



Perception and Attitude of Nigerian Athletes towards Bystander Cardiopulmonary Resuscitation

Adedamola O. Onyeaso ^{a++*}, Smith O. Woji-Nyeche ^{b#},
Chibuotam O. Woji-Nyeche ^c and Chukwudi O. Onyeaso ^{d†}

^a Department of Health Promotion, Environmental and Safety Education, Faculty of Education, University of Port Harcourt, Nigeria.

^b Department of Orthopaedic and Traumatology, University of Benin Teaching Hospital, Benin City, Nigeria.

^c Dental Centre, University of Benin Teaching Hospital, Benin City, Nigeria.

^d Department of Child Dental Health, Faculty of Dentistry, College of Health Sciences, University of Port Harcourt, Port Harcourt, Nigeria.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJMAH/2023/v21i10907

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/104959>

Original Research Article

Received: 18/06/2023

Accepted: 23/08/2023

Published: 02/09/2023

ABSTRACT

Background/Objective: Effective practice of bystander cardiopulmonary resuscitation (CPR) will depend to a good extent on the perception and attitude of a population towards this life-saving technique. This study aimed at assessing the perception and attitude of Nigerian athletes towards this important procedure.

⁺⁺ Associate Professor;

[#] Registrar;

[†] Professor of Orthodontics;

*Corresponding author: E-mail: adedamola.onyeaso@uniport.edu.ng;

Methods: A questionnaire-based national cross-sectional survey of Nigerian athletes was carried out during the 21st National Sports Festival (NSF) in Delta State, Nigeria, which continued after the festival in the various locations of the athletes in the country. The data obtained was analysed using SPSS version 25 and descriptive and chi-square statistics, as well as one sample t test were employed with significance level set at $P < .05$.

Results: In all, 419 athletes were involved in the study - 278 (66.3%) males and 141(33.7%) females with age range of 11- 49 years and mean age of 23.43 ± 5.66 (SD). The participants significantly had positive perception of ($P < .000$) and attitude towards bystander CPR ($P < .000$), which did not vary significantly with respect to their participation in contact or non-contact sports ($P > .05$).

Conclusion/Recommendation: The Nigerian athletes showed encouraging positive perception of bystander CPR and attitude towards it. Nigerian Governments should actively support the establishment of sustainable programmes for teaching and training of athletes in bystander CPR

Keywords: Perception; attitude; bystander cardiopulmonary resuscitation; nigerian athletes.

1. INTRODUCTION

Perception is defined as the ability to see, hear, or become aware of something through the senses [1]. It is also known to mean the way in which something is regarded, understood, or interpreted [1]. Perception (from Latin *perceptio* 'gathering, receiving') is the organization, identification, and interpretation of sensory information in order to represent and understand the presented information or environment. All perception involves signals that go through the nervous system, which in turn result from physical or chemical stimulation of the sensory system. Perception is not only the passive receipt of these signals, but it is also shaped by the recipient's learning, memory, expectation, and attention [2]. Perception, in humans, the process whereby sensory stimulation is translated into organized experience. That experience, or percept, is the joint product of the stimulation and of the process itself [3]. Attitude is a settled way of thinking or feeling about something that affect a person's behaviour. It can be a negative attitude or optimistic attitude [4].

Cardiopulmonary resuscitation (CPR) is an emergency procedure used to treat victims following cardiopulmonary arrest [5]. Sporting activities sometimes result in many trauma and critically ill patients, and the chance of survival after cardiopulmonary arrest may be increased with sufficient attitude and skill levels [5]. Attitude to CPR is central in people getting involved in the training and practice of this life-saving skill. Among cardiac care patients studied by Thoren et al. [6], the major reasons for not being educated in CPR were a lack of awareness of

the availability of CPR training for the public, lack of interest or lack of enterprise, and among those not educated in CPR, only 46% would like to attend a course. According to Kanstad et al. [7], early bystander cardiopulmonary resuscitation (CPR) is essential for survival from out-of-hospital cardiac arrest (OHCA), and young people are potentially important bystander CPR providers, as basic life support (BLS) training can be distributed widely as part of the school curriculum. They concluded in their study as follows: young Norwegians are motivated to perform bystander CPR, but barriers are still seen when more detailed cardiac arrest scenarios are presented. By providing students with good quality BLS training in school, the upcoming generation in Norway may strengthen the first part of the chain of survival in OHCA [7].

Wingen et al. [8] concluded in their study that the gender characteristics of OHCA victims, as well as schoolchildren themselves, have a relevant impact on the willingness to perform CPR. Training concepts should effectively motivate male schoolchildren to reduce pre-existing inhibitions, especially towards female OHCA patients. In Uganda, medical students were found to have poor knowledge of CPR but positive attitude [9]. Wang et al [10] in their study reported that the study reflected a deficiency of AED knowledge among the general public in China. However, positive attitudes towards rescuing OHCA patients and learning AED use were observed, which indicates that measures need to be taken to disseminate knowledge and use of AEDs [10]. In a recent study from Slovenia [11], significant progress in schoolchildren's cardiopulmonary resuscitation knowledge after training was established. Early introduction of training is recommended. Cardiopulmonary

resuscitation knowledge raises awareness of the responsibility to help others and increases self-confidence to provide bystander cardiopulmonary resuscitation. It can be concluded that early cardiopulmonary resuscitation training for children is crucial. It should be a mandatory part of school curricula in those countries where cardiopulmonary resuscitation is not yet mandatory.

The goal of the study by Katona et al. [12] was to explore the factor structure of the First Aid Willingness Questionnaire and determine its correlations and associations between sociodemographic and sport-related variables. Sport-related variables were investigated to determine the effects on first aid attitudes. The study concluded that even though sport seemed to increase first aid willingness, future studies need to explore its associations, and that they believed that a deeper understanding of this topic could help prevent serious injuries or death in emergencies.

Generally, related earlier studies from Nigeria indicated very positive attitudes to bystander CPR [13-19]. However, poor knowledge and attitude towards CPR even among graduate health professionals in Ethiopia has been reported [5]. Also, Abebe et al. [20] reported that health-care providers' knowledge, attitudes, and practices were inadequate, unfavorable, and unsafe regarding the management of cardiac arrest. Training on the assessment of critically ill patients, cardiopulmonary resuscitation, and cardiocerebral resuscitation should be provided for health-care providers. Similar report by Mersha et al. [21] also gave suboptimal attitude towards CPR. In Upper Egypt [22], the results of the study demonstrated suboptimal and inadequate CPR knowledge among junior doctors and medical students in a representative hospital. However, participants reported overwhelmingly positive attitudes and eagerness towards the implementation of CPR training. They recommended that further research needs to be done to establish CPR skill proficiency as well as to investigate barriers to CPR training, effectiveness of available programs, and the potential implementation of such a program in Egypt.

Dibia [23] documented as follows: the world football came to a halt on Saturday when Danish playmaker Christian Eriksen collapsed while in action for Denmark against Finland in the ongoing Euro 2020 tournament. While many of

the world football lovers feared for the worst at Eriksen's sudden collapse, his team captain Simon Kjaer was able to clear his team-mate's airways and started the life-saving CPR technique, which was continued with the aid of a defibrillator and professional medical staff. Thankfully, Kjaer's first aid skills proved vital and Eriksen recovered in the hospital and was considered out of danger. Though CPR is quite easy to learn and it can be the difference between life and death before emergency medical services can arrive to help out, but many players have been left unfortunate and were unable to survive similar cardiac arrest related issue. Notable amongst them were these Nigerian players: August 12, 1989 brought a dark day in Nigerian football when Samuel Okwaraji collapsed and died in the 77th minute while playing for Nigeria in a World Cup Qualifier against Angola in Lagos. A further autopsy showed that the 24-year-old had an enlarged heart and high blood pressure. Okwaraji's death was so painful in the hearts of many because he was great personality with an accomplished carrier outside football. He was also a qualified lawyer who had masters in international law from the Pontifical Lateran University of Rome.

October 29, 1995 Nigerian football witnessed yet another sad moment when Amir Angwe who played for Julius Berger and had previously represented the national team died following a heart attack in an African Cup Winners' Cup match against Mozambique side Maxaquene. Sadly again, on May 26, 2009 Orobosan Adun of Warri Wolves FC who was earlier assaulted before an away match by thugs suspected to be fans of the opposition Enugu Rangers team died during a training session three days later as a result of internal haemorrhage. The pain of Nigerian players heart related deaths continued when Emmanuel Ogoli on December 12, 2010 collapsed on the pitch while playing for Ocean Boys, and died later in hospital. Ogoli had earlier received a "horror injury" in a match on November 14, 2010. Strangely, both the Nigeria Premier League and the Nigeria Football Federation announced separate investigations into his death [23]. There are still more victims of sudden cardiac arrest that could not benefit from bystander cardiopulmonary resuscitation. Dibia [23] concluded his write up by saying: there is no doubt that sports directors especially in Nigeria have seen from Eriksen's recent situation what it means to have swift, efficient and competent medical equipment and personnel around us at such delicate moments with efforts to comply.

We still have limited documented reports on athletes with respect to bystander CPR in our environment [24,25,26]. Recently, COVID-19 Pandemic has impacted the attitude towards bystander CPR globally [27-29]. Considering the limited available literature on attitude of athletes towards cardiopulmonary resuscitation, this national survey aimed at assessing the perception and attitude of Nigerian sports men and women towards bystander cardiopulmonary resuscitation (CPR). It is believed that the outcome of this study could inform future policy and initiatives to improve the rate of bystander CPR in Nigeria, especially among athletes.

2. MATERIALS AND METHODS

2.1 Study Design

A national self-administered questionnaire-based cross-sectional survey of Nigerian athletes was carried out, which targeted the 2^{1st} National Sports Festival (NSF) tagged Delta 2022 that took place in Asaba, Delta State of Nigeria from November 28 to December 10, 2022. The National Sports Festival (NSF), otherwise known as 'Nigerian Olympics,' started in 1973 as a way of uniting the country after the Nigerian civil war that ended in 1970. The 14-day sporting event expected 14, 000 athletes from the 36 States of the country including the Federal Capital Territory (FCT), Abuja. The News Agency of Nigeria reported that no fewer than 14,000 athletes participated in 38 sports at the festival [30].

2.2 Sampling / Data Collection

Although the research Assistants were physically present to ensure samples were collected from all the different sporting events, the busy schedule of the athletes did not make this easy. However, only 25 sports were covered in the final sample collected. In addition, most of the athletes who filled the questionnaire did so when they had returned from the event. In all, four hundred and nineteen (419) athletes filled and returned the questionnaire out of about fourteen thousand (14, 000) athletes who participated in the Sports Festival. The data collection lasted over 6-month period. See the Appendix for the questionnaire on perception and attitude towards bystander cardiopulmonary resuscitation used.

2.3 Weighting of the Responses in the Questionnaire

For attitude, the responses were weighted as follows: Strongly Agree (SA) 5, Agree (A) had 4, Not Certain 3, Disagree (D) got 2, and Strongly Disagree (SD) 1. The responses for perception of bystander resuscitation (CPR) by the athletes were 5 for 'Yes', 2 for 'No' while 'No response' was given 3.

2.4 Null Hypotheses

The following null hypotheses were generated and tested:

Ho1 - that the perception of these athletes towards bystander cardiopulmonary resuscitation (CPR) would not be significantly positive

Ho2 - there would be no statistically significant difference in the perceptions of the contact sports athletes and non-contact sports athletes about bystander cardiopulmonary resuscitation (CPR)

Ho3 - that the attitude of the athletes towards bystander cardiopulmonary resuscitation (CPR) would not be significantly positive

Ho4 -there would be no statistically significant difference in the attitude of the contact sports and non-contact sports athletes towards bystander cardiopulmonary resuscitation (CPR)

2.5 Data Analysis

Using the SPSS version 25, the whole data was analysed descriptively, as well as using Chi-square statistics and One-sample t-test to test the hypotheses. The data was dichotomized into contact sports and non-contact sports. The significance level was set at $P < .05$.

3. RESULTS

Four hundred and nineteen (419) athletes participated in this survey, 278 (66.3%) males and 141 (33.7%) females with age range of 11-49 years and mean age of 23.43 ± 5.66 (SD).

Table 1 show the descriptive and chi-square statistics on the perception of all the athletes about bystander CPR, with statistically significant positive perception by the athletes for all the questions ($P = .000$). This means rejection of the first null hypothesis.

The one sample T test on the contact sports and non-contact sports athletes' perceptions of bystander cardiopulmonary resuscitation (CPR) is provided in Table 2. The mean perception scores of the athletes involved in contact sports were not significantly different from those of non-contact sports athletes ($P > .05$) in three out of the four questions. This means largely an acceptance of the second null hypothesis.

Descriptive and chi-square statistics on attitude of all the athletes towards bystander cardiopulmonary resuscitation (CPR) is shown in Table 3. It was only question 7 (I would perform chest compression only without mouth-to-mouth ventilation) that the athletes' responses gave significantly negative attitude ($P = .000$), while they provided significantly positive attitude ($P = .000$) in the other questions. This result means generally a rejection of the third null hypothesis in this study.

Table 4 gives the one sample T test on the contact sports and non-contact sports athletes' attitude towards bystander cardiopulmonary resuscitation (CPR), which shows that the mean attitude scores for the contact sports athletes were not significantly different from those of their non-contact sports counterparts ($P > .05$). Again,

this means acceptance of the fourth null hypothesis.

4. DISCUSSION

This first national survey on perception and attitude of Nigerian sports men and women towards bystander cardiopulmonary resuscitation (CPR) has revealed that the Nigerian athletes demonstrated significantly positive perception about bystander CPR with generally no significant difference between contact sports athletes and non-contact sports athletes. This present study also has shown significantly positive attitude towards bystander CPR without any significant difference between the contact sports athletes and their non-contact sports counterparts. These findings are consistent with an earlier related study that was limited to a State in Nigeria with a smaller sample size [25].

Much earlier related studies from Nigeria found similar positive attitude towards bystander CPR [14,17-19]. These findings suggest that Nigerians, both children and adults, are positively disposed towards bystander CPR. However, the challenge has been that Nigerian governments are yet to give the necessary support and create the enabling environment for the teaching and

Table 1. Descriptive and chi-square statistics on perception of all the athletes about bystander CPR

Variable	Yes (Positive)	No (Negative)	No response	Mean	SD	Chi-Square	df	Asymp. Sig
Perception 1	288(68.7%)	111 (26.5%)	20(4.8%)	4.1098	1.3367	265.952 ^a	2	.000
Perception 2	350(83.5%)	50(11.9%)	19(4.5%)	4.5513	1.0279	478.573 ^a	2	.000
Perception 3	373(89.0%)	31(7.4%)	15(3.6%)	4.7064	.8512	585.642 ^a	2	.000
Perception 4	365(87.1%)	41(9.8%)	13(3.1%)	4.6444	.9383	548.124 ^a	2	.000

Note: Perception1 - CPR is just a trial and error thing, so it is not worthwhile to perform it on victims; Perception 2 - Sudden Cardiac Arrest victims can survive through CPR; Perception 3 - Every athlete should be trained in CPR so as to help any colleague that is a victim; Perception 4 - The gains of having every athlete trained in CPR outweigh the cost of training

Table 2. One sample T test on contact sports and non-contact sports athletes' perception of bystander CPR

Test variable and Test Value	T	df	Sig.(2-tailed)	Mean Diff	95% Confidence Interval of the Difference	
					Lower	Upper
PC 1 vs NCPC 1	-.546	251	.585	-.04643	-2138	.1210
PC 2 vs NCPC 2	-1.764	251	.079	-.11883	-.2515	.0138
PC 3 vs-NCPC 3	-1.266	251	.207	-.06993	-.1787	.0389
PC 4 vs NCPC 4	-3.574	251	.000	-.23281	-.3611	-.1045

Note: PC = Perception of bystander CPR by contact sports athletes; NCPC = Perception of bystander CPR by non-contact sports athletes

Table 3. Descriptive and chi-square statistics on attitude of all the athletes towards bystander CPR

Variable	Yes	No	No response	Mean	SD	Chi-Square	df	Asymp.Sig
Attitude 1	382(92.1%)	26 (2.5%)	11(2.6%)	4.7613	.77973	631.508 ^a	2	.000
Attitude 2	305(72.8%)	98(23.4%)	16(3.8%)	4.2220	1.28700	317.647 ^a	2	.000
Attitude 3	349(83.3%)	58(13.8%)	12(2.9%)	4.5274	1.06761	478.200 ^a	2	.000
Attitude 4	382(91.2%)	26(6.2%)	11(3.6%)	4.7613	.77973	631.508 ^a	2	.000
Attitude 5	359(85.7%)	45 (10.7%)	15(3.6%)	4.6062	.97826	519.885 ^a	2	.000
Attitude 6	358(85.4%)	48(11.5%)	13(3.1%)	4.5943	.99644	516.348 ^a	2	.000
Attitude 7	182(43.4%)	222(53.0%)	15(3.6%)	3.3389	1.46888	172.644 ^a	2	.000

Note: 1 - When trained, I would like to teach others about CPR; 2 - When trained, I would perform mouth-to-mouth ventilation on a stranger; 3 - I would perform CPR on a trauma victim, if needed.; 4 - I would perform CPR on a relative, if needed; 5 - I would perform CPR on an elderly victim, if needed.; 6 - I would like to perform CPR on a child; 7 - I would perform chest compression only without mouth-to-mouth ventilation

Table 4. One sample T test on the contact sports and non-contact sports athletes' attitude towards bystander CPR

Test variable and Test Value	T	df	Sig.(2-tailed)	Mean Diff	95% Confidence Interval of the Difference	
					Lower	Upper
CA 1 vs NCA 1	-1.328	251	.228	-.09886	-2600	.0623
CA 2 vs NCA 2	-1.208	251	.079	-.11883	-.2515	.0138
CA 3 vs NCA 3	.466	251	.642	-.03068	-.0991	.1604
CA 4 vs NCA 4	-.573	251	.567	-.02840	-.1260	.0692
CA 5 vs NCA 5	-1.858	251	.064	-.10380	-.2138	.0062
CA 6 vs NCA 6	-.894	251	.372	-.05727	-.1835	.0689
CA 7 vs NCA 7	-.474	251	.636	-.04387	-.2260	.1383

Note: CA stands for attitude of contact sports athletes towards bystander cardiopulmonary resuscitation while NCA stands for the attitude of the non -contact sports athletes towards bystander cardiopulmonary resuscitation

practice and bystander CPR in the country. Generally, previous reports have recommended the need for incorporation of this very important life-saving skill in the curricula of both secondary and tertiary institutions in Nigeria, as well as training the teachers and potential future teachers in order to create a multiplier effect in the number of potential bystander CPR providers in the country [14,17-19]. Again, it is interesting that this present Nigerian study among the athletes has shown similar pattern in the attitude of the athletes towards bystander CPR as an earlier Nigerian study [25] that also recommended intentional training of these athletes so that they could be of help to one another in and out of the playing ground whenever any athlete is a victim of sudden cardiac arrest. Nigeria is a sport-loving nation and sports have helped to foster unity among the multi-ethnic people of the country. Meanwhile, Nigeria has suffered much from the sudden deaths of some of her brilliant sports men and must put in place a sustainable structure such as

increasing rates of bystander CPR by encouraging wide spread training of potential bystander CPR providers, especially among the athletes to limit the loss of her athletes from sudden cardiac arrest in the fields of play.

It is worthwhile to mention here that while many countries of the world are generally increasing the awareness and training of potential bystander CPR providers [7-12,20], Nigeria like most African countries have not given any serious attention to this. Meanwhile, the economic benefits of sports are so much needed in African countries where poverty is ravaging the continent.

4.1 The Strengths and Limitation of this Study

Although the busy schedule of the athletes did not allow coverage of all the sporting events at the 21st National Sports Festival (NSF), the national fair representation of the study sample

and the relatively good sample size remain part of the strengths of the present study. The findings could be seen as a fair reflection of the Nigerian athletes view. However, the fact that not all athletes from all the 36 States of the Federation including the Federal Capital, Abuja filled the questionnaire means that the interpretation of the findings should still be made with some caution.

5. CONCLUSION

- The Nigerian athletes showed significantly positive perception about bystander cardiopulmonary resuscitation (CPR) which did not generally change between contact sports athletes and their non-contact sports counterparts.
- The Nigerian athletes had significantly positive attitude towards bystander cardiopulmonary resuscitation (CPR) that did not significantly change between contact sports athletes and their counterparts involved in non-contact sports.

6. RECOMMENDATIONS

- Considering the important roles sports play in Nigeria, the preventable pains often associated with sudden death of our sports men and women, and the interesting findings of this national survey, it is recommended that an intentional and sustainable programmes should be put in place to encourage all athletes to be trained in bystander cardiopulmonary resuscitation (CPR) skills so as to make them their 'brothers'/sisters' keepers' in and outside the fields of play, as well as being a means of increasing the much needed bystander CPR rates in our country.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Webster Dictionary
2. Wikipedia:<https://www.bing.com/search?q=Perception&cvid=8581f4cd99284f49833ae71733d40f28&aqs=edge..69i57j69i60j69i64.5751j0j1&pglt=43&FORM=ANSPA1&PC=HCTS&ntref=1#>
3. Available:
<https://www.britannica.com/topic/perception>
4. Available: <https://www.bing.com/ck/a?!&p=69ec4397d475f880JmltdHM9MTY3MDM3MTlwMCZpZ3VpZD0xNTc4MzlyMS0xNjEzLTlwOTQzMjZmMC0zOWViMTdINjYxMTAmaW5zaWQ9NTE3MQ&ptn=3&hsh=3&fclid=15783221-1613-6094-26f0-39eb17e66110&psq=attitude+meaning&u=a1aHR0cHM6Ly93d3cubWVycmlhbS13ZWJzdGVyLmNvbS9kaWN0aW9uYXJ5J5L2F0dGI0dWRI&ntb=1>
5. Gebreegziabher Gebremedhn E, Berhe Gebregergs G, Anderson BB, Nagaratnam V. Attitude and skill levels of graduate health professionals in performing cardiopulmonary resuscitation. *Adv Med Educ Pract.* 2017;8:43-50. DOI: 10.2147/AMEP.S114726. eCollection 2017. PMID: 28123315.
6. Thorén AB, Axelsson AB, Herlitz J. The attitude of cardiac care patients towards CPR and CPR education. *Resuscitation.* 2004;61(2):163-71. DOI: 10.1016/j.resuscitation.2004.01.007.
7. Kanstad BK, Nilsen S Aa, Fredriksen K. CPR knowledge and attitude to performing bystander CPR among secondary school students in Norway. *Resuscitation.* 2011;82(8):1053-9. DOI: 10.1016/j.resuscitation.2011.03.033.
8. Wingen S, Ecker H, Schroeder DC, Bartholme B, Böttiger BW, Wetsch WA. Addressing the Helper's and Victim's Gender Is Crucial in Schoolchildren Resuscitation Training-A Prospective, Educative Interventional Trial. *J Clin Med.* 2022;11(9):2384. DOI: 10.3390/jcm11092384.
9. Ssewante N, Wekha G, Iradukunda A, Musoke P, Kanyike AM, Nabukeera G, Wamala NK, Zziwa W, Kamuhangire L, Kajjimu J, Luggya TS, Tagg A. Basic life

- support, a necessary inclusion in the medical curriculum: a cross-sectional survey of knowledge and attitude in Uganda. *BMC Med Educ.* 2022;22(1):140. DOI: 10.1186/s12909-022-03206-z.PMID: 35241065.
10. Wang YM, Lin LT, Jiang JH, Jiang Y, Jin XQ. Public knowledge and attitudes toward automated external defibrillators use among first aid eLearning course participants: a survey. *J Cardiothorac Surg.* 2022;17(1):119. DOI: 10.1186/s13019-022-01863-1.
 11. Pivač S, Gradišek P, Skela-Savič B. The impact of cardiopulmonary resuscitation (CPR) training on schoolchildren and their CPR knowledge, attitudes toward CPR, and willingness to help others and to perform CPR: mixed methods research design. *BMC Public Health.* 2020;20(1):915. DOI: 10.1186/s12889-020-09072-y.
 12. Katona Z, Tarkó K, Berki T. First Aid Willingness Questionnaire for Schoolchildren: An Exploratory Factor Analysis and Correlation Study. *Children (Basel).* 2022;9(7):955. DOI:10.3390/children9070955.PMID: 35883939
 13. Olajumoke TO, Afolayan JM, Raji SA, Adekunle MA. Cardiopulmonary resuscitation - knowledge, attitude & practices In Osun State, Nigeria. *J West Afr Coll Surg.* 2012;2(2):23–32.
 14. Onyeaso AO, Imogie AO. Attitude towards Cardiopulmonary Resuscitation among Some Secondary School Students in Rivers State, Nigeria. *British Journal of Education.* 2014; 2(3):37-43.
 15. Mbada CE, Hakeem BO, Adedoyin RA, Awotidebe TO, Okonji AM. Knowledge, attitude and practice of cardiopulmonary resuscitation among Nigerian Physiotherapists. *Jour Resp Cardiov Phy Ther.* 2015;2(2):52-62.
 16. Onyeaso AO, Achalu EI. Influence of Age, Gender, School Class of Nigerian Secondary School Students on their Attitude to Cardiopulmonary Resuscitation. *J Health Sci* 2016;6(3): 43-47. DOI:10.5923/j.health.20160603.02
 17. Onyeaso AO, Onyeaso CO. Nigerian Public Primary and Secondary School Teachers' Knowledge and Attitude towards Cardiopulmonary Resuscitation. *Int J Adv Res* 2017;5(1): 89-95.
 18. Onyeaso AO, Onyeaso OO. Bystander Cardiopulmonary Resuscitation: The Attitude of Some Nigerian Student Teachers. *Int J Recent Sci Res* 2017;8(8):19618-19621.
 19. Onyeaso AO, Onyeaso OO. Attitude of Student Teachers to Cardiopulmonary Resuscitation in relation to their Gender and Age. *Am J Med Med Sci* 2018; 8(4): 55-60.
 20. Abebe TA, Zeleke LB, Assega MA, Sefefe WM, Gebremedhn EG. Health-Care Providers' Knowledge, Attitudes, and Practices Regarding Adult Cardiopulmonary Resuscitation at Debre Markos Referral Hospital, Gojjam, Northwest Ethiopia. *Adv Med Educ Pract.* 2021; 12:647-654. Doi: 10.2147/AMEP.S293648. eCollection 2021.PMID: 34163280
 21. Mersha AT, Gebre Egzi AHK, Tawuye HY, Endalew NS. Factors associated with knowledge and attitude towards adult cardiopulmonary resuscitation among healthcare professionals at the University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia: an institutional-based cross-sectional study. *BMJ Open.* 2020;10(9):037416. DOI:10.1136/bmjopen-2020-037416.PMID: 32988946
 22. Mohammed Z, Arafa A, Saleh Y, Dardir M, Taha A, Shaban H, AbdelSalam EM, Hirshon JM. Knowledge of and attitudes towards cardiopulmonary resuscitation among junior doctors and medical students in Upper Egypt: cross-sectional study. *Int J Emerg Med.* 2020;13:19 Available: <https://doi.org/10.1186/s12245-020-00277-x>.
 23. Dibia C. FOOTBALL: What is CPR and how it could not save these Nigerian footballers *National Daily Newspaper;* 2021.
 24. Onyeaso AO, Onyeaso CO. Knowledge and Practice of Bystander Cardiopulmonary Resuscitation (CPR) by Athletes in Bayelsa State, Nigeria. *International Journal of West African University Games (WAUG).* 2019;2(1):130-134.
 25. Onyeaso AO, Onyeaso CO. Attitude of a Group of Nigerian Athletes towards Bystander Cardiopulmonary Resuscitation. *Int J Sports Sci.* 2020;10(2):43-49.
 26. Chong KM, Chen JW, Lien WC, Yang MF, Wang HC, Liu SSH, Chen YP, Chi CY, Wu

- MCH et al. Attitude and behavior toward bystander cardiopulmonary resuscitation during COVID-19 outbreak. *PLoS One*. 2021;16(6):e0252841. DOI:10.1371/journal.pone.0252841. eCollection 2021.
27. Mohd Kamil MK, Zambri A, Azizah MA, Noor Azhar AM, Ahmad R. A cross-sectional study of assessing knowledge, attitude, and practice of COVID-19 resuscitation among health care workers in a hybrid hospital for COVID-19 in Malaysia. *Int Emerg Nurs*. 2022 Sep; 64:101214. DOI: 10.1016/j.ienj.2022.101214. Epub 2022 Jul 21. PMID: 36037702
 28. Hawkes CA, Kander I, Contreras A, Ji C, Brown TP, Booth S, Niroshan Siriwardena A, Fothergill RT, Williams J, Rees N, Stephenson E, Perkins GD. Impact of the COVID-19 pandemic on public attitudes to cardiopulmonary resuscitation and publicly accessible defibrillator use in the UK. *Resusc Plus*. 2022;10:100256. DOI: 10.1016/j.resplu.2022.100256. Epub 2022 May 30. PMID: 35665312.
 29. Onyeaso AO, Onyeaso CO. Impact of COVID-19 Pandemic on Willingness to Perform Bystander Cardiopulmonary Resuscitation among trained Providers. *Am J Med Med Sci* 2022;12(3):289-297.
 30. Delta win National Sports Festival. 10TH December 2022. DELTA 2022 – National Sports Festival, PUNCH Newspaper; 2023.

APPENDIX

QUESTIONNAIRE ON BYSTANDER CADIOPULMONARY RESUSCITATION (CPR)

Dear Respondent,

This questionnaire is basically to assess the perception and attitude towards Bystander Cardiopulmonary Resuscitation (CPR) among athletes. It is expected that the findings of this survey will help to plan better for the safety of athletes. Please answer the following questions as sincere as possible.

Thank you and God bless.

Section A. Personal Data. Please tick as it applies to you

1. Gender: Male: Female:
2. Age in Years: -----
3. Type of Sport: -----
4. No of years as an Athlete: -----

Section B. For each of the statements, please rate under the following scales: Strongly agree (SA), Agree (A), Disagree (D), and strongly disagree (SD)

Questions	SA	A	Not Certain	D	SD
5 When trained, I would like to teach others about CPR					
6 When trained, I would perform mouth-to-mouth ventilation on a stranger.					
7 I would perform CPR on a trauma victim, if needed.					
8 I would perform CPR on a relative, if needed.					
9 I would perform CPR on an elderly victim, if needed.					
10 I would like to perform CPR on a child.					
11 I would perform chest compression only without mouth-to-mouth ventilation					
12 CPR is just a trial and error thing, so it is not worthwhile to perform it on victims					
13 Sudden Cardiac Arrest victims can survive through CPR					
14 Every athlete should be trained in CPR so as to help any colleague that is a victim					
15 The gains of having every athlete trained in CPR outweigh the cost of training					

© 2023 Onyeaso et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/104959>