Evaluation study of the training programmes for health personnel in Al-Qassim, Saudi Arabia

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دراسة تقييمية لبرامج تدريب العاملين الصحيين في القصيم بالمملكة العربية السعودية

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خلاصة : تقيِّم هذه الدراسة البرامج التعليمية المتعلقة بالصحة والتي يجريها مركز التعليم الطبي المستمر وخدمات المجتمع، في بريدة بالمملكة العربية السعودية. لقد تم جمع سائر الوثائق التي تحوي بيانات حول تقييم ورصد عديد من البرامج، ثم تحليلها. وتبين أن برامج التدريب والتعليم الطبي تلبي على نحو جيد غايات وأهداف المقررات الدراسية وتطلُّعات المتدربين والمدرِّبين. وكانت المعلومات الارتجاعية من الجماعات المستهدفة مهمة لتصحيح نقاط الضعف التي ظهرت أثناء التقييم. لقد ثبت أن برامج التدريب فعالة، وأثمرت تغييرات مفيدة في معارف المدرِّبين والمتدربين على السواء، وسوف تساعد في تحديث المقررات الدراسية المستخدمة في التدريب مستقبلاً.

ABSTRACT This study evaluates the health-related educational programmes conducted by the Continuous Medical Education and Community Services Centre, Buraidah, Saudi Arabia. All the proformas containing data on evaluation and monitoring of several programmes were retrieved and analysed. The medical education training programmes satisfactorily met the aims and objectives of the courses and the expectations of the trainees and trainers. Feedback from targeted groups was important for rectifying any weaknesses revealed during evaluation. The training programmes were effective and produced favourable changes in the knowledge of both trainees and trainers and should help in updating courses for future training.

Etude d'évaluation des programmes de formation du personnel de santé à Al-Qassim (Arabie saoudite)

RESUME Cette étude évalue les programmes éducatifs se rapportant à la santé qui sont organisés par le Centre de services communautaires et de formation médicale continue de Burayda (Arabie saoudite). Tous les proformas contenant des informations relatives à l'évaluation et au suivi de plusieurs programmes ont été récupérés et analysés. Les programmes de formation dans le domaine de l'enseignement de la médecine ont permis d'atteindre les buts et objectifs des cours et ont répondu aux attentes des stagiaires et des formateurs. Les informations fournies en retour par les groupes cibles étaient importantes pour corriger toute faiblesse relevée lors de l'évaluation. Les programmes de formation étaient efficaces et ont amené des changements positifs en ce qui concerne les connaissances des stagiaires et des formateurs et devraient servir à la mise à jour des cours pour les formations à venir.

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Introduction

Continuous medical education of health personnel is an essential aspect of increasing the workforce and improving the quality of health services [*1*]. Like any other successful health service programme, medical education training programmes should be subjected to a process of continuous monitoring, control, evaluation and, if needed, to relevant modifications [*1–4*]. The evaluation of a training programme should cover its various aspects: context, aims and objectives, training resources, processes, student characteristics, programme effects and impact [*5*] as shown in Figure 1. The evaluation of such programmes should also answer questions about the effectiveness, efficiency and impact of training on the students, the health care and the target population [*1,2,5*].

In this paper, we highlight the procedures used in the evaluation of several medical training programmes conducted under the guidance of multidisciplinary personnel working in the Continuous Medical Education and Community Services Centre, Al-Qassim Region, Saudi Arabia. The focus is on their most important aspects: objectives, training resources and processes, students' characteristics and the effects of the programmes both during and at the end of the training.

Methods

Data were collected on a semistructured proforma after extensive screening of all

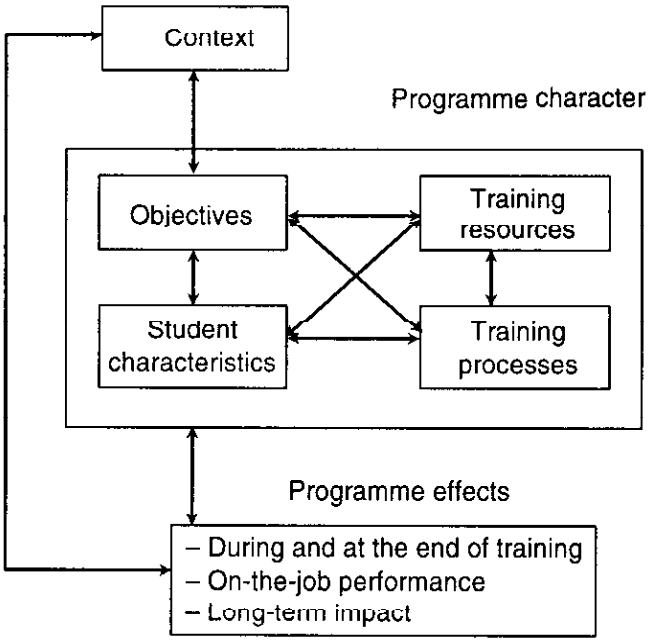

Figure 1 **Aspects to be considered in the evaluation of a training programme**

relevant documents related to the evaluation process of the medical training programmes which were organized and held at the Centre. The evaluation papers were extensively reviewed and discussed with the coordinators of the programmes and the entire team of researchers participated in this process. The abstracted data were analysed using frequency analytical statistics. The data from one of the longer programmes, which was conducted in 1993 in Al-Qassim and lasted for three months, will be presented. This particular programme was for Saudi health inspectors who were oriented to health education. The preliminary findings of this programme, excluding the evaluation process, have been reported elsewhere [6]

Results

Objectives of the training programmes

All training programmes held at the Continuous Medical Education and Community Services Centre, Buraidah had clear and predefined written objectives. These objectives were discretely designed by the educational experts after close and regular discussions with the trainers, the administrative supervising authorities and other consultants in the field of health services. In the majority of these programmes, the objectives reflected and encompassed the major and minor health and social problems of the community and also other problems that arose during the clinical practice of primary health care services. The objectives were always categorized as general and specific. The curriculum of each programme was framed in such a way as to meet the objectives. The comprehensive curriculum, including aims and objectives, was usually distributed to the trainees in a written form and discussed with them at the beginning of the training. Throughout the training period, the objectives were subjected to continuous monitoring and evaluation.

Selection of students

Student selection followed clear, predetermined steps. Each step was monitored and evaluated. The selection of students was done in two ways: 1) selection by the trainers and 2) selection by the institute in which the students were enrolled.

When student selection was performed by the trainers, there was a comprehensive explanation of the objectives of the training programme and jobs and tasks were delegated to the trainees after completion of training. Certain characteristics and criteria, together with personal characteristics and prerequisite qualifications, were taken into consideration. Students who showed a keen interest both to join the training and to work on the assigned job after training were automatically selected. The students were then subjected to selection tests and those who passed were interviewed. The selected candidates were requested to sign a written consent accepting the assigned job and tasks after the training course. The characteristics of the 14 health inspectors (19.2%) selected out of 73 health inspectors were as follows: young adult Saudi national (age >26 years) wishing to participate, previous work experience of 2–8 years, passed the selection examination.

When selection of the trainee was done by the authorized institute, a reasonable evaluation was mandatory at the time of registration using a modified written registration form, which included detailed personal data, qualifications, work experience, previous training, if any, and the trainee's expectations of the course.

Training process

The training methods used in the Centre varied and included problem-solving approaches, workshops, group discussions, role play, tutorials, seminars, practical work, clinical meetings and fieldwork. Formal lecturing was the method least used. These approaches were usually coupled with appropriate audiovisual aids.

Evaluation of the training methods

Training sessions conducted during each programme were subjected to continuous monitoring and evaluation by the coordinators, educators and trainees. The inclusion of the trainees in the evaluation process was extremely helpful in updating and modifying the programmes, for both the betterment and satisfaction of all participants.

The methods of evaluation used were objective observation, comments and feedback from the trainees, as well as specially devised assessment forms. These forms included an evaluation scale related to the following: 1) the candidate's need for the training session, 2) the scientific material presented, 3) the performance of the trainer, 4) the use of the audiovisual aids, 5) the benefits derived by the candidate, 6) the strengths and weaknesses of the session and 7) final critical comments and remarks. The forms were distributed at the end of each session to be completed by each candidate. Anonymity was permitted. The forms were immediately analysed and the results shown to the trainer who had conducted the session. If any defects were revealed, the necessary rectifications were taken immediately. Evaluation of workshops and fieldwork was carried out in a similar fashion. Feedback of the results of the evaluation was given to the candidates.

Evaluation of students

The trainers and coordinators explained the objectives of the student evaluation to the trainees. These were to improve the performance and outcome of the training and also to provide the community with the best quality of health care workers. Their evaluation was a continuous process, initiated at the time of selection and registration. They were always given a pretest, which contained questions related to the objectives of the programme. The aim was to give the coordinators and trainers a good idea of the students' level of knowledge and their attitudes, which accordingly helped them in redirecting and modifying the curriculum. During the active training hours, students were evaluated by various diagnostic tests to assess their progress and grasp of the contents of the course. In addition, their performance and attitudes during the sessions were subjected to continuous monitoring and evaluation through the observations of the coordinators. Likewise, their performance during workshops, group discussions and individual tasks was evaluated by the trainers and also through peer review during presentation of the results of the group work. This was usually carried out through a proforma which contained specific instructions to make the evaluation processes more objective. Interestingly, the mean average score in group work (mean ± s = 76 ± 2.22) as compared with individual work (mean ± s = 77.51 ± 4.69) of the 14 health inspectors was surprisingly low. At the end of the training programme, students usually took a qualifying examination, written as well as oral. At the same time, a post-test was carried out and the results of the pre- and post-tests were compared. This generally showed tremendous improvement. For example, there was a 140.5% change in score statistically derived from

the pretest (mean ± s = 30.32 ± 7.09) and post-test (mean ± s = 72.93 ± 15.55) scores of the 14 health inspectors. This shows how effective and successful the training process was in improving the students' knowledge, which should thus enhance the quality of clinical practice in future. Similar procedures were used in evaluating group work and individual tasks. The results of the analysis were made clear to all students in a group session and then confidentially to each student in detail. The coordinators also discussed the results with the students, whose deficiencies were highlighted and who were advised accordingly. The final average scores in group work (mean ± s = 76.9 ± 2.22), individual tasks (mean + s = 77.51 + 4.69), post-test (mean ± s = 72.93 ± 15.55) and all different evaluations (mean ± s = 75.76 ± 6.37) of the 14 healthy inspectors were indicative of the growing success of the training programmes.

Training resources

Trainers. The selection of trainers was usually done on the basis of their expertise in the field of training programmes and their involvement in continuous consultations on health services programmes, both educational and promotional. The evaluation of each trainer's performance was conducted through a written form completed by each student soon after each session. Moreover, evaluation of the performance of the trainer was also carried out through observation by the coordinators. The trainers were informed of the responses of the trainees for better performance and improvements.

Venue, training logistics and services. The Centre is equipped with modern audiovisual aids designed for training purposes. As well as the training logistics, other facilities and general services, such as transportation and housing, were provided free of charge to the students. The availability of these services was ensured and continuously monitored and evaluated through direct observation by training coordinators and through written comments by the students. The students were asked to report frequently to the coordinators regarding these services. They were also asked to give their suggestions for improving the services overall. Feedback was sent to the relevant organizers for immediate action to be taken in order to rectify the weaknesses, if any.

Discussion

It is not possible to measure the outcome of an educational programme unless its objectives are clearly stated [7]. Evaluation of the objectives showed that all the training programmes had appropriately designed, clear objectives. The designers attempted to focus on the following aspects of educational objectives: 1) course relevance, 2) specificity, 3) practical applications, 4) logicality, 5) observability, and 6) measurability [7,8]. Furthermore, concerted efforts were made to monitor and evaluate the educational objectives at all levels.

Student selection is the first milestone in the training process. It improves student performance, the prestige of training institutes and the quality of health services [9]. Analysis of student selection found that it was scientifically carried out, beginning with the strategy, the process of selection and the monitoring and evaluation methods, as shown in other studies [9], and this was reflected in the performance of the students during the training period. In one training course, which lasted for three months, no student was absent for even a day. The results of student evaluation were

extremely encouraging during the training period. When selection was done by other institutes, evaluations were carried out of the students' characteristics and their expectations of the training programmes at the time of registration and also before the beginning of the training sessions. This type of evaluation was found to be beneficial in categorizing students according to personal characteristics, educational level, work experience, previous training and expectations of the present training programme. Moreover, these data were found to be valuable in order to modify the objectives of the training so as to fulfil the students' expectations. Evaluation was also found to be beneficial in the process of active learning, especially in group work programmes. It is noteworthy that the homogeneous nature of the students selected helped them learn from the experience of each other.

The characteristics of the trainers in terms of their years of experience in training and fieldwork were directly related to improving the outcome of the training process [*10*]. The continuous critical writing and evaluation of the trainers' performance by the students and coordinators as part of the training sessions and the immediate feedback to the trainers of the results of evaluations also resulted in improving the trainers' performance.

The modules of training used in the programmes were referred to as "methods of active training" and such methods usually give better results in the training process [*8,10,12*]. However, we suggest that up-to-date training of health personnel should concentrate more on the development of relevant skills and healthy attitudes [*8,12*]. The enhancement of students' knowledge is another equally important aspect of a training programme which should attract the attention of educators.

The methods of training were varied and this is recommended by educationalists because different students learn by different training methods [*12*]. The method of formal lecturing was least used because students do not participate actively in the process of learning and the outcome is inferior to methods of active learning [*12,14*].

The process of continuous writing and evaluation of the training sessions is thought both to improve the performance and outcome of these sessions [*7,14*]. This procedure helped the students sustain the attitude of constant monitoring of their performance during their activities. It was also found that when trainers were aware that their performance was being monitored and evaluated, they tended to improve it. Feedback of the results of evaluation of the training sessions to the coordinators and trainers was found to be helpful in rectifying the weaknesses of sessions, which was reflected in a student response rate of 85% assessing the benefits of the training as excellent and very good. This was also attributed to the good organization and performance of the trainers during the training sessions.

Comprehensive discussion and feedback about the evaluation of the students with the students and trainers were of vital importance. Their evaluation process aimed at improving the training process and its outcome and these processess began at the time of selection and registration of students and continued throughout the training periods. Various methods of evaluation were used. Such measures are supported by experts in both medical education and student evaluation [*7,12*].

The monitoring and evaluation of student performance and attitude is recom-

mended because it helps them rectify their weaknesses. The qualifying examinations as programmed and used in our study were mandatory. We did not find any statistical significance between the mean scores in individual work (77.5%) and group work (76.0%) as regards student performance. This might be misleading because the scores of individual and group work were derived from the mean values of many evaluations. However, the evaluation which was usually used in group work was peer evaluation, which is known to be subjective in many situations [*12*]. As regards student performance, our study found a statistically significant difference between the mean of the groups in the pretest (30.32%) and the post-test (72.55%). This indicates that the training process was successful in improving the students' performance after the training period.

Additionally, our study found that about 50% of the top students were negatively affected by group work interactions, which might be attributed to their personality. This might also be due to the negative effect of peer evaluation, which was used mainly to evaluate group work. However, it was noticed that the scores of group work helped students with poor results in individual work to improve their final scores. This effect of teamwork has been reported in primary health care [*1,8*]. In addition, the immediate feedback to students with the results of their evaluation is known to improve their performance in later evaluations [*7*], which was also seen in this study.

Conclusion and recommendations

The effectiveness of any educational training programme depends on its continuous monitoring and evaluation, which should include appropriate and different methods. Moreover, coordinators, trainers, organizers and students should be actively subjected to the process of monitoring and evaluation. This helps in identifying of the overall performance of trainers and trainees. Immediate feedback with results analysis of the continuous monitoring and evaluation should be available to those involved so that they can take the necessary action to improve matters.

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Correction

Epidemiology of diabetes mellitus in relation to other cardiovascular risk factors in Lebanon EMHJ Vol.3 No.3, December 1997, page 462.

The list of authors should read as follows:

Ibrahim S. Salti,[1] Mustafa Khogali,[2] Samir Alam,[1] Nabil T. Nassar[1], Najib Abu Haidar[1] and Amal Masri[2].

The footnote remains unchanged.