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KNOWLEDGE, AWARENESS AND IMPACT OF CORONAVIRUS DISEASE LOCKDOWN ON TRAINING, FITNESS AND PERSONAL PARAMETERS: A SURVEY OF NIGERIAN ATHLETES

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Abstract The study was to assess the knowledge and awareness of COVID-19 pandemic, and the impact of lockdown restrictions on training, fitness and personal parameters of Nigerian athletes. This cross-sectional study recruited 578 elite athletes through an online survey using WhatsApp platform. An adapted questionnaire was used to obtain information on awareness, knowledge and impact of COVID-19 on athletes' characteristics. Descriptive and inferential statistics were used to analyze data. Alpha level was set at $p \leq 0.05$. There was high level of awareness (100%) of COVID-19 pandemic among the respondents. The main source of awareness of COVID-19 was social media (68.4%). Some of the respondents (55.9%) had correct knowledge of COVID-19 causative organism. Age was significantly associated with knowledge about cause ($X^2 = 85.361$; $p = 0.002$) and spread ($X^2 = 27.715$; $p = 0.023$) of COVID-19 while gender was significantly associated with knowledge about the spread of the virus ($X^2 = 4.083$; $p = 0.043$). There were significant differences in physical fitness parameters ($p < 0.05$), eating pattern and body weight measures ($p < 0.05$), and general well-being ($p = 0.001$). Lockdown had negative impacts on hours of daily training, sleeping and eating patterns, physical fitness elements and the general well-being of the respondents.

Key words Nigerian athletes, coronavirus disease, knowledge, awareness, lockdown

Introduction

The Coronavirus Disease (COVID-19) pandemic is an unprecedented and ravaging global health crisis with consequent negative effects on societies and economies (Dawa, Narain, Bhatia, 2020; Sumner, Hoy, Ortiz-Juarez, 2020). Severe acute respiratory syndrome coronavirus 2 (SARSCov-2), which causes

COVID-19, was declared a 'Public Health Emergency of International Concern' on 30 January 2020 by the World Health Organization (WHO) (WHO, 2020). The initial symptoms of the disease include fever, cough, dyspnea, myalgia, fatigue, sputum production, headache, hemoptysis and diarrhoea. There is associated bilateral lung ground-glass opacity on computed tomography imaging in almost all infected patients (Huang et al., 2020). Majority of patients with COVID-19 present relatively mild clinical features, however, the disease is associated with significant morbidity and mortality, particularly in older patients and those with chronic medical conditions such as hypertension, diabetes mellitus, asthma, or chronic obstructive pulmonary disease (Emami, Javanmardi, Pirbonyeh, Akbari, 2020).

As at May 31st, 2020, over three million confirmed cases of COVID-19 and more than 260,000 deaths have been recorded worldwide within five months, with the number of sick or dying people increasing by minutes across the globe (WHO, 2020). In Nigeria, according to the Nigeria Centre for Disease Control (NCDC), there are more than 18,000 confirmed cases and over 470 coronavirus-related deaths in the country (as at June 19th 2020). These figures have put Nigeria third in Africa, next only to South Africa and Egypt in terms of COVID-19 prevalence (WHO, 2020). In response, governments at all levels have adopted the use of varying degrees of "lockdown" restrictions to curb the spread of the virus and help people stay healthy at home (George, 2020). Other measures adopted by government authorities were social (physical) distancing, travel restrictions, closure of schools, worship centres, event centres which include stadia and gymnasia. Accordingly, sport activities have been put on hold owing to the COVID-19 pandemic in many parts of the world. The toll of the COVID-19 lockdown restrictions on sports is multifaceted.

Sports contributes to health, education and social inclusion objectives and empowerment (UN Reports, 2020). Sportsmen and women (athletes) undergo regular training and conditioning programmes which in turn enhance performance in their sports, boost confidence, prevent injuries, as well as help attain optimum physical fitness (Wilson, Loenneke, Jo, Wilson, Zourdos, Kim, 2012). Although, training and conditioning programmes can be performed individually, characteristically, for elite athletes, group is the ideal. Since the imposition of lockdown restrictions by national and state governments in order to curtail the spread of COVID-19, active group training or competition have been put on hold in many countries, including Nigeria. This interruption in the professional activity of athletes could have deleterious effects on their physical fitness, and psychosocial health, as well as have socio-economic implications (Batey, Parry, 2020). In order to help inform policy on sports during and after the COVID-19 regime, there is a need to explore the impact of the coronavirus athletes' personal and sports characteristics. Therefore, this study assessed knowledge and awareness of COVID-19 pandemic, and the impact of lockdown restrictions on training, fitness and personal parameters of Nigerian athletes.

Material and methods

Participants, instrument and procedures

A nationwide online cross-sectional survey was carried out using WhatsApp platform. The choice of online survey was as a result of restrictions in movement and physical contacts that was imposed by the Nigerian government because of COVID-19. Study was conducted between 25th of April and 1st of May 2020. The online questionnaire was deactivated just as the total restrictions was about to be eased in many parts of Nigeria. Eligible respondents were active elite athletes across the country. The study recruited contact persons who were sport coaches in different sports. The contact persons helped in the recruitment of respondents for the study. An electronic

questionnaire that sought information on socio-demographics, sports type, knowledge and awareness of COVID-19, sports participation/ training programme, training frequencies, training environment, eating and sleeping habits, general well-being and physical fitness elements before and during COVID-19 lockdown restrictions was used in this study. The tool was developed from the subjective well-being (SWB) questionnaire (adapted from WHO healthy policy paper) (Lindert, Bain, Kubzansky, Stein, 2015), and was tested for its content validity among experts in physiotherapy and sports science. Using google form, the questionnaire was hyperlinked to WhatsApp. The WhatsApp links containing the questionnaire was shared with the contact persons who in turn broadcasted it to their athlete contacts. Filled questionnaires were submitted via online links. Multiple responses from same individual/contact were programmed to be denied. The purpose of the study was clearly expressed and informed consent was sought from the respondents. Filling the survey indicates consent. Anonymity of the respondents was assured. In all, a total of 578 athletes duly completed the questionnaire.

Statistical analysis

Descriptive statistics of frequency and percentages were used to summarize data. Paired t-test was used to test for differences of the measured variables in order to assess the impacts of lockdown on the participants' characteristics before and during the lockdown. Chi-square analysis was used to test association between the participants' fitness parameters and demographic variables. Alpha level was set at $p \leq 0.05$. IBM Statistical Package for Social Sciences (SPSS) version 20.0 was used for the analysis.

Results

Respondents' socio-demographics and sports characteristics

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

Respondents' awareness and knowledge about COVID-19

There was a high level of awareness (100%) of COVID-19 pandemic among the respondents. The main source of awareness of COVID-19 was through the social media (68.4%) (Table 2). Assessment on knowledge about COVID-19 shows that some of the respondents had correct knowledge of the causative organism for COVID-19 (55.9%), its spread through contact with infected persons (33.8%) and contaminated surfaces (14.0%), 14 days incubation period before emergence of symptoms (96.3%) and the spread of infection to others by an infected asymptomatic person (96.3%). While having cure for COVID-19 is controvertible, 42.6% of the respondents indicated that COVID-19 cannot be cured, while 57.4% opined that it can be cured with chloroquine, traditional herbs, etc. Some of the respondents rightly assert that COVID-19 leads to higher fatality among the elderly (47.8%) and that fever (70.6%), cough (74.3%) and pneumonia / breathing difficulty (83.1%) are clinical signs of COVID-19 (Table 3).

Impact of the lockdown on respondents

Paired t-test analysis results show there were significant differences in physical fitness parameters ($p < 0.05$), eating pattern and body weight measures ($p < 0.05$), and general well-being ($t = 11.201$; $p = 0.001$). Only duration of training per day was significantly different ($p < 0.05$) of the training variables. There was a significant difference on respondents' daily training frequency, weekly training frequency, training environment, eating and sleeping patterns, general well-being and all physical fitness elements (cardiovascular endurance, muscular strength, joint flexibility, speed, agility and coordination level) (Table 4). The study also showed significant difference in the general well-being of the athletes as a result of COVID-19 lockdown measures ($t = 11.201$; $p = 0.001$). Also, age was significantly associated with knowledge about cause ($X^2 = 85.361^{\dagger}$; $p = 0.002$) and spread ($X^2 = 27.715$; $p = 0.023$) of COVID-19 while gender was significantly associated with knowledge about the spread of the virus ($X^2 = 4.083$; $p = 0.043$) (Table 5).

Table 1. Sociodemographic Profiles of the Respondents (N = 578)

	Frequency	Percentage
Gender		
Male	446	77.2
Female	132	22.8
Marital Status		
Single	446	77.2
Married	128	22.1
Divorced	4	0.7
Age		
20–24	242	41.9
25–29	153	26.5
30–34	60	10.3
35–39	123	21.3
Type of Sport		
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 and basketball	17	2.9
Basketball	12	2.1
Geopolitical zone		
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

Table 2. Awareness of COVID-19 among Respondents (N = 578)

	Frequency	Percentage
Where did you first learn of COVID-19		
Friend/Relative/Social Media	64	11.0
Radio	9	1.5
Television	51	8.8
Social media	395	68.4
Other	60	10.3

Table 3. Knowledge of Respondents on Clinical Signs of COVID-19

No.	Item	Frequency	Percentage of respondents who gave correct answers
1.	What is the cause of COVID-19?	323	55.9
2.	How is the causative agent spread?	276	47.8
3.	What is the reservoir of agent of COVID-19?	217	37.5
4.	How many days does it take for symptoms to manifest?	557	96.3
5.	Can an infected person without symptoms infect others with whom they come in contact	557	96.3
6.	COVID-19 can be treated or cured with chloroquine	106	18.4
7.	COVID-19 can be treated or cured with traditional remedies, available vaccines, tea, garlic & ginger	149	25.7
8.	COVID-19 does not have a cure	246	42.6
9.	Age group of people at high risk of COVID-19 infection (the elderly and those with underlying health conditions)	429	74.3

Table 4. Paired t-test Analysis of the Impact of Lockdown on Respondents' Training and Physical Fitness Elements

	Mean ± Std. Deviation		t-test	P-value
	Before	During lockdown		
Training parameters				
Frequency of training per day	1.66 ±0.75	1.53 ±0.97	1.261	0.208
Frequency of training per week	5.43 ±1.59	5.09 ±1.89	1.600	0.111
Hours of daily training	2.80 ±1.23	2.32 ±1.75	2.643	0.009*
Training environment	2.66 ±1.28	2.18 ±1.42	2.503	0.038*
Physical Fitness elements				
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	3.14 ±0.85	2.53 ±0.87	5.873	0.001*
Personal characteristics				
Body weight	2.88 ±0.91	2.39 ±0.88	4.537	0.001*
Eating pattern	2.76 ±0.58	1.88 ±0.72	2.052	0.041*
Sleeping pattern	7.28 ±1.52	8.08 ±2.75	-2.945	0.004*

*Statistically Significant.

Table 5. Chi square test of Association of Knowledge of COVID-19 and Sociodemographic Variables

	X ²	p-value
Age vs Knowledge about the spread of COVID-19	85.361 ^{††}	0.002*
Age vs Knowledge about the cause of COVID-19	27.715 ^{††}	0.023*
Gender vs Knowledge about the spread of COVID-19 infection	4.083 ^{††}	0.043*

†† Chi-square; * Statistically Significant.

Discussion

The objective of this study was to assess knowledge and awareness of COVID-19 pandemic, and the impact of lockdown restrictions on training, fitness and personal parameters of Nigerian athletes. The findings from this study showed a high level of awareness of the COVID-19 pandemic among the respondents. This could be as a result of the wide publicity about the outbreak since its emergence in Wuhan, China. An Iranian study has indicated that high exposure to the information provided by various governments through numerous media platforms about the virus since its outbreak has resulted in high level of awareness about COVID-19 among populace (Erfani, Shahriarirad, Ranjbar, Mirahmadizadeh, Moghadami, 2020). The high level of awareness recorded in this study is similar to types recorded in other studies conducted in China, Egypt and Nigeria about awareness of the general populace about the dreaded coronavirus disease (Roy, Tripathy, Kar, Sharma, Verma, Kaushal, 2020; Abdelhafiz et al., 2020; Olapegba et al., 2020). Reports have also indicated that people's level of awareness about an infectious disease is pertinent to one's behavior about preventing it (Choi, Yang, 2010; Hussain, Hussain, Hussain, 2012). Social media was the greatest source of awareness in the present study as it served as source of information for 68.4% of the respondents. This observation is in tandem with the reports of studies from other countries like UAE (Bhagavathula, Aldhaleei, Rahmani, Mahabadi, Bandari, 2020), Egypt (Abdelhafiz et al., 2020), and China (Roy, Tripathy, Kar, Sharma, Verma, Kaushal, 2020).

With regards to the respondents' knowledge about the cause of COVID-19, less than 50% of the respondents attributed the cause of COVID-19 to different sources other than SARSCov-2. A similar finding has been reported in Egypt where respondents attributed other factors like 5G telecommunication technology as the causes of COVID-19 pandemic (Abdelhafiz et al., 2020). Also, more than half of the respondents indicated that COVID-19 can be cured with chloroquine, traditional herbs, etc. The belief that COVID-19 can be cured may be predicated on information made available on different media on possible curative effects of hydroxychloroquine and other traditional herbs (Gautret et al., 2020; Balachandar et al., 2020). This is contrary to the fact that COVID-19 currently has no cure (WHO, 2020). Furthermore, there was a wrong notion by some of the respondents that that people belonging to other age groups other than the elderly people were most vulnerable to COVID-19. This position contradicts officials reports by the WHO that elderly people are most vulnerable to this disease (WHO, 2020).

The finding from the present study showed that age was associated with knowledge about the cause and spread of COVID-19. This finding is in agreement with the reports of other studies on knowledge about COVID-19 causation and spread among people of different age groups of United Arab Emirates who are health care workers (Bhagavathula et al., 2020) and members of general public in Malaysia (Azlan, Hamzah, Sern, Ayub, Mohamad, 2020). Furthermore, this study revealed that gender was associated with knowledge of cause and spread of COVID-19. There exists in literature significant association between gender and proper hand hygiene (Azlan, Hamzah, Sern,

Ayub, Mohammad, 2020; Bhagavathula et al., 2020), but the authors did not find any report of association of gender with knowledge as found in the present study.

The outcome of this study also showed that COVID-19 lockdown measure had a significant negative impact on athletes' training environment, eating and sleeping habits, general well-being and physical fitness elements. This observation may be partly due to the fact that the lockdown period has made access to outdoor training environment such as pitches and gymnasias becomes difficult. Therefore, these athletes resulted to training more at home at lesser frequencies daily and weekly, sleeping for more hours and consuming more food than before the lockdown experience. Studies have reported that adequacy of training facilities and equipment (Can, 2010) and presence of teammates, availability of coaches and social supports are indispensable contributing factors to successful and good athletic performance (Kubiak, 2012). Nevertheless, the study showed that there is a significant difference in the number of hours training per day the athletes experienced before and during the lockdown. This implies that though the athletes possibly managed to train at home, they could not accumulate the desired or required training duration. However, there was no significant difference in daily and weekly training frequencies of the athletes before and during the lockdown or movement restrictions. The implications of this finding are that Nigerian athletes may have been finding means to engage in training in their respective homes on daily basis despite lack of access to the right environment or pitches for their training. Furthermore, the outcome of the study revealed that physical fitness parameters of the athletes were significantly reduced following COVID-19 lockdown restriction. It is adducible that COVID-19 restrictions have significant deleterious effect on physical fitness elements of elite athletes, even if it is short term. This may in turn negatively affect sports performance of Nigerian athletes in post COVID-19 era. Literature has suggested that isolation from sport has disadvantages of decreasing physical and mental health and quality of life even among elite athletes (Dehkodia, 2011). To the best of the authors' knowledge, this is the first study to report the knowledge and awareness of COVID-19 pandemic and its impacts on athletes characteristics in Nigeria.

Limitation

Measurement of physical fitness parameters were based on self-report. Therefore, it is difficult to eliminate over or under-reporting of the variables.

Conclusion

There was high level of awareness and moderate level of knowledge about causes and spread of COVID-19 among Nigerian athletes. COVID-19 lockdown restrictions led to significant reduction in athletes' physical fitness parameters, general well-being and hours of training per day but increase in body weight and eating pattern.

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