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RESEARCH ARTICLE

NIGERIAN PUBLIC PRIMARY AND SECONDARY SCHOOL TEACHERS' KNOWLEDGE AND ATTITUDE TOWARDS CARDIOPULMONARY RESUSCITATION.

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Key words:-
CPR, primary / secondary school teachers, Nigeria .

Abstract

Objective: To assess the Nigerian primary and secondary school teachers' knowledge and attitude towards cardiopulmonary resuscitation (CPR).

Methodology: A questionnaire-based cross-sectional study of Post NCE Sandwich students (primary and secondary school teachers) involving 322 – 213(71%) females and 87(29%) males aged 22-60 years from 14 out of the 36 States of the Federal Republic of Nigeria. Originally, 325 copies of the questionnaire were distributed, giving a response rate of 92%. The data was analyzed using both descriptive and non-parametric statistics with statistical significance set at $P < 0.05$.

Results: 64.29% gave wrong answers to questions on CPR knowledge with rejection of the null hypothesis on their CPR knowledge, meaning that the participants significantly had poor knowledge of CPR ($P < .05$) while 79.9% showed positive attitude towards CPR with the null hypothesis on their attitude towards CPR (meaning that the teachers significantly wanted CPR teaching and training in Nigerian schools, $P < .05$).

Conclusion/Recommendation: This first Nigerian study on cardiopulmonary resuscitation in relation to teachers have shown generally poor CPR knowledge of the primary and secondary schools teachers which was statistically significant but very statistically significant positive attitude towards CPR. Nigerian school teachers should be trained in CPR so as to teach their school children while CPR incorporation into the Nigerian schools' curricula should be implemented as soon as possible.

Introduction:-

Globally, the teaching of cardiopulmonary resuscitation (CPR) in schools is encouraged.[1-13] Although recently few reports in Nigeria have drawn attention to the need to encourage the teaching and eventual incorporation of CPR into the secondary school curriculum,[14-20] there is obvious need for more work.

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In the United States of America, according to Compton et al.,[21] recent legislation and public policy has placed new responsibilities on public school teachers, requiring that they be trained to respond to medical emergencies, especially cardiac arrest. Recently, it was reported that majority of the teachers in Al-Qassim, Saudi Arabia had a low level of knowledge and skills regarding basic life support techniques, especially CPR but they wanted more training and were willing to take a free course on CPR.[22]

It is known that survival of victims of out-of-hospital cardiac arrest (OHCA) is enhanced when there are enough trained bystanders who can perform cardiopulmonary resuscitation when the need arises. [23-25] Teachers can be very useful in increasing the number of potential bystanders if they can teach and train their students. According to Al Enizi et al., [22] in order to increase the likelihood of having a CPR-skilled person present at the cardiac event, there must be an adequate number of people trained in the community. School teachers are expected to play a role in teaching cardiopulmonary resuscitation (CPR) to schoolchildren, but little is known about their attitudes, actual knowledge and willingness to do so. [26] This statement is very true in Nigeria as there is no published data concerning Nigerian teachers in this respect hitherto. Kanstad et al [6] opined that by providing students with good quality basic life support (BLS) training in school, the upcoming generation in Norway may strengthen the first part of the chain of survival in out-of-hospital cardiac arrest (OHCA).

In pursuit of the goal of encouraging the introduction of CPR teaching and training into the Nigerian secondary school curriculum, there is a need to provide enough baseline data in this respect. Therefore, the aims of this study were to find out the level of CPR knowledge of some Nigerian teachers, as well as their attitudes towards CPR.

Materials and Method:-

A questionnaire-based cross-sectional study of the teachers, who came for the Post NCE Sandwich Programme at the Faculty of Education of the University of Port Harcourt in September / October, 2015, was conducted. Three hundred and twenty five (325) copies of the questionnaire were distributed to the teachers but three hundred (300) copies were properly filled and returned, giving a response rate of about 92%.

The questionnaire had three (3) sections: Section A (demographic data), Section B (Knowledge of CPR) and Section C (Attitude to CPR) as shown in the Appendix.

The gender distribution of the teachers that participated in the study was as follows: 87(29%) males and 213 (71%) females. Their ages ranged from 22 to 60 years. The teachers came from different primary and secondary schools in the following fourteen (14) States in Nigeria: Akwa Ibom, Cross River, Abia, Anambra, Enugu, Imo, Ebonyi, Rivers, Delta, Edo, Ondo, Ogun, Benue, and Kogi States.

The following two (2) null hypotheses were generated and tested:
Ho1: The CPR knowledge of the teachers would not be significantly low
Ho2: The attitudes of the teachers towards CPR would be significantly poor

Statistical Analysis:-
The Statistical Package for Social Sciences (SPSS) was used to analyze the data. Descriptive statistics and non-parametric statistics (One-Sample T-test) were employed in the analysis and the test of the hypotheses with significance level set at $P < 0.05$.

Results:-

Table 1 shows the descriptive statistics of the response of the teachers to the questions on knowledge of cardiopulmonary resuscitation (CPR). This table shows that well over 64% of the teachers gave wrong answers to the questions on CPR knowledge while over 35% were right in the responses.

Table 1:- Descriptive statistics of the responses of the teachers to the questions on CPR knowledge

	Questions Testing CPR Knowledge	Right Answer	Wrong Answer
1.	First thing to do if a person collapses	83(27.7%)	217(72.3%)
2.	Why would you shake and shout at a collapsed victim	87(29%)	213(71%)
3.	What action(s) would you use to open airway	58(19.3%)	242(80.7%)
4.	What do you look for in assessing breathing in a collapsed victim	230(76.7%)	70(23.3%)
5.	What does CPR stand for	209(69.7%)	91(30.3%)

6.	For how long does a rescue breathe last?	43(14.3%)	257(85.7%)
7.	Number of chest compressions & rescue breaths /cycle	40(13.3%)	260(86.7%)
	Cluster %	**750(35.71%)**	**1,350(64.29%)**

The null hypothesis (Ho1) was tested as shown in Table 2 which was rejected (P < .000).

Table 2:- Test of the Null Hypothesis (Ho1: The CPR knowledge of the teachers would not be significantly low) using the One-Sample T-test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CPR Knowledge	129.764	2099	.000	1.35714	1.3366	1.3777

P < 0.05

Table 3 shows the responses of the teachers on questions that tested their attitude to CPR. The positive attitudes to CPR gave 79.9% while the negative accounted for 20.1%.

Table 3:- Descriptive statistics of the responses of the teachers to the questions on CPR attitude.

		Agree (Positive attitude)	Disagree (Negative attitude)
1	I would like to learn CPR	285(95%)	15(5%)
2	After learning CPR, I would like to teach others.	277(92.3%)	23(7.7%)
3	I would perform mouth-to-mouth ventilation on a stranger.	160(53.3%)	140(46.7%)
4	I would perform CPR on a trauma victim, if needed.	217(72.3%)	83(27.7%)
5	I would perform CPR on a relative, if needed.	244(81.3%)	56(18.7%)
6	I would perform CPR on an elderly victim, if needed	224(81.3%)	76(25.3%)
7	I would like to perform CPR on a child	235(78.3%)	65(21.7%)
8	I would perform chest compression alone	230(76.7%)	70(23.3%)
9	CPR is just a trial and error	257(85.7%)	43(14.3%)
10	There is increased hope of survival for a victim of sudden collapse who receives bystander CPR	261(87.0%)	39(13%)
11	Sudden Cardiac Arrest victims cannot survive	223(74.3%)	77(25.7%)
12	I believe there could be survival through CPR	241(80.3%)	59(19.7%)
13	CPR should be taught often on Television	221(73.7%)	79(26.3%)
14	CPR should be formally taught in Nigeria Universities	269(89.7%)	31(10.3%)
15	CPR should also be taught to other citizens who are not in schools	253(84.3%)	47(15.7%)
	Cluster %	3,597(79.9%)	903(20.1%)

Table 4 shows that the null hypothesis (Ho2) was also rejected (P < .000).

Table 4: Test of the Null Hypothesis (Ho2: The CPR attitude of the teachers would be significantly poor) using the One-Sample T-test

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Attitude to CPR	238.566	4499	.000	1.76578	1.7513	1.7803

P < .05

Discussion:-

It has been documented that school teachers can effectively teach CPR to school children. [27, 28] Secondary school teachers, previously trained in basic cardiopulmonary resuscitation (b-CPR) could teach the skills effectively to 14-16-year-old students using PROCES. [29]

Chew et al [30] reported that only 29% of the total 128 participants said that they would offer to perform CPR under any cardiac arrest condition and 69% said that they would just offer to call the ambulance but they would not offer to perform CPR. When analyzed separately, only 16.4% of the school teachers said that they would perform CPR as compared to 45.5% of dental students ($P < 0.001$). They concluded that knowing how to perform CPR did not necessarily translate into willingness to perform CPR. In the present Nigerian study, the teachers consistently showed poor knowledge of CPR generally. However, the general attitude of the teachers to CPR is very positive as reflected in their responses to the questions except the one which said that 'CPR is trial and error' which suggests that they did not interpret that question properly.

In the related study by Mpotos et al, [26] it was concluded that although a majority of teachers received previous CPR training, awareness of CPR as a mandatory part of the secondary school's curriculum was poor. Only a minority consisting of mostly primary school teachers felt competent in CPR and was willing to teach it to their students. Unlike in this present Nigerian study where none of the teachers had received any earlier exposure to CPR teaching and training, in the study by Mpotos et al [26] 59% of the teachers had previous exposure to CPR training. Meanwhile, Patsaki et al [31] reported about 21% had earlier exposure to CPR training in their study. The poor knowledge of the CPR as reflected in their responses to the various questions in the questionnaire as shown in Table 1 is consisted with the report of Patsaki et al [31] where the number of incorrect answers to knowledge questions was found to be directly related to the absence of a previous course.

Our current study discovered that 92.3% of the participants indicated willingness to teach others after learning CPR while only 39% were interested in teaching others CPR. [26] This Nigerian percentage of participants willing to teach others CPR is a very welcome development as this gives hope for the success of producing many bystanders in Nigeria if the teaching and training in CPR is incorporated in the school curriculum. However, the relatively low percentage (39%) of teachers willing to teach CPR in Mpotos et al [26] report was still considered possibly being sufficient because of the option of the teacher being a facilitator for self-learning or blended learning, thereby requiring only minimal changes in their curriculum to implement CPR.

Strength and Limitation of this Study:-

Although our study sample was a convenient sample and not randomly selected because they were those who came for the long vacation Sandwich programme in our University, the present study has teachers from both primary and secondary school covering 14 out of the 36 States of Nigeria which gives a considerable spread and a fair idea of the true knowledge and attitude of Nigerian teachers towards cardiopulmonary resuscitation (CPR) since there is no other published data on CPR concerning teachers hitherto in Nigeria.

Conclusion:-

This first Nigerian study on cardiopulmonary resuscitation in relation to teachers have shown generally poor CPR knowledge of the primary and secondary schools teachers (participants) which was statistically significant but very statistically significant positive attitude towards CPR.

Recommendations:-

1. There is need to get Nigerian school teachers trained in CPR so as to make them ready for the urgent need of training Nigerian school children accordingly, in line with the growing global trend.
2. The need to incorporate the teaching and training in CPR into the Nigerian primary and secondary schools' curricula is re-emphasized, as earlier recommended [15, 16, 20]

References:-

1. Reder S, Quan L. Cardiopulmonary resuscitation training in Washington state public high schools. Resuscitation. 2003; 56:283-8.
2. Uray T, Lunzer A, Ochsenholer A, Thanikkel L, Zingerle R, Lillie P, et al. Feasibility of life-supporting first-aid (LSFA) training as a mandatory subject in primary schools. Resuscitation. 2003; 59: 211-20.
3. Connolly M, Toner P, Connolly D, McCluskey DR. The 'ABC for life' programme – Teaching basic life support in schools. Resuscitation. 2007; 72: 270-9.
4. Lorem T, Palm A, Wik L. Impact of a self-instruction CPR kit on 7th graders' and adults' skills and CPR performance. Resuscitation 2008; 79: 103-8.

5. Naqui S, Siddigi R, Hussain SA, Batool H, Arshad H. School children training for basic life support. J. Coll Physician Surg Pak 2011; 21: 611-5.
6. Kanstad BK, Nilsen SA, Fredriksen K. CPR knowledge and attitude to performing bystander CPR among students in Norway. Resuscitation. 2011; 82 (8): 1053-9.
7. Lee BC, Lee MJ, Shin SJ, Ryoo HW, Kim JK, Park JB, et al. The current status of cardiopulmonary resuscitation training for school. J Korean Soc Emerg Med 2012; 23: 470-8.
8. Hamasu S, Morimoto T, Kuramoto N, Horiguchi M, Iwami T, Nishiyama C, et al. Effects of BLS training on factors associated with attitude toward CPR in college students. Resuscitation 2009; 80: 359-64.
9. Nishiyama C, Iwami T, Kitamura T, Ando M, Sakamoto T, Marukawa S, et al. Longterm retention of cardiopulmonary resuscitation skills after shortened chest compression-only training and conventional training: A randomized controlled trial. Acad Emerg Med 2014; 21: 47-54.
10. Meissner TM, Kloppe C, Hanefeld C. Basic life support skills of high school students before and after cardiopulmonary resuscitation training: A longitudinal investigation. Scand J Trauma Resusc Emerg Med 2012; 20: 31.
11. Plant N, Taylor K. How best to teach CPR to schoolchildren: A systematic review. Resuscitation 2013; 84:415-21.
12. Miro O, Diaz N, Diaz JE, Escalada FX, Perez-Puejo FJ, Sanchez M. Cardiopulmonary resuscitation program for secondary school (PROCES): Conclusions after 5 years. Resuscitation 2012; 83: e116-7.
13. Colquhoun M. Learning CPR at school – everyone should do it. Resuscitation 2012; 83: 543-4.
14. Onyeaso AO, Awareness of cardiopulmonary resuscitation among secondary schools in Port Harcourt, Nigeria. Journal of Education in Developing Areas. 2014; 22:137-42.
15. Onyeaso AO. Imogie AO. Attitude towards cardiopulmonary resuscitation among some secondary school students in Rivers State, Nigeria. Br J Educ 2014; 2: 37-43.
16. Onyeaso AO, Achalu EI. Knowledge of cardiopulmonary resuscitation among some secondary school students in Nigeria. J Educ Pract 2014; 5: 180-3.
17. Onyeaso AO. Retention of cardiopulmonary resuscitation skills in Nigerian secondary school students. J Educ Pract 2016; 7(15): 162-8.
18. Onyeaso AO. Age, gender and school class and retention of cardiopulmonary resuscitation knowledge among secondary school students in Nigeria. BJMMR 2016; 16(4); 1-7.
19. Onyeaso AO, Onyeaso CO. Effects of age, school class on cardiopulmonary resuscitation skills of Nigerian secondary school students. J Educ Pract 2016; 7(18): 44-48.
20. Onyeaso AO, Onyeaso CO. Cardiopulmonary resuscitation skills in some Nigerian secondary school students. Port Harcourt Med J 2016; 10 (2): 60-5.
21. Compton S, Swor RA, Dunne R, Weich RD, Zalennskt RJ. (2003): Urban Public School Teachers' Attitudes and Perceptions of the Effectiveness of CPR and Automated External Defibrillators. Am J Health Educ 34(4): 186-192.
22. Al Enizi BA, Saquib N, Zaghloul MSA, Alaboud MSA, Shahid MS, Saquib J. Knowledge and Attitudes about Basic Life Support among Secondary school Teachers in Al-Qassim, Saudi Arabia. Int J Health Sci (Qassim) 2016; 10(3): 415-422.
23. Kleinman ME, Brennan EE, Goldberger ZD, Swor RA, Terry M, Bobrow BJ, ET AL. Part 5: Adult Basic Support and Cardiopulmonary Resuscitation Quality: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2015: 132 (18 Suppl 2): S414-35.
24. Gates S, Quin T, Deakin CD, Blair L, Couper K, Perkins GD. Mechanical chest compression for out of hospital cardiac arrest: Systematic review and meta-analysis. Resuscitation. 2015; 94: 91-7.
25. Hasselqvist-Ax I, Riva G, Herlitz J, Rosenqvist M, Hollenberg J, Nordberg P, et al. Early cardiopulmonary resuscitation in out-of-hospital cardiac arrest. N Engl J Med. 2015; 372(24): 2307-15.
26. Mpotos N, Vekeman E, Monsieurs K, Derese A, Valcke M. Knowledge and willingness to teach cardiopulmonary resuscitation: A survey amongst 4273 teachers. Resuscitation. 2013; 84: 496-500.
27. Miro O, Jimenez-Fabrega X, Espigol G, Culla A, Escalada- Roig X, Diaz N, Salvador J, Abad J, Sanchez M. Teaching basic life support to 12-16 year olds in Barcelona schools: views of head teachers. Resuscitation 2006; 70: 107-16.
28. Toner P, Connoly M, Laverty L, McGrath P, Connoly D, McCluskey DR. Teaching basic life support to school children using medical students and teachers in a 'peer –training' model – results of the 'ABC for life' programme. Resuscitation 2007; 75: 169-175.

29. Jimenez-Fabrega X, Escalada-Roig X, Miro O, Sanclemente G, Diaz N, Gomez X, Villena O, Rodriguez E, Gaspar A, Molina JE, Salvador J, Sanchez M. Comparison between exclusively school teacher-based and mixed school teacher and healthcare provider-based programme on basic cardiopulmonary resuscitation for secondary schools. Emerg Med J 2009; 26(9): 648-52.
30. Chew KS, Yazid MN, Kamarul BA, Rashidi A. Translating knowledge to attitude:a survey on the perception of bystander cardiopulmonary resuscitation among dental students in Universiti Sains Malaysia and school teachers in Kota Bharu, Kelantan. Med J Malaysia 2009; 64(3): 205-9.
31. Patsaki A, Pantazopoulos I, Dontas I, Passall C, Papadimitriou L, Xanthos T. Evaluation of Greek high school teachers' knowledge in basic life support, automatedexternal defibrillation, and foreign body airway obstruction: implications for nursing interventions. J Emerg Nurs 2012; 38: 176-81.

Appendix:-

QUESTIONNAIRE ON CARDIOPULMONARY RESUSCITATION (CPR)

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

1. Gender : Male: ☐ Female: ☐

2 Age in Years: ----------
3. Official status at workplace----------
4. Name of workplace: ----------
5. For how long have you been teaching? ---------- ----------
6. In which state is your work place ? ----------
7. As a Sandwich student, please state your department here in Uniport----------
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Section B
Concerning a collapsed victim, please tick only one option in questions 5 to 11 below.

5. What is the first thing you should do if you come across a collapsed person?
   - ☐ Call an ambulance
   - ☐ Try to get the person to respond to you
   - ☐ Check to see if the person is breathing normally

6. Why would you shake and shout at a collapsed person?
   - ☐ To open the airway
   - ☐ To restart the heart
   - ☐ To check for response

7. What action would you use to open the person's airway?
   - ☐ Tilt the head back and lift the chin
   - ☐ Tilt the head and push the chin down
   - ☐ Tilt the head down and turn the chin tothe right

8. When assessing a person's breathing, what do you look for?
   - ☐ Chest movement
   - ☐ Movement of the eyes
   - ☐ Movement of nose

9. What does CPR stand for?
   - ☐ Call Respond React
   - ☐ Cardiopulmonary Resuscitation
   - ☐ Citizen Please Respond

10. When giving rescue breaths, for how long do you breathe into the person's mouth?
    - 1 second
    - 5 seconds
    - 10 seconds

11. How many chest compressions and rescue breaths would you give per cycle of CPR?
    - 20 presses and one breathe
    - 30 presses and two breaths
    - 30 presses and three breaths

Section C

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

		SA	A	D	SD
12	I would like to learn CPR				
13	After learning CPR, I would like to teach others.				
14	I would perform mouth-to-mouth ventilation on a stranger.				
15	I would perform CPR on a trauma victim, if needed.				
16	I would perform CPR on a relative, if needed.				
17	I would perform CPR on an elderly victim, if needed.				
18	I would like to perform CPR on a child.				
19	I would perform chest compression alone				
20	CPR is just a trial and error				
21	There is increased hope of survival for a victim of sudden collapse who receives bystander CPR				
22	Sudden Cardiac Arrest victims cannot survive				
23	I believe there could be survival through CPR				
24	CPR should be taught often on Television				
25	CPR should be formally taught in Nigerian Universities				
26	CPR should also be taught to other citizens who are not in schools.				