

Effect of coronavirus disease lockdown on the physical and psychological attributes of Nigerian athletes

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Abstract

Background/ Objective: The aim of the study was to assess the effect of lockdown measures occasioned by COVID-19 pandemic on the physical and psychological characteristics of Nigerian athletes.

Methods: An online survey involving 578 elite athletes was utilized, using an electronic questionnaire which sought information on respondents' socio-demographics, sports type, level of psychological distress, injury incidences management, and expectations or otherwise of financial support during the lockdown period. Data obtained were analyzed with descriptive and inferential statistics with SPSS version 21 with alpha set at ≤ 0.05 .

Results: Results showed that the COVID-19 lockdown had a significant negative impact on respondents' ratings of cardiovascular endurance, muscular strength, joint flexibility, speed, agility, coordination level and body weight. The Kessler Psychological Distress Scale showed that 44.1% of the respondents were likely to have been psychologically well, while 20.6% and 12.5% were likely to be having mild and moderate disorders respectively. 22.8% of the respondents were likely to be having severe disorder as a result of the lockdown restrictions. Results also showed no association between respondents' age, gender, marital status, sports type and level of psychological distress. However, there were associations between the presence of injury and lack of access to its management during the lockdown period, expectation of financial support or palliative from club during lockdown period and the level of psychological distress.

Conclusion: It was concluded that COVID-19 pandemic elicited reduction in physical attributes and varying levels of psychological distress among Nigerian athletes.

Keywords: *Coronavirus disease, lockdown restrictions, Nigerian athletes, physical characteristics, psychological distress*

Résumé

Contexte / Objectif: Le but de l'étude était d'évaluer l'effet des mesures de verrouillage occasionnées par la pandémie de Covid-19 sur les caractéristiques physiques et psychologiques des athlètes nigériens.

Méthodes: Une enquête en ligne portant sur 578 athlètes d'élite a été utilisée, à l'aide d'un questionnaire électronique qui cherchait des informations sur les caractéristiques sociodémographiques des répondants, le type de sport, le niveau de détresse psychologique, la gestion des incidences de blessures et les attentes ou non de soutien financier pendant la période de verrouillage. Les données obtenues ont été analysées avec des statistiques descriptives et inférentielles avec SPSS version 21 avec alpha fixé à $d'' 0,05$.

Résultats: Les résultats ont montré que le verrouillage du COVID-19 avait un impact négatif significatif sur les évaluations des répondants concernant l'endurance cardiovasculaire, la force musculaire, la flexibilité articulaire, la vitesse, l'agilité, le niveau de coordination et le poids corporel. L'échelle de détresse psychologique de Kessler a montré que 44,1% des répondants étaient susceptibles d'avoir été psychologiquement bien, tandis que 20,6% et 12,5% étaient susceptibles d'avoir des troubles légers et modérés respectivement. 22,8% des répondants étaient susceptibles de souffrir de troubles graves en raison des restrictions de verrouillage. Les résultats n'ont également montré aucune association entre l'âge, le sexe, l'état matrimonial, le type de sport et le niveau de détresse psychologique des répondants. Cependant, il y avait des associations entre la présence d'une blessure et le manque d'accès à sa gestion pendant la période de verrouillage, l'attente d'un soutien financier ou palliatif du club pendant la période de verrouillage et le niveau de détresse psychologique.

Conclusion: Il a été conclu que la pandémie de COVID-19 a entraîné une réduction des attributs physiques et des niveaux variables de détresse psychologique chez les athlètes nigériens.

Mots clés: *maladie à coronavirus, restrictions de verrouillage, athlètes nigériens, caractéristiques physiques, détresse psychologique*

Introduction

Coronaviruses (CoVs) are a group of highly diverse, enveloped, positive sense, and single stranded RNA viruses. They are responsible for several diseases involving respiratory, enteric, hepatic, and neurological systems with varying severity among humans and animals [1]. The recent discovery of coronavirus disease 2019 (COVID 19) in the city of Wuhan in China's Hubei Province in addition to the previous outbreaks of Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) have significantly accelerated the study of these viruses in greater detail [2,3]. The pathogenic organism causing COVID-19 named as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV 2) by the World Health Organization (WHO) is often spread through human to human transmission [4].

As of February 12, 2021, over 107 million confirmed cases of COVID-19 and more than 2.36 million deaths have been recorded globally, with the number of infected people increasing on a daily basis [5]. There are more than 143,000 confirmed cases and over 1,700 coronavirus-related deaths in Nigeria (as of February 11, 2021) according to the Nigeria Centre for Disease Control (NCDC) [6]. These figures rank Nigeria sixth in Africa, in terms of COVID-19 prevalence [5]. Governments at all levels have responded to this global health crisis by introducing diverse measures needed to mitigate the current situation. Major among these is the adoption of different degrees of lockdown and restrictions to minimize the spread of SARS CoV 2 [7]. Despite the relative success recorded so far, this measure undoubtedly has its attendant negative consequences in the lives of all and sundry. Most life endeavours, particularly sporting activities in many parts of the world have been suspended as a result of these lockdown measures. Access to outdoor training environment such as pitches and gymnasias became difficult, thereby preventing athletes from engaging in their normal training and conditioning programmes. This situation could have a deleterious effect on the well-being of these

athletes, especially with respect to their physical and mental health [8].

It has been shown that the achievement of peak exercise performance, as typified by competitive endurance athletes, may take several months to years of aerobic training [9]. Despite extended periods of aerobic training, reductions in maximal and submaximal exercise performance occur within weeks after the cessation of training [9]. Detraining or exercise cessation leads to rapid decline of functional adaptations over the first month, although structural adaptations persist for somewhat longer. This is followed by series of physiological and metabolic changes [10,11].

Psychological distress, being an indicator of mental health is considered a temporary emotional response to stress. It can be harmful if left untreated, ultimately resulting into depression [12,13]. Positive psychology is no doubt a necessary ingredient for excellent professional performance and it is equally important in excellence in athletic performance. Most sportsmen and women often boost their confidence and other psychological indices by depending on their colleagues and other people around them to train with, compete against and be supported by [14]. Therefore, it is hypothesized that the social restriction/isolation regulation imposed as part of lockdown measures to curtail spread of COVID-19 disease pandemic could potentially have a negative impact on the psyche of Nigerian sporting athletes and resultantly affect their physical well-being and athletic performance. The current situation offers a unique opportunity to explore the effect of lockdown measures on the physical and psychological indices of Nigerian athletes.

Methods

A nationwide online cross-sectional survey was conducted using the popular WhatsApp platform. The choice of an online survey was as a result of restrictions in movement and physical contacts imposed by the Nigerian government due to COVID-19 pandemic. Study was conducted between 25th of April and 1st May 2020, period during which lockdown measures were total in Nigeria. Contact persons who were coaches of different sports were recruited to facilitate the enrollment of respondents (active Nigerian athletes) for the study. An electronic questionnaire that sought information on respondents' socio-demographics, sports type, level of psychological distress, injury cases management, and expectation or otherwise of financial support by

their team or club management during the lockdown period was used for this study. Kessler Psychological Distress Scale (K10) was utilized to assess the level of psychological distress among respondents because its reliability and validity have been established using Cronbach's alpha by many studies [15,16]. The research questionnaire was subsequently tested for its content validity among physiotherapy and sports science experts and was found to be good enough for the purpose of data collection as planned by the researchers.

Using Google form, the questionnaire was hyperlinked to WhatsApp. The WhatsApp links containing the questionnaire was shared with the contact persons who in turn forwarded it to their athlete contacts. Multiple responses from same individual/contact was programmed to be denied. The purpose of the study was clearly explained and informed consent was sought from the respondents. Anonymity of the respondents was assured. Completed questionnaires were submitted via online links. The questionnaire link was subsequently

deactivated just as the lockdown restrictions were about to be eased in many parts of the country, with a total of 578 athletes duly completed the questionnaire.

Statistical analysis

IBM Statistical Package for Social Sciences (SPSS) version 21.0 was used for data analysis. Descriptive statistics of frequency and percentages were used to summarize data. Paired t-test was used to determine the difference between respondents' physical characteristics before and during Covid-19 lockdown period. Chi-square test was used to assess the associations between respondents' age, gender, marital status, sports type, expectation of financial support from club or team during lockdown period and level of psychological distress. Association between the presence of injury and lack of access to its management during the lockdown period was also determined. Alpha level was set at $p \geq 0.05$.

Table 1: Sociodemographic profiles of the respondents (N=578)

	Frequency	Percentage
<i>Gender</i>		
Male	446	77.2
Female	132	22.8
<i>Marital Status</i>		
Single	446	77.2
Married	128	22.1
Divorced	4	0.7
<i>Age</i>		
20-24	242	41.9
25-29	153	26.5
30-34	60	10.3
35-39	123	21.3
<i>Sports type</i>		
Combat	242	41.9
Soccer	179	30.9
Athletics (Tracks and field events)	64	11.0
Cricket	13	2.2
Hockey	13	2.2
Weight-lifting	13	2.2
Swimming	4	0.7
Tennis	21	3.6
Volleyball	17	2.9
Basketball	12	2.1
<i>Geopolitical zone</i>		
South West	259	44.8
South East	30	5.2
South South	166	28.7
North Central	63	10.9
North East	26	4.5
North West	34	5.9

Results

Respondents' socio-demographics

Majority of the respondents were males (77.2%), single (77.2%) and in the 20-39 years age range. 41.9% of the respondents were involved in combat sports, 30.9% in soccer and 11.0% compete in athletic events [Table 1].

Respondents' level of psychological distress

255 respondents (44.1%) were likely to be well according to the Kessler Psychological Distress Scale (K10), while 119 respondents (20.6%) were likely to be having a mild disorder. 72 respondents (12.5%) were likely to be having a moderate disorder, while 132 respondents (22.8%) were likely to be having a severe disorder [Table 3]. Meanwhile, the cut off

Table 2: Paired t-test statistics on respondents' ratings of their physical characteristics before and during COVID-19 lockdown

Variables	Mean± Std. Deviation		t-test	p-value
	Before Lockdown	During Lockdown		
Cardiovascular Endurance	3.09±0.93	2.60±0.93	4.367	<0.001*
Muscular strength	3.21±0.86	2.57±0.87	6.196	<0.001*
Joint Flexibility	2.99±0.88	2.49±0.82	4.865	<0.001*
Speed	2.99±0.88	2.40±0.84	5.640	<0.001*
Agility	3.18±0.85	2.46±0.88	6.866	<0.001*
Coordination level	3.14±0.85	2.53±0.87	5.873	<0.001*
Body weight	2.88±0.91	2.39±0.88	4.537	<0.001*

Physical characteristics before and during COVID-19 lockdown

There were significant differences in respondents' ratings of their physical characteristics (cardiovascular endurance, muscular strength, joint flexibility, speed, agility, coordination level and body

average score on the K10 scale for the respondents is 22, this indicated that an average Nigerian athlete had a mild psychological disorder as a result of lockdown.

Table 3: Respondents' level of psychological distress

Level of psychological distress	Frequency	Percentage
Well	255	44.1
Mild	119	20.6
Moderate	72	12.5
Severe	132	22.8

weight) prior to the commencement of COVID-19 lockdown and during lockdown [Table 2].

Associations between selected variables.

Using the Chi-square test, the study explored associations between selected variables as obtained from the research questionnaire. There was no association between respondents' age, gender, marital

Table 4: Chi-square test showing the associations between selected variables

Variables	P-value
Age vs Level of psychological distress	0.310
Gender vs Level of psychological distress	0.831
Marital status vs Level of psychological distress	0.861
Sports type vs Level of psychological distress	0.748
Presence of injury vs Lack of access to its management	0.004*
Level of psychological distress vs Expectation of financial support or palliative from club or team	0.028*

status, sports type and level of psychological distress. However, there was association between the presence of injury and lack of access to its management during the lockdown period ($p=0.004$). Furthermore, there was association between expectation of financial support or palliative from club during lockdown period and the level of psychological distress ($p=0.028$) among the respondents [Table 4].

Discussion

The objective of this study was to assess the effect of lockdown measures imposed as a control measure for COVID-19 on the physical and psychological indices of Nigerian athletes. Findings from the present study revealed that COVID-19 lockdown had a significant negative impact on self-reported physical characteristics of Nigerian athletes. Restrictions from usual physical activities such as participation in training conditioning programmes and sports competitions due to COVID-19 lockdown have resulted in deterioration of respondents' physical characteristics. This finding is supported by reports from previous studies which state that cessation from regular exercise and physical activities can negatively impact on physical and physiological attributes of people who stop exercising [17,18]. Detraining period is often accompanied with reduced aerobic capacity, increased body fat, and muscle loss which would inevitably lead to decline in athletic performance [11].

The outcome of this study also showed that an average Nigerian athlete had a mild mental disorder (psychological distress) as a result of lockdown imposed by government as a control measure for COVID-19 pandemic which prevented the respondents from their normal sporting activities. This is judged by the average score of 22 recorded on the K10 scale. However, close to half of the respondents (44.1%) experienced no psychological distress, while a reasonable number of the respondents (35.3%) experienced between moderate and severe psychological distress leaving only 20.6% with mild distress as a result of the lockdown restrictions. Mental health is a major resource for athletes in relation to their performance and development [19]. Therefore, restrictions from training and exercise in elite athletes significantly contracted their lives and resulted in psychological issues [20,21]. The discrepancy observed from respondents' levels of psychological distress could be as a result of the personality types of the athletes and different coping strategies engaged by them during this period. Studies had reported relationship of personality type in psychological distress and coping strategies [22-24]. Literature also suggests that individuals often use

diverse coping strategies to improve an unpleasant situation [25]. Furthermore, personality types have direct and indirect effects, through social support and negative interactions, on psychological distress [26].

The associations between age, gender, marital status and the level of psychological distress of Nigerian athletes were found to be statistically non-significant in this study. The outcome of the present study is at variance with another study which posited that age was associated with mental health problems in elite athletes, with 50% of onsets between ages 17-21 [27]. Our findings also contradicted other studies which opined that female athletes are often associated with relatively higher levels of psychological distress when compared to their male counterparts [28,29]. This difference in findings may be as a result of the fact that less than one-quarter of the respondents in the present study are females. Furthermore, a study involving the general population showed that married participants were also more likely to experience events like marital disputes which might be a contributory factor leading to psychological distress [30].

The study recorded a significant association between expectation of financial incentive (palliative) from club or team management during covid-19 lockdown period and level of psychological distress. This is in tandem with other researches which affirmed that availability of financial incentives and social support for elite athletes is associated with motivation and performance [19,31]. The present study also revealed a positive association between presence of injury and lack of access to its management among the respondents with presence of psychological distress. Sport injuries prevent athletes from participating in sporting activities. Previous studies had reported association of mental health concerns (psychological distress) with a presence of higher number of past severe injuries and higher number of past surgeries in former elite athletes [32] and also in current athletes [19]. However, our finding contrasts the report of Combs *et al.*, 2017 which stated that a history of one or more concussions does not influence psychological distress in college athletes [33].

Conclusion

The COVID-19 pandemic had a significant negative impact on self-reported physical characteristics of Nigerian athletes. The situation also elicited varying levels of psychological distress among Nigerian athletes. The outcome of this study is of utmost importance to sports administrators, sports coaches, trainers, sports physicians and physiotherapists to put

into proper perspectives in managing athletes and teams post-COVID era.

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