Education for Health, Vol. 15, No. 2, 2002, 139–148

Taylor&Francis healthsciences

ASSESSMENT/EVALUATION

Evaluation of an Innovative Approach to Community-based Medical Undergraduate Education in Nigeria

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ABSTRACT **Context:** *Although innovative, community-oriented and PHC-focused medical education programmes have been in operation in some medical schools in Nigeria for over a decade, they are yet to be comprehensively evaluated.*

Objective: *This study therefore aimed at evaluating some impacts of the programmes on medical education in the country.*

Methods: *The study was conducted in three innovative medical schools in South-Western Nigeria. Two traditional medical schools were selected as control. Questionnaires were used for the collection of data from random samples of 44 final year medical students in the innovative medical schools (SIMS) and 40 final year medical students in the traditional medical schools (STMS). Forty (40) medical graduates of the innovative medical schools (GIMS) and 33 graduates of the traditional medical schools (GTMS) also participated in the study. In addition, in-depth interviews of key stakeholders of the programmes and focus group discussions of selected members of the communities were conducted.*

Findings: *Findings revealed that the graduates of the innovative schools were better exposed to PHC education than those in the traditional schools. Their perceptions of the objectives of, and functions during, the PHC education were significantly different. Methods of learning during the programmes appear to be more experiential and inductive. Attitudes of members of rural communities were also favourable to the programmes.*

Conclusion: *The innovative programmes appear to have impacted positively on medical education in the country. A major deficiency of the programmes is inadequacy of human and material resources for their effective functioning.*

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Education for Health ISSN 1357–6283 print/ISSN 1469–5804 online
http://www.tandf.co.uk/journals
DOI: 10.1080/1357628021013307 1

KEYWORDS *Evaluation, innovative medical school, traditional medical school*

Introduction

The relevance of traditional education of medical undergraduates to the essential needs of the community has been an issue of intensive debate in Africa. Traditionally, basic medical education in African countries was essentially hospital-based, curative-oriented and high technology-focused, with little attention given to preventive and promotive care (Andreopoules, 1974; Fendall & Twari, 1980; Daramola, 1984; WHO, 1987). Such training programmes could only produce medical doctors who could serve effectively in secondary and tertiary medical hospitals, leaving primary health care (PHC) level undeserved. Following growing criticism of this type of medical education in Africa, various attempts have been made to reorient medical education towards the needs of the population for services.

One of the main objectives of basic medical education in Nigeria was to train doctors with a strong orientation towards priority health problems and programmes of the community (Medical Education Working Party, 1977). How this laudable objective should be achieved appears inadequately specified in most of the curricula of medical schools in the country. However, at the inception of some medical schools, their curricula were community-oriented, community/problem-based and PHC-focused. These schools (Ife, Ilorin, Bayero, Maiduguri and Ogun) were also members of the *International Network of Community-oriented Educational Institutions for Health Sciences*, whose primary objective was to promote innovative community-based and problem-based learning as a contemporary educational strategy for addressing the issue of relevance of health sciences education world-wide. Their curricula were therefore different from the traditional medical curricula in scope and mode of delivery. While some reports on their programmes appeared in literatures, outlining their educational objectives and strategies as well as expected outcomes and constraints (Alausa, 1988; Aiyedun, 1992; Jinadu *et al*., 1992; Omonisi *et al*., 1992; Omotara *et al*., 1992), there has not been a systematic and comprehensive evaluation of their programmes.

Since Nigeria adopted PHC as the cornerstone of its National Health Policy in 1987, one of the basic problems constraining adequate development of the programme is lack of adequately trained health professionals, including medical doctors. Medical doctors are expected to play a prominent role in the planning, programming, delivery and even evaluation of the PHC in the country. In fact, majorities of newly graduated doctors are usually posted to PHC facilities in rural communities for one year National Youth Service programme. Without adequate orientation to PHC programmes, it is doubtful whether such doctors could perform according to expectation.

The development of educational strategies for increasing the interest of medical undergraduates in PHC in Africa is a matter of considerable policy significance. At issue, in this study, is the basic question of whether the innovative medical education programmes are different from the traditional programmes in their orientations to PHC needs of the country and in what ways?

Some Concepts in the Evaluation of Medical Education Programmes

Critical review of past evaluative studies of innovative medical education programmes has provided some insights into factors limiting evaluation of medical education programmes and how they could be overcome (Kaufman *et al.* 1989; Moore-West *et al.* 1989; Stewart *et al.*, 1992; Woodward, 1992). Three basic questions relating to (i) differences in abilities of students, (ii) impact of the programmes on the health institutions, and (iii) impact of the programmes on the health of the population have been identified as the central focus of such evaluation. Friedman *et al.* (1992) have identified characteristics that a medical education programme must possess in other to qualify as innovative, namely:

(i) it must operate on the scale of the entire curriculum leading to the degree in medicine or a significant fraction of it;
(ii) it must be guided by some clearly stated, coherent sense of purpose; and
(iii) it must involve all medical students or an identifiable subset of students at a school.

Rotem (1992) has identified 10 steps in the design of an evaluation of such education programme. The first five of these steps that are relevant to this study are outlined below:

(i) The first step involves clear description of the programme we wish to evaluate.
(ii) The next step is the identification of the stakeholders, who have different concerns, claims and interests in the programme.
(iii) Clarifying areas of concern of each stakeholder is the third step.
(iv) Formulating specific questions in relation to each area of concern should follow this.
(v) The fifth step is the development of methods of data collection.

These five steps were strictly adhered to in the design of this study.

Operational Definition of Terms

(i) *Innovative primary health care medical education (IPHCME)*: this is a community-based education which utilises problem-based and self-directed learning strategies, through organised exposure of students to community health problems and programmes. Investigating community health problems, proposing, implementing and evaluating interventions are the main feature of the learning process.
(ii) *Innovative medical schools*: these are medical schools operating IPHCME programmes.
(iii) *Traditional medical schools*: these are medical schools operating conventional medical education programmes.

Research Methodology

This study was conducted in three innovative medical schools in the country, namely:

(i) College of Health Sciences, Obafemi Awolowo University, Ile-Ife;
(ii) Faculty of Health Sciences, University of Ilorin, Ilorin; and
(iii) Obafemi Awolowo College of Health Sciences, Ogun State University, Sagamu.

Initially, qualitative data were collected from selected medical leaders and teachers in the above three institutions, using in-depth interview schedules, and by reviewing secondary data on the programmes. The design, pre-testing and administration of self-administered questionnaires followed this. Two out of the three IPHCME institutions in South-Western part of the country were purposely selected for the questionnaire survey. Two traditional medical institutions that operated conventional curricula in the same part of the country were also selected as control. Each of the two sampled IPHCME institutions were matched for location and age of the institutions. A random sample of 50 final year students in the innovative medical schools (SIMS) and 50 students in traditional medical schools (STMS) were selected for the administration of the questionnaires. Fifty graduates of innovative medical schools (GIMS) and 50 graduates of traditional (GTMS) were also selected for the administration of the questionnaires. However, 44 of the SIMS, 40 of the STMS, 40 of GIMS and 35 of the GTMS duly completed the questionnaires.

Using a focus group guide, two focus group discussions (FGDs) were held among selected leaders of the target communities for the IPHCME to gauge their reactions to the programmes.

Background

Description of the Programmes

The Faculty of Health Sciences of University of Ife (now College of Health Sciences, Obafemi Awolowo University) started community-based educational programme for its medical and other health science students (nursing, environmental health and medical rehabilitation students) in 1972. The Faculty of Health Sciences of University of Ilorin followed suit in 1976 with its Community-Based Medical Education and Services programme (COBES). The Obafemi Awolowo College of Health Sciences of Ogun State University was established in 1982 and its community-based medical education programme (COBMES) was modelled after the Ilorin programme.

Organisational Structure

The basic structure of these programmes is shown in Table 1. Student postings into the programmes usually begin in their pre-clinical years (usually level 200) and for duration of not more than four weeks. Other postings occurred in the clinical years. During the pre-clinical posting, the students were usually assigned to selected communities in rural areas to conduct community-based investigations for the purpose of understanding the socio-cultural and demographic structures of the communities. During the clinical years, however, the students would be posted to the same or similar communities for community health diagnosis and community-based health interventions.

The COBES and the COBMES programmes were organised as units within the medical schools. Planning, programming and implementation of the programmes were handled by various committees whose memberships cut across various disciplines within the medical schools.

Table 1. Basic structure of community-based education in innovative medical schools in Nigeria

Year	Duration	Activities
200 pre-clinical	Four weeks	Demography survey and community survey of health facilities and written reports.
300 levels	Four to eight weeks	Vary and depends on theme for the year
500 levels clinical	Four weeks	Survey and prioritise health problems, community diagnosis and intervention.
600 clinical	Four to eight weeks	Assist in running clinics; involve in health education and home visit.

Student Evaluation
Assessments of students during the programmes include (i) field assessment of students by their lecturers, field supervisors and coordinators; (ii) oral presentation of written reports and community-based projects; and (iii) written examination.

Findings

PHC Educational Environment
Data from the written curricula and questionnaire survey revealed that SIMS had earlier and longer exposure to rural community-based, PHC education than those in the STMS. They also travelled longer distance to the rural communities for the community-based education and had more experiences of rural community-based PHC settings.

Objectives of Community-based Education
In Table 2, the objectives of community-based education, as perceived by the SIMS, were compared with that of the STMS. ''Identification of community health needs'' and ''sensitivity to community needs'' were mentioned by 45.3% and 34.4% of the SIMS, respectively, compared to less than 5% of STMS. Patient/client health education and other health centre-based activities were mentioned by 42.7% and 46.7% of the STMS, compared to 9.4% and 10.9% of the SIMS, respectively. These percentage differences are highly statistically significant ($p < 0.0001$).

Table 3 shows activities performed by the students during the community-based education. About 35.7% of the SIMS mentioned ''health survey'', 23.8% mentioned ''community development activities'', 16.7% mentioned ''health education activities'' and 14.4% mentioned ''clinic-based activities''. Among the STMS, however, 33.3% mentioned clinic-based activities, followed by health education (22.2%), community development activities (16.7%) and health survey (5.6%). The percentage differences are highly statistically significant ($p < 0.0001$).

Table 2. Comparison of perceptions of objectives of community-based by students in innovative medical schools (SIMS) and those in traditional medical schools (STMS)

Perceptions	SIMS		STMS	
	N	%	*N*	%
Identification of community health needs	29	45.3	4	4.3
Sensitivity to community health needs	22	34.4	4	5.3
Health education	6	9.4	32	42.7
Conduct health centre-based activities	7	10.9	35	46.7
Total*	64	100.0	75	100.0

*Multiple response; $\chi^2 = 67.41$, df = 3, $p < 0.0001$.

Learning Methods

Table 4 shows what the students perceived as their learning methods during the PHC education. About 49% of the SIMS mentioned community assignment and the rest mentioned projects (20.9%), lectures (11.6%), seminars (7.0%) and combinations of all the methods (11.6%). Fifty percent of the STMS relied more on lectures, 30% on seminars and 20% on community assignments. None of the STMS perceived project activities as a leaning method.

Relevance of PHC Education to Present Functions of the Graduates

When the graduates of the medical schools were asked to rate the relevancy of the PHC aspect of their education to their present functions, over half (52.5%) of the GIMS rated it as ''very relevant'' and the rest rated it as ''just relevant''. Among the GTMS, however, about half (48.6%) rated it as ''very relevant'', 42.9% as ''just relevant'' and only a few (8.6%) rated it as ''irrelevant''.

Suggestions for Improving the Innovative Programmes

The following suggestions for improving the innovative programmes were made by the students and teachers in the programmes: (i) there was a need to

Table 3. Students' activities in the innovative PHC programmes compared with the traditional PHC programmes

Activities	SIMS		STMS	
	N	%	*N*	%
Health survey	30	35.7	4	5.6
Community development activities	20	23.8	12	16.7
Patient health education	14	16.7	16	22.2
Clinic-based activities	12	14.3	24	33.3
Total*	84	100.0	72	100.0

*Multiple response; $\chi^2 = 23.54$, df = 3, $p < 0.0001$.

Table 4. Main learning methods during the PHC postings of the students in the innovative medical schools (SUMS) compared with the students in the traditional medical schools (STMS)

Methods	SIMS		STM	
	N	%	*N*	%
Lectures	5	11.6	20	50.0
Seminars	3	7.0	12	30.0
Community assignment	19	48.9	8	20.0
Projects	9	20.9		
All the above	5	11.6		
Total	43	100.0	40	100.0

improve the funding of the programmes so that adequate facilities could be provided; (ii) nearly all the students wanted better accommodations during rural community-based postings; (iii) other rural communities should benefit from the programmes in other to enhance their effectiveness; and (iv) there should be adequate evaluation of the students in the programmes.

Community Perceptions of the Programmes

Data from the FGDs revealed some differences in community perceptions and acceptance of the programmes. While one community competed for the programme and even donated generously for its sustenance, another community merely accepted it and cooperated with the medical school. However, members of the communities always welcome the students and staff of the two programmes into their communities. Factors identified as influencing community perceptions of the programmes include: (i) approaches used by the medical schools for entry into the communities; (ii) how explicit the aims and the objectives of the programmes are to the community leaders and members; and (iii) the levels of education and urbanisation of the communities. These, in turn, appear to determine the types of supports provided for the programmes by the communities.

Attitudes of the faculty members to the programme varied from total commitment to lip service and, in few cases, hostile attitudes.

Discussion

In Nigeria, community-based PHC-focused medical education started at the University of Ife (now Obafemi Awolowo University). It later spread to some second and third generation medical schools. These innovative programmes have become a distinguishing feature of their education.

Findings from this study revealed that medical students in the innovative programmes were more oriented towards PHC programmes than the students in the traditional medical schools. They were more sensitive to rural community needs and had earlier and longer rural community-based, PHC educational exposure than those from the traditional medical schools.

The perceptions of the objectives of the community-based, PHC educational progammes by the students in the innovative schools were significantly different from those in the traditional schools. For example, while the students in the innovative schools perceived the objectives of the educational programmes as aiming towards their orientation to the health needs of the general population, such as ''identification of community needs and sensitivity to community needs'', students in the traditional programmes perceived theirs as aiming at health needs of their clients/patients in health/clinic centres only. In fact, activities performed by the students during the PHC education programmes appear to confirm these findings. This is not surprising since, in

most cases, programmes of the innovative schools emphasised interactions with the communities/populations while that of the traditional schools emphasised mainly health centre activities.

Methods of teaching and learning about PHC in the innovative medical schools appear to be more experiential. While the students in the innovative programmes tended to rely more on assignments in the community and project activities for learning about the PHC, students in the traditional programmes relied mostly on lectures. However, the majority of the graduates of both programmes rated the PHC aspects of their medical education as relevant and applicable to their current functions.

Members of the communities had positive perceptions of the programmes and, in one case, supported it generously in their community. Innovative PHC educational programmes appear as a mean of fulfilling social contract of the medical schools to the communities (Wasylenski *et al*., 1997). The need for medical schools to form partnerships with the communities in other to fulfil this social contract has also been highlighted (Jinadu *et al*., 1997).

Major deficiencies of the innovative, community-based PHC education programmes include inadequate funding and inadequate system of evaluation of students in the programmes.

In conclusion, there is a need for further evaluation of the programmes in developing countries. The main questions, which such study may address, include: (i) what has been the impact of the programme on the health services situation in general, and PHC in particular; and (ii) to what extent are the graduates of innovative programmes willing to serve in rural and under-served communities?

Acknowledgements

The Association of African Universities (AAU) sponsored this project. We are particularly grateful to Professor A. Sawyerr and other staff of AAU for technical and moral support during the project. Our special thanks goes to Professor (Dr) U. Teichler of the Centre for Research on Higher Education and Work at the University of Kassel for his incisive and helpful comments on the project.

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