



Evaluating postgraduate courses in Health Promotion

Jutta Kloppenborg Heick Skau, Louise Caroline Stage, Ditte Mølgaard Nielsen

Abstract

Background Background Evaluation of short training/postgraduate courses, with focus on measuring acquisition of new knowledge, is often limited. Therefore, the aim of this study was to develop a Multiple Choice test for evaluating how well participating staff in the clinical prevention and health promotion training course had acquired knowledge.

Methods 11 participants from a spring course and nine control persons took a pilot test, and 12 participants and 21 control persons took the final Autumn-test. A MC test was developed with 17 questions with three possible answers for each question. The participants answered the MC test as a pre-test and a post-test.

Results Results The pilot test showed that the number of correct answers in both groups resulted in a median of 13 ranging from 10-15 and 10-16 ($p = 0.42$), respectively. The Autumn testing showed a significant difference in number of correct answers between the pre-test and the post-test, 10.5 (6-13) versus 12 (11-13) ($p = 0.016$). Furthermore, there was a significant difference between the post-test of the participants and the answers of the control persons, 11 (8-14) ($p = 0.02$). In addition, the study found that the participants were positive towards answering the MC test, and that the test could be completed within the allocated period of time.

Conclusion A MC test can be easily developed to evaluate whether the participants acquire knowledge by participating in a training/postgraduate course in clinical health promotion. However, the MC test does not measure acquisition of new clinical skills and effect for the individual patients.

About the AUTHORS

Jutta Kloppenborg
Heick Skau, Louise
Caroline Stage, Ditte
Mølgaard Nielsen

WHO-Collaborating Centre
for Evidence-Based Health
Promotion in Hospitals and
Health Services, Bispebjerg
University Hospital,
Copenhagen

Contact:

Jutta Kloppenborg Heick Skau
juttaska@life.ku.dk

Introduction

Evaluation of short training/postgraduate courses, with focus on measuring acquisition of new knowledge, is often limited. This may be due to the length of the courses as they often vary from a few hours to a few days, and so knowledge dissemination may be prioritized over evaluation. It may also be due to lack of access to evaluation tools for measuring knowledge.

However, there is a widespread tradition of evaluating the participants' immediate overall satisfaction with the course. This may be because there are already complete test forms for this, and that the same form is applicable in many courses.

There are various evaluation methods for measuring knowledge, such as Multiple Choice questions, assignments, essays, written and oral examinations, as well as Objective Structured Clinical Examination (OSCE) (1). It is important to choose an evaluation method appropriate to the aims of the course, such as knowledge and clinical skills,

while at the same time meeting the basic requirements for reliability and validity (Table 1) (1;2).

Due to the limited time in training/postgraduate courses, and especially in courses with a sizeable theoretical content, the use of a Multiple Choice test (MC test) seems natural. An MC test has high reliability when it comes to testing knowledge, but is criticised for having low validity when measuring clinical skills (2;3).

Every six months, the WHO-CC at Bispebjerg University Hospital in Denmark offers a four-day course in clinical health promotion called "Systematic Implementation of Brief Intervention". The aim is to develop staff skills in implementing brief intervention focusing on tobacco, alcohol and physical inactivity, and also to improve the participants' knowledge of the background, evidence and method for brief intervention (Table 2). In this article competences are defined as knowledge and clinical skills. The target group is nurses and other health care staff who



Research and Best Practice

Table 1 Possible evaluation methods (Ringsted and Aspegren, 2004)¹

	- Multiple choice tests
Knowledge	- Essays written examination - Oral examination
	- Clinical decision making: Patient management problems (PMP)
Skills	- Clinical skills: direct observations of performance in simulat scenarios, Objective Structured Clinical Examination (OSCE), or observation in the clinic - Communication, cooperation: OSCE, feed-back from others – if necessary patients
	- Assessment of behaviour. Can be made by supervisor, colleagues, staff, if necessary patients - singly or a combination, so called 360° assessment (multiple peer assessment or multiple source assessment)
Attitudes	- Assessment of reflexive reports of specific problems or incidents - Assessment of statements and responds to other's statements or behaviour. For example in groups or at conferences. Can be made by supervisor, colleagues or staff
	- Logbook (experience log) – quantitative registration of accomplished activities, for example operations, procedures
Experience	- Cusum-score – registration of procedures with qualitative element – registration of success rate
	- General assessment of behaviour and manner. Can be made by supervisor, colleagues, staff, if necessary patients – singly or a combination (360° -assessment, multiple source assessment)
Habits of action	- Assessment of reflexive reports of quality of own actions and handling of problems - Assessment of portfolio – assessment of documented behaviour and manner and the results from this. Portfolios are different material from many different sources

Table 2 The outline for the course in clinical health promotion: Systematic implementation of brief intervention October

25th of Oct.	26th of Oct.	1st of Nov.	2nd of Nov.
<p>8.30 – 9.30: Theory Welcome and Pre MC-testBBH as a model hospital for clinical health promotion Background for documentation in the area of clinical health promotion</p> <p>9.45 – 12: Theory + training Second hand smoke – what do we know?Presentation by participant Assessment of motivation</p> <p>12.45 – 13.45: Theory Motivation, barriers, myths/attitudes, implementation, criteria of success</p> <p>14 – 15: Theory + training Medical record formScreening for alcohol and tobacco</p> <p>15 – 15.30: Theory Literature list, referencesSumming up</p>	<p>8.30 – 11.45: Training Test in brief intervention</p> <p>12.30 – 15.15: Theory Screening for physical activityHealth risks by physical activityHealth gain by physical activity for patients with chronic diseases</p> <p>15.15 – 15.30: Summing up</p>	<p>8.30 – 9.00: Since last time</p> <p>9.00 – 10.00: Theory Updating of knowledge about tobacco and alcohol</p> <p>10.30 – 12.00: Training + Theory Walk and TalkAlcohol dependence Replacement therapy and treatment of withdrawal symptomsOffers of support</p> <p>12:45 – 15.00: Training Brief intervention</p> <p>15.00 – 15.30: Summing up</p>	<p>8.30 – 14.30: Theory + Training Theory about stages of change in personal behaviourCharacteristics in the specific stagesEffort to support the process of change in the individual patientKeep the overview – Use glasses</p> <p>14.30 – 15.30 Evaluation Incl. Post MC-test, and feedback</p>



Research and Best Practice

Figure 1 Trial profile



will be conducting the brief interventions in practice. So far, the participant evaluations have only focused on overall satisfaction with the course, but there is also a need to evaluate knowledge acquisition. Therefore, the aim of this study was to develop a MC test for evaluating how well the staff participating in the clinical prevention and health promotion training course had acquired knowledge.

The literature in the field is sparse. A search of randomized studies resulted in six articles, but none were directly relevant to this study (4-9). However, some reviews do show that medical postgraduate courses do have an effect (10;11).

Material

11 participants from a spring course and nine control

persons took the pilot test, and 12 participants at an autumn course and 21 control persons took the final test. One participant did not complete the pre-test, and another participant did not complete the post-test due to absence. These two were not included in the comparative analysis of the pre- and post-test, and one of these was excluded from results regarding views on obtaining new knowledge and the overall attitudes towards the course. Both groups (participants and control persons) were recruited from nurses and other health care staff (Figure 1). The structure of the course was changed between the two courses in spring and autumn, making the theory part more interactive, but the content of the course remained the same. Consequently the changes would not have influenced the MC test.



Research and Best Practice

pants and the answers of the control persons, 11 (8-14) ($p = 0.02$). This result indicates that participation in the course increases the level of knowledge among the staff.

The additional question (question 18) in the post-test showed that the participants generally thought that they had acquired new knowledge by participating in the course, 8 (4-10). The participants were asked to comment on the MC test, but none of them did so. Bispebjerg University Hospital's own evaluation form showed an overall satisfaction with the training course in general, for both the spring and autumn course; 8 (5-10) and 9 (8-10) ($p = 0.09$).

Finally the study found that the participants were positive towards answering the MC test, and that the test could be completed within the allocated period of time.

Discussion

The study showed that an MC test could be developed and used to evaluate the participants' level of knowledge before and after a postgraduate/training course. There was a significant difference between the pre-test and the post-test in the autumn course and there was also a significant difference between the participants and the control persons.

Although a MC test could be used, it can be questioned whether the MC test is the optimal type to use in this context. According to Kirkpatrick's theoretical model "The Four Levels", an ideal evaluation would take place in the course as well as in the entire organisation, in this case the hospital (12). The model is characterised by a focus on practical use, and correspondingly one of its strengths is that the model is simple to use (13). However, the validity of the model can be contested (14). The model aims at uncovering the entire range, from the individual participant's reaction and satisfaction with the course to an evaluation of what the hospital as a whole gains by offering this course. However, an evaluation at this scale would be time consuming and costly, especially in view of the shortness of the course.

In addition to increasing the participants' knowledge of clinical health promotion, the course aims to improve staff skills in conducting brief interventions. With the quantity of theory involved, inclusion of an MC test for measuring knowledge acquisition in the course would be relevant.

Other possible methods include oral examinations and essays or other forms of written evaluation, but for this the course leader must spend a dispro-

portionate amount of time.

A MC test is not suitable for measuring attainment of clinical skills, whereas OSCE would meet this demand (Figure 1). OSCE is very time consuming, and therefore barely realistic to carry out during a four-day course, but would be more suitable for use in a clinical stay of longer duration or in a larger final examination (2).

The strength of this study is its well-considered design where the developmental phase with independent pilot test has been separated from the test phase, as well as the use of control persons. The use of control persons showed the fairly high level of knowledge about clinical prevention and health promotion among the staff at Bispebjerg University Hospital. The limitation is the small number of control persons and course participants.

In many ways, the MC test is ideal for measuring knowledge acquisition at training courses. It is easy to use, but it is also necessary to develop a specific test for each course as the courses have different aims and content. In addition, a MC test must be continually adjusted, as aim and content of the course also changes with time due to new evidence and new demands on the staff.

Implementation of an evaluation carries the risk of a Hawthorne effect (15), as awareness of a forthcoming evaluation alone will improve performance. This can, however, also be utilized positively by increasing the participants' motivation. However, the Hawthorne effect has been discussed (16). The use of a MC test can possibly also have a motivating and focusing effect on the teachers.

At the same time attention must be paid to the risk of downgrading the areas of knowledge that are not part of the evaluation. The consequences of a poor test result have to be considered when evaluating courses; a realistic option could be improvement of the course and/or the participant repeating the course.

A course in clinical health promotion should ultimately benefit the patients. In a future perspective, more of the patients should be offered qualified guidance in physical activity, smoking and alcohol cessation intervention and thereby be supported to improve their health. This corresponds to Kirkpatrick's theoretical model, which recommends evaluation of the course as well as the entire organisation¹². The organisational evaluation is independent of the course evaluation method and can be easily integrated in the quality assurance work of the hospital. A simple indicator of the process would be the number of extra patients re-



Research and Best Practice

ceiving brief intervention. A simple result indicator would be the number of patients completing the patient course.

Conclusion

A MC test can be easily developed to evaluate whether the participants acquire knowledge by participating in a training/postgraduate course in clinical health promotion. However, the MC test does not measure acquisition of new clinical skills and effect for the individual patients.

Contributors

Conception and design: JKHS, LCS, DMN

Acquisition of data: JKHS, LCS, DMN

Analysis and interpretation of data: JKHS, LCS, DMN

Drafting the paper: JKHS

Revising the article critically for important intellectual content: LCS, DMN

Approving the article: JKHS, LCS, DMN

Competing interest: None declared.

Acknowledgements

We wish to thank course leader Karin Birtø for her continuous inspiration throughout the project. We also wish to thank the course participants and control persons at the spring and autumn courses. Finally we wish to thank the Department of Human Resources and Development at Bispebjerg University Hospital for allowing us to use their evaluation material.

References

- (1) Ringsted CV, Aspegren K. Educational terminology: Concepts used in medical education. *Ugeskr Laeger* 2004;166:1977-80
- (2) Ringsted CV, Eika B, Wallstedt B. Assessment of competence in clinical education. *Ugeskr Laeger* 2001;163:3635-37.
- (3) Norcini J.J., Swanson D.B., Grosso L.J. and Webster G.D.: Reliability, validity and efficiency of multiple choice question and patient management problem item formats in assessment of clinical competence. *Med Educ* 1985;19:238-4
- (4) Ladyshewsky R.K., Barrie S.C., Drake V.M. A comparison of productivity and learning outcome in individual and cooperative physical therapy clinical education models. *Phys Ther*. 1998;78:1288-98.
- (5) Hilton R., Morris J. Student placements – is there evidence supporting team skill development in clinical practice settings? *J Interprof Care*. 2001;15:171-83.
- (6) Beagan B.L. Teaching social and cultural awareness to medical students: "It's all very to talk about it in theory, but ultimately it makes no difference". *Acad. Med*. 2003;78:605-614.
- (7) Turner P., Mjølne I. Journal provision and the prevalence of journal clubs: a survey of physiotherapy departments in England and Australia. *Physiother Res Int*. 2001;6:157-69
- (8) Roberts C., Adebajo A.O., Long S. Improving the quality of care of musculoskeletal conditions in primary health care. *Rheumatology (Oxford)*. 2002;41:503-8
- (9) Smits P.B.A. et al. Factors predictive of successful learning in postgraduate medical education. *Med Educ*. 2004;38:758-766
- (10) Davis DA, O'Brien MAT, Freemantle N, Wolf FM, Mazmania P, Taylor-Vaisey A. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behaviour or health care outcomes? *JAMA* 1999;289:867-74
- (11) Davis DA, Thomson MA, Oxman AD, Haynes RB. Changing physician performance. A systematic review of the effect of continuing medical education strategies. *JAMA* 1995;274:700-5
- (12) Kirkpatrick D: Evaluating training programs: The four levels. Berrett-Koehler Publishers, 1998
- (13) Falletta SV: Evaluating training programs: The four levels. (Reviewed): *Am J of Eval*: 1998,19:259-261
- (14) Newstrom JV: Review of evaluating training programs: The four levels. *Human Resources Development*: 1995, 6: 317-320
- (15) French J: Experiments in field settings. Festinger L, Katz D, editors. *Research Methods in Behavioural Sciences*. New York: Holt, Rinehart and Wilson, 1953:98-135.
- (16) Wickstrom G, Bendix T: The Hawthorne effect"- what did the original Hawthorne studies actually show? *Scand J Work Environ Health*: 2000 Aug; 26: 363-7.