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Article · October 2017

DOI: 10.4314/ajoh.v7i1.162231

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A Pilot test of an oral health education module for community health workers in Ikeja LGA, Lagos State.

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ABSTRACT

Objectives: The purpose of this paper is to report the experience of developing, facilitating, and evaluating a 3-day module on oral health education for Primary Health Care Workers (CHW) in Ikeja LGA Lagos State.

Methods: Twenty-one CHW in Ikeja LGA were invited for a 3-day oral health education-training program in January 2015. An oral health education manual and a flip chart developed for this purpose were used during training. Participants received didactic lectures on the first two days and participated in a practical session on the third day. A pretest was done before the training session while a posttest was done immediately and 6 months after the intervention. Data entry, validation and analysis was done using SPSS version 20.

Results: Majority of the respondents were female (95.0%), Community Health Officers (65.0%), mean age was 42.1± 10.4 years while mean years of experience was 9.7 ±10.8 years. There was a statistically significant increase (p= 0.000) in the mean knowledge score of participants immediately after the intervention. There was no difference between the results obtained immediately and at 6 months after the training (p= 0.328). All participants reported including oral health education in their routine health education sessions at the 6-month review. They also reported observing changes in client's perception and behavior regarding oral health. They identified the flipchart as a useful tool for the oral health education sessions in the PHC.

Conclusion: PHC workers can be easily trained and deployed as oral health educators particularly in areas where there is shortage of oral health care workers.

Keywords: oral health; oral health education; primary health care; community health workers.

INTRODUCTION

In most Nigerian communities, despite the high need for oral health care there are disparities in oral health and inequities in access to oral health care.[1] Clearly, there is a need to reduce the disparities in oral health and inequities in access to oral health care among Nigerians. Unfortunately the low availability of oral health care personnel in most communities in Nigeria makes this difficult to achieve.[1] Research findings indicate that the easiest approach for promoting good oral health in any population is the inclusion of oral health care in general health care services.[2] Suggestions have been made specifically concerning the integration of oral health into general health care within the Primary Health Care (PHC) system in Nigeria, in order to reduce inequity and improve access to oral health care.[3]

The PHC system is the first level of contact of individuals, the family and the community within the national health system.[4] It is designed to bring health care as close as possible to where people live and work, and it constitutes the first element of a continuing healthcare process. Both health education and preventive oral health care are components of the PHC system.[4] Unfortunately little has been done in the area of incorporating oral health care into general health care through the primary health care approach in most countries.[5] Since the adoption of the PHC system in Nigeria in 1985, oral health care is yet to be fully incorporated into the programme.[3]

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Received 05/04/2017
Accepted 03/07/2017

The inclusion of oral health at PHC level is an efficient and cost effective approach to achieving good oral health as it would promote good oral health among Nigerians. It would also help bring oral health care into the purview of those with the poorest access to care. Moreover the thrust of the recently developed National Oral Health Policy is the integration of oral health care into the Primary Health Care system in the Country.[6] Focus should therefore be on the implementation of the policy and measures to achieve it. The development of existing manpower to drive this programme is therefore essential.

Lagos State is the economic nerve centre of Nigeria and it has an estimated population of 15 million persons. The state is a melting pot for people from all ethnic groups in the country. There is low awareness of oral health among the people of the state.[7-9] Research reports in Lagos state as in other parts of the country indicate that most dental clinic attendee's visit because of pain.[10,11] Lagos State has a well developed PHC system which can be a prototype for the integration of oral health care. Oral health care especially preventive care is presently not provided at the Primary Health Care level in most Local Government areas (LGAs) in Lagos State. In particular, oral health education is rarely included in the health education sessions provided at the PHC. Considering the fact that the commonest oral diseases are largely preventable, providing oral health education at PHC in Nigeria may be a good starting point in the integration process. A recent independent survey among community Health workers (CHW) confirmed that oral health education is rarely provided at PHC and revealed inadequate oral health knowledge among the CHW.[12] Nonetheless, the personnel reported willingness to include oral health in their schedule of activities. As a follow up to this study, we developed a module for educating and training existing CHW on oral health and how to incorporate oral health education into their health education sessions. The purpose of this article is to report the experience of developing, facilitating, and evaluating the 3-day module on oral health education that was delivered to 20 CHW in Ikeja LGA of Lagos State Nigeria. This report is necessary to provide evidence for the impact of training CHW on oral health, and material for inclusion in future curriculum development efforts for CHW.

METHODS

Study design and study population: A quasi-experimental pretest and post-test evaluation of the oral health knowledge of CHW in Ikeja LGA Lagos State was conducted. All personnel providing clinical services were included in the training programme. A total of twenty-one clinical personnel were employed at the Ikeja LGA at the time of this study. One person was however unable to attend due to ill health

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Ethical considerations: Ethical approval for the study was obtained from the Health Research and Ethics Committee of the Lagos State University Teaching Hospital.

Phase 1 Development of the Health education module: A research initiative based on a Collaborative Agreement between Unilever Nigeria PLC and the Department of Preventive Dentistry Lagos State University College of Medicine (LASUCOM) provided technical and financial support for the project. This covered the development of an oral health education curriculum and training materials as well as funding for training sessions. The goal of the project was to increase the knowledge, skill, and confidence of CHW in providing oral health education at PHC level in Ikeja LGA. Researchers developed the module content with input from personnel in the Community Health Department LASUCOM. The module comprised didactic lectures for two days, a clinical practicum on the third day and an evaluation component.

Phase 2: Oral health lectures and clinical practicum: The training sessions for days 1 and 2 took place at the Seminar room of the Dental Centre at the Lagos State University Teaching Hospital Ikeja. The clinical practicum, took place at Alausa PHC, Ikeja. All participants received a training pack comprising a detailed programme of activities for the training session and a training manual designed to also serve as a desktop reference manual for future oral health education sessions. In addition we developed a flipchart to be used by the CHW to provide oral health information for PHC attendees, an oral health poster, and an oral health information leaflet for PHC attendees. The leaflets were translated in to the three major languages spoken in Nigeria and Pidgin English. The flipchart comprised 20 pages of pictures depicting various oral health related conditions and

information on achieving and maintaining good oral health .

The participants were grouped into four groups of five members each for group discussions and the clinical practicum. A pre-test to determine baseline knowledge of oral health was administered prior to commencement of the teaching sessions. The pre-test had 4 sections assessing the socio-demographic characteristics, professional experience in oral health at PHC level, oral health knowledge and attitudes to oral health of participants. A total of 25 items were used to assess their knowledge of oral heath while 12 items were used to assess their attitudes towards oral health.

A variety of teaching methods were utilized to promote interest and learning. As much as possible didactic sessions included a lot of pictures and participatory teaching methods were utilized throughout the training session. Table 1 is a descriptive representation of activities on each day of the training. During the practicum, each group was allowed to prepare a 5-minute session on one of the topics explored during the training. They were also encouraged to develop oral health songs to teach the PHC attendees. Each group discussed and agreed on the content of their health education session based on assigned topics and using the flipchart. They also selected the speaker for the oral health education session. At the end of the education sessions the participants reviewed their performance and discussed learning from the entire training session.

Phase 3: Evaluation: A post-test, which was exactly the same as the pre-test was administered at the end of the training sessions. Participants' perception of the training module was also assessed using a 20-item inventory as part of the post-test. Participants also provided verbal feedback at an open discussion session held at the end of the third day on aspects they considered beneficial and what could be improved in the programme. A further evaluation was conducted after 6 months to assess the benefits and challenges with providing oral health education at the PHC.

Statistical analysis: Data entry validation and analysis was done using SPSS version 20. Students T test and Chi-square test was used as tests of significance. Associations were considered significant when the p-values were equal or less than 0.05.

RESULTS

Socio-demographic characteristics: Twenty CHW with age range 21 – 59 years; mean (SD) = 42.10 (±10.44) years participated in the training session. The participants' years of experience working in PHC settings ranged between 1 and 32 years with mean (SD) of 9.73 (±10.87) years. Majority were female 19 (95.0%), 7 (35.0%), were public health nurses, 1 person was a Community Health Extension Worker (CHEW) while the remaining were Community Health Officers (CHO). All participants had post secondary education with 6 (30.0%) persons having a university degree. Table 2 provides a summary of the socio-demographic features of the study population.

Experience in oral health education at the PHC: All participants agreed that while oral health was a component of PHC it was yet to be operational at the PHC level. Majority (95%) reported encountering oral health related complaints at the PHC. A similar number reported providing some oral health information on an ad-hoc basis at the PHC. Only three persons (15.0%) reported previous training on oral health care. However everyone agreed that there was a need for CHW to be properly trained on providing correct oral health information for PHC attendees.

Knowledge of oral health: Only 4 (20.0%) of the respondents knew every individual has two sets of dentition; while only 50.0% correctly identified the number of teeth a three-year-old should have. Concerning dental caries 9 (45.0%) respondents were unaware of the causes and methods of prevention. Likewise 10 (50.0%) participants had never heard the term periodontal disease. The attitude of the respondents towards oral health was however generally very positive. All the participants agreed that oral health is an important part of general health and should be provided at PHC level. They also agreed that non-dental health care workers should be involved in oral health care. In addition they agreed that the PHC was a good avenue for providing oral health information for the general public.

The study participants displayed average to good knowledge of oral health before the educational intervention. Scores at baseline ranged from 60% to 75% with mean of 68.25% (±5.00). This increased

Table 1: Structure and content of the oral health education module

Duration (hours)	Topic	Teaching method
Day 1		
1hr	Introduction/Welcome/Pretest	Individual work, class discussion.
1/2hr	Ice breaker/group norms	Class discussion
1hr	The importance of oral health education in primary health care settings in Nigeria	Didactic lecture class discussion
1hr	The normal Detrition	Didactic lecture class discussion
1hr	Tooth eruption	Didactic lecture class discussion
1hr	Oral health and pregnancy	Didactic lecture class discussion
1/2hr	Discussion /summary	Group activity/class discussion
Day 2		
1/2hr	Review of day 1	Guided class discussion
2hrs	Common dental diseases	Didactic lecture class discussion
1hr	Oral health education in PHC	Didactic lecture class discussion
1hr	Key oral health messages for the general populace	Didactic lecture class discussion
1hr	How can I include oral health education at my work place?	Small group activity class discussion
1hr	Discussion/summary	Guided class discussion
Day 3		
3hrs	Visit to the PHC	Group activity
1hr	Discussion	Guided class discussion
1hr	Post test & evaluation of practical session	Individual work, class discussion

Table 2: Socio-demographic features of the study participants

Variable	Frequency	Percentage
Gender		
Male	1	5.0
Female	19	95.0
Ethnic group		
Ibo	1	5.0
Yoruba	14	70.0
Others	5	25.0
Designation		
Community Health extension worker	1	5.0
Community Health Officers	12	60.0
Public Health Nurse	7	35.0
Educational qualification		
Public Health School	7	35.0
Nursing School	7	35.0
University Degree	6	30.0
Total	**20**	**100.0**

Table 3: Showing comparison of the mean oral health knowledge scores of participants at the pretest, immediate posttest and the 6-month posttest.

	Mean Oral health knowledge Score	Correlation	Sig	Paired difference	Sig
Pretest versus Immediate post test	34.13 (2.50) 42.50 (2.80)	0.379	0.106	-8.38	0.000*
Pretest versus 6months post test	34.13 92.50) 41.78 (2.77)	-0.109	0.409	-7.65	0.000*
Immediate post test versus 6 months post test	42.50 (2.80) 41.78 (2.77)	0.195	0.646	0.725	0.328

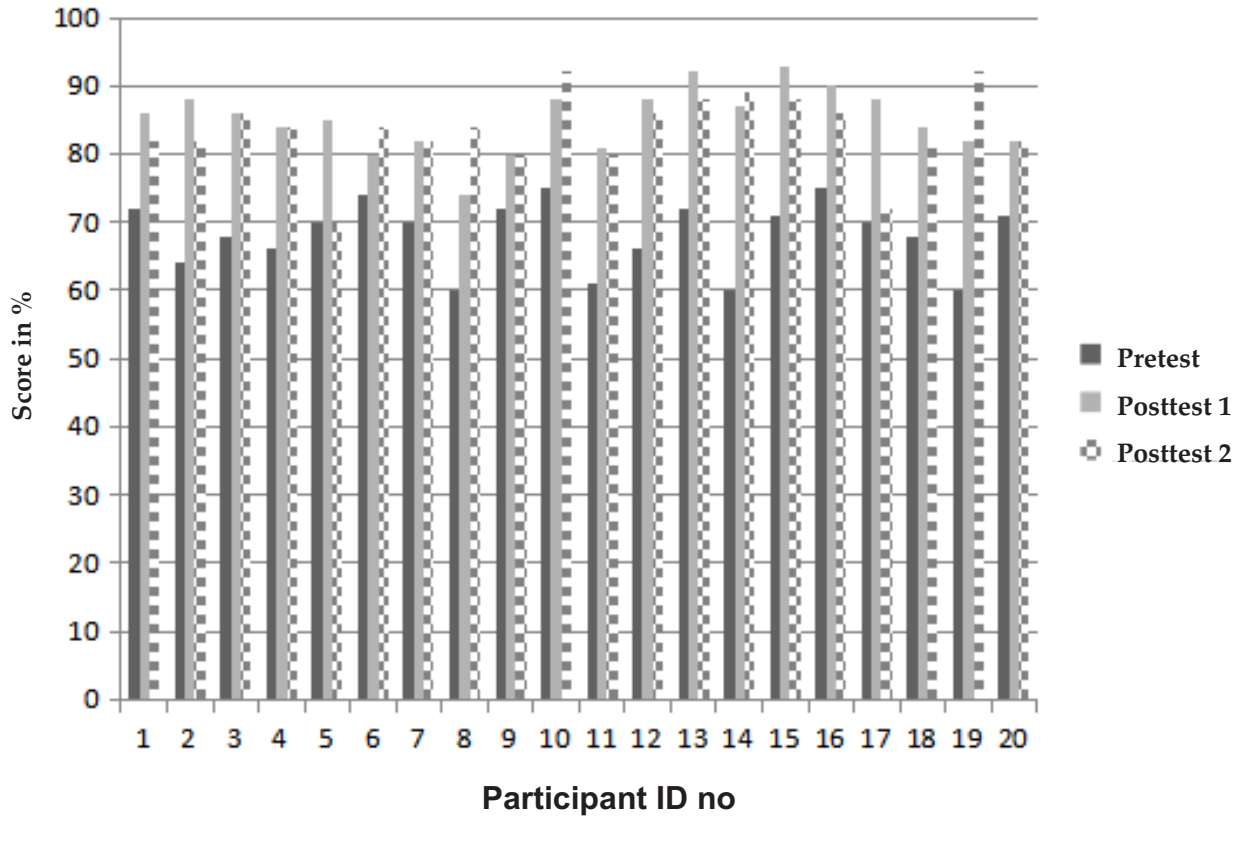
Table 4; Participants opinions of the training session

Item No	Description	No	%
	The session is well structured.	19	95.0
2	Clearly defined aims and objectives were provided for the module.	17	85.0
3	Various modes of presentation are used in the module.	16	80.0
4	The lecture topics offered were interesting and stimulating	16	80.0
5	The discussion topics are interesting and stimulating	17	80.0
6	Adequate, relevant, practical examples given, relating to the ''real world''	20	100.0
7	I feel that this module is important in my work	20	100.0
8	The module is important in present day Nigeria.	20	100.0
9	The module stimulates my interest in promoting oral health and preventing oral diseases.	18	90.0
10	The level at which the module was taught is right for me.	18	90.0
11	Overhead projections used in this course are a great help to learning.	19	95.0
12	I gained a good understanding of concepts and principles in primary oral health care.	20	100.0
13	I was stimulated to discuss related topics outside the class.	18	90.0
14	The course developed my interest/enthusiasm in oral health.	19	95.0
15	I developed skills needed by me for the promotion of oral health through PHC.	17	85.0

Table 5: Challenges experienced while training PHC attendees

Item No	Description	No	%
1	High level of illiteracy and poverty among PHC attendees	18	90.0
2	Further training and retraining to reinforce learning	15	75.0
3	More supervision by dentists or other oral health care workers	10	50.0
4	Inadequate dental centres to meet the needs of PHC clients	8	40.0
5	High cost of dental treatment	6	60.0

Figure 2: Knowledge scores of study participants before and after the educational intervention



immediately after the training to scores ranging from 74% to 93% with mean of 85.0% (±4.57). After 6 months the knowledge scores ranged from 70% to 92% with mean of 83.55% (±5.55). Figure 2 displays the scores of all the participants before and after the training.

Table 3 shows the mean knowledge scores of the participants before and after the intervention. The pretest score was positively correlated with the immediate post-test score similarly; the immediate post-test score was also positively correlated with the 6-month posttest score. However, the pretest score was negatively correlated with 6-month posttest score. None of these relationships were statistically significant. There was however a statistically significant difference between the mean knowledge scores obtained at the pretest and the immediate posttest (p=0.000) and between the pretest and the 6-month posttest scores (p=0.000). The mean difference in the scores obtained at the immediate posttest and the 6-month posttest was not statistically significant (p=0.328).

Evaluation of the intervention by participants: Following the training session the respondents reported that they found sessions well structured, interesting and found the oral health education materials appropriate for PHC settings. They also noted that the session had created awareness and stimulated their interest in teaching oral health at the PHC. Table 4 shows their views on the oral health-training module immediately after the training session.

At the 6-month review session almost all the participants 18 (90.0%) reported that they included oral health topics in their routine health education sessions. A total of 10 (50.0%) persons reported teaching oral health topics at least once a month. The other personnel reported including oral health information whenever they teach relevant topics. Majority (14 or 70.0%) reported observing an increase in the number of oral health related complaints and while 16 (80.0%) noted an increased demand for dental attention. In managing the complaints received many respondents reported referring patients to nearby dental facilities for proper management.

Concerning the developed oral health education aids (flipchart and posters), the respondents reported that clients viewed the materials as useful and that it provided clarity and ensured the clients attention when teaching thereby enriching the oral health education sessions. They also reported that the posters and flipchart fostered understanding of good oral health practices e.g. good feeding habits (85%) and early onset of oral hygiene practices (100%). Interestingly many of the participants reported they had not utilised the manual since completing the training. The participants suggested the inclusion of videos in future training sessions to reinforce taught concepts. Feedback after 6 months showed that the PHC workers had encountered challenges in the dissemination of information. These are outlined in Table 5.

DISCUSSION

Good oral health is a vital part of general health and wellbeing and has an impact on quality of life, yet this fact is not widely recognized by the general community in Nigeria. The integration of oral health care into the PHC system in the country may therefore be a reasonable answer to promoting oral health care in Nigeria.[3,5,6] Since CHW are educated to provide primary preventive care they can successfully promote a comprehensive approach to health care, emphasizing the overall health and wellness of the patient, including oral health. For this to occur the first logical step would be the training of CHW to understand oral health issues. The main focus of this research was therefore to provide evidence for the workability or otherwise of training CHW to provide oral health education in PHC settings. This study appears to be the first reported educational intervention study that focused on oral health content and skills for CHW in Nigeria.

The results obtained shows major gaps in the oral health knowledge of the study participants at baseline, a finding, which was reported by a previous study among CHW[9] as well as other cadres of health care workers.[13,14-16] This finding though not surprising can be attributed to lack of training in oral health prior to the intervention; only 15% reported receiving prior training in oral health. Despite this, the participants displayed average to good oral health knowledge scores and a positive attitude toward oral health. There was a substantial increase in the knowledge scores at the immediate posttest with a slight decline in the oral health knowledge scores at the 6-month posttest. This finding was further confirmed by the significant correlation between the pretest scores and

the immediate and 6-month post-test scores. However, the correlation between the immediate post-test and 6-month post-test was not statistically significant. Clearly, the designed module achieved improvements in the participants' oral health knowledge and skills, which was largely sustained over a 6-month period. This result could be attributed to the simplicity and participatory nature of the module.

Previous researchers have suggested that retention of learning among health workers deteriorates quickly[17,18] and have thus advocated continuous reinforcement. While we only observed a slight deterioration after 6 months, this finding may be an indication that the learning may further deteriorate over a longer period of time. Therefore we suggest periodical reinforcement of key learning points to reduce the likelihood of knowledge deterioration and possibly serve as a prelude to the introduction of advanced concepts in the future.

At the 6-month evaluation, majority of the respondents reported they had not utilized the manual since completing the programme, a similar finding was also reported by Hahn et al.[12] Many attributed this to their somewhat busy schedule. This is probably an indication that there was no concerted effort to incorporate the knowledge gained formally into their 'routine' activities. Thus individual effort would likely be a critical determinant of success with similar programmes. Individual effort may in turn be influenced by perceived importance of oral health. This finding suggests that oral health needs to be formally included in the routine duty schedule of CHW as was done for the brestfeeding initiative in the country. This should serve as motivation to seek further knowledge on the topic. The inclusion of an oral health education module into the academic curriculum of CHW during training should also be explored. This is likely to be the easiest and fastest route for successfully integrating oral health education into the routine schedule of PHC workers In addition, regular training; retraining and monitoring should be an essential component of designing training programs for in-service CHW in the spirit of promoting life-long learning.

Majority of the participants viewed the entire training experience favorably and the 6-month evaluation indicated that apart from gaining useful insights they appreciated the content and structure of the module. They specifically found the practicum at the PHC useful; a finding also reported in a similar study among nursing students.[12] Therefore we recommend the inclusion of a practicum when planning similar training sessions for PHC workers. However, as suggested, future sessions should consider the inclusion of videos in the training session. The participants considered they were competent to provide oral health information, nonetheless, further research to evaluate the impact of providing oral health education at the PHC on the community is recommended. This will provide evidence for effectiveness of utilizing CHW for oral health education at the PHC level.

The main limitations of this research were the small sample size and the lack of a control group. The sample chosen was determined mainly by available time for the conduct of the research, convenience, and finance. A larger sample size would have been ideal but the fact that the pilot study was limited to Ikeja LGA made this impossible, nonetheless all CHW in the LGA were included in our sample. Despite the limitations, the research has been invaluable in providing evidence for the benefit of an oral health education-training module. Further testing and development of educational materials is recommended for effective training of health workers on oral health at the PHC level.

CONCLUSION

Community health workers can be trained to effectively provide oral health education but they will require regular training using multiple and interactive training materials and sessions, retraining, supervision and monitoring for best results. The inclusion of the oral health education module during training programme of CHW should also be explored.

ACKNOWLEDGEMENTS: We would like the funding support provided by Unilever PLC for the conduct of this research project.

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