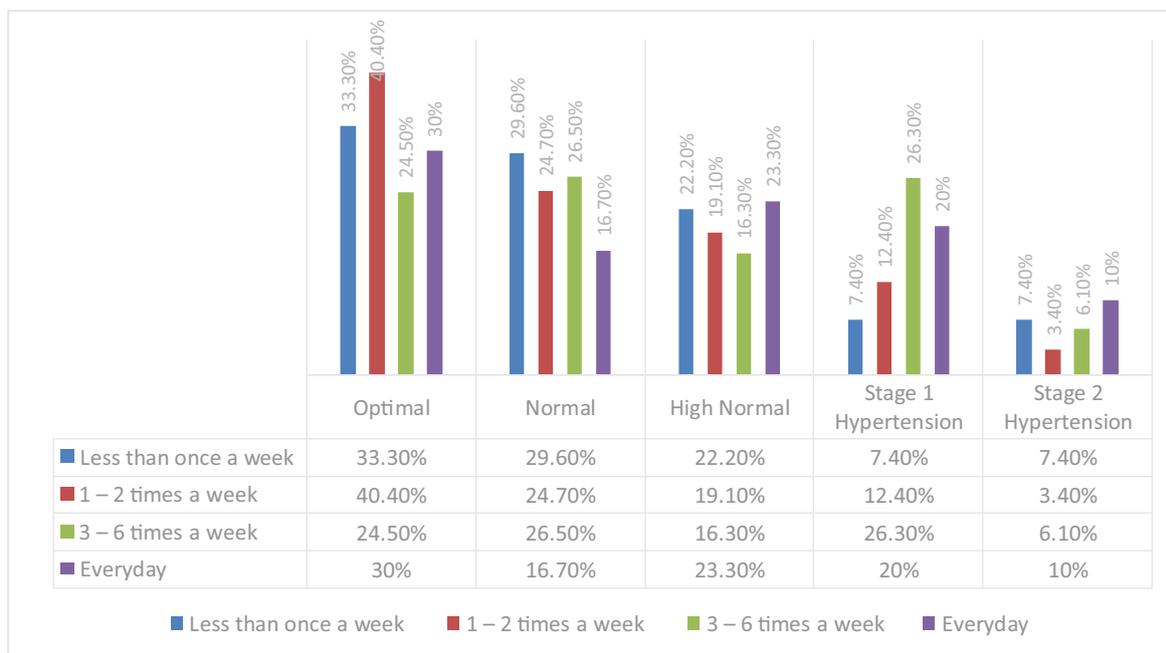
Relationship between lifestyle practices, dietary practices and blood pressure

Table 5 below shows the relationship between lifestyle practices and blood pressure of the respondents. The study showed significant relationship between systolic blood pressure and smoking habit (x^2 = 9.307, p = 0.05). Significant relationship was also found between diastolic blood pressure and smoking habit among the footballers (p = 0.005). Similarly, there was an observed significant difference between alcohol consumption and systolic blood pressure (x^2 = 9.333, p = 0.053) as well as alcohol consumption and diastolic blood pressure (p = 0.05). However, no significant relationship was found between fried food consumption and systolic blood pressure of the respondents (x^2 = 13.495, p = 0.336).

Table 5: Relationship between lifestyle practices and blood pressure of the respondents

| | Frequency (%) | | | | | |
	Optimal	Normal	High Normal	Stage 1 Hypertension	Stage 2 Hypertension	P value
Smoking				Systolic BP		
Yes	5(17.5)	4(14.3)	7(25)	9(32.1)	3(10.7)	0.05
No	70(35.5)	49(24.9)	38(19.3)	29(14.7)	11(5.6)	
				Diastolic BP		
Yes	10(35.7)	3(10.7)	4(14.3)	8(28.6)	3(10.7)	0.005
No	111(56.2)	24(12.2)	33(16.8)	13(6.6)	16(8.1)	
Alcohol consumption				Systolic BP		
Yes	20(22.5)	21(23.6)	23(25.8)	18(20.2)	7(7.9)	0.05
No	55(40.4)	32(23.5)	22(16.2)	20(14.7)	7(5.1)	
				Diastolic BP		
Yes	38(42.7)	14(15.7)	18(20.2)	12(13.5)	7(7.9)	0.05
No	83(61)	13(9.6)	19(14)	9(6.6)	12(8.8)	

	Optimal	Normal	High Normal	Stage 1 Hypertension	Stage 2 Hypertension
Less than once a week	33.30%	29.60%	22.20%	7.40%	7.40%
1 – 2 times a week	40.40%	24.70%	19.10%	12.40%	3.40%
3 – 6 times a week	24.50%	26.50%	16.30%	26.30%	6.10%
Everyday	30%	16.70%	23.30%	20%	10%

Figure 3: Distribution showing relationship between dietary practice and systolic blood pressure

DISCUSSION

The results showed that 44% of the footballers fell within the age range of 15 to 20 years. This means that the players were young and have more playing days ahead of them in their career. This was in contradiction to a study of conducted in Brazil that reported that majority of the footballers fell within the age range of 26 to 27 years (7). Most of the

footballers (68%) are Christians. This could be explained by the religious distribution of the study area. Surulere is known to be a predominantly Christian neighbourhood. This was in contradiction to a study conducted by Abdulai that reported most of the footballers (88.2%) to be Muslims due to the fact that the study was conducted in Tamale Metropolitan District in Northern Region of Ghana which is known to be a predominantly Muslim neighborhood (8).

The study revealed that most of the footballers do not smoke and do not drink alcohol. This aligns with previous research that identified a lower prevalence of alcohol consumption and smoking among footballers compared to the general population (9, 10). These findings suggest that footballers in Nigeria prioritize healthier lifestyle choices, which is beneficial for their overall cardiovascular health. Previous research has consistently shown that smoking is associated with an increased risk of cardiovascular diseases (11). Therefore, efforts should be made to educate and support these individuals in smoking cessation to minimize the potential negative impact on their cardiovascular health.

The findings indicate that a significant proportion of the footballers skipped breakfast (60%) and consumed fried foods (91.1%). Skipping breakfast has been associated with an increased risk of obesity and metabolic disorders in previous studies (12). Similarly, a high intake of fried foods can contribute to unhealthy levels of fats and calories, potentially affecting cardiovascular health (13).

On a positive note, the majority of the footballers (95.1%) reported consuming fruits and vegetables, indicating a favorable dietary habit. This finding is consistent with previous research that emphasizes the importance of a diet rich in fruits and vegetables for cardiovascular health (14). Fruits and vegetables provide essential nutrients, fiber, and antioxidants that promote cardiovascular well-being. Majority of the footballers (53.3%) were not aware of what cardiovascular diseases are, suggesting a lack of knowledge about cardiovascular disease. Furthermore, (6.7%) of the footballers had been diagnosed with cardiovascular diseases. A previous study highlighted the importance of raising awareness about cardiovascular diseases, their risk factors, and preventive measures among footballers

(14). Similar research also emphasized the significance of proper medical management and monitoring for footballers with cardiovascular diseases to ensure their well-being and minimize potential complications (15).

CONCLUSION

Summarily, this study showed most of the respondents have good lifestyle practice but their dietary habit is fairly poor as most of them skips breakfast. However, they consume fruits, vegetables and water well. Most of the respondents have optimal blood pressure but only half are aware of what cardiovascular diseases means, only few reported having family history cardiovascular diseases.

These footballers will benefit from nutrition education that will enlighten them about cardiovascular diseases and the need for regular checkup.

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