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BEME Guide No. 2: Teaching and learning communication skills in medicine—a review with quality grading of articles

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SUMMARY *A literature search for articles concerning communication skills teaching and learning in medicine was done. The search yielded 180 pertinent articles, which were quality graded into the three categories of high, medium and low quality, using established criteria. Only those of high and medium quality were used for the review, which thus is based on 31 randomized studies, 38 open effect studies and 14 descriptive studies. Communication skills can be taught in courses, are learnt, but are easily forgotten if not maintained by practice. The most effective point in time to learn these at medical school is probably during the clinical clerkships, but there is no study that has specifically addressed this question. After a short period of training, doctors can be effective as teachers. The teaching method should be experiential as it has been shown conclusively that instructional methods do not give the desired results. The contents of communication skills courses should primarily be problem defining. All students should have communication skills training since those with the lowest pre-course scores gain the most from such courses. Men are slower learners of communication skills than women, which should be taken into account by course organizers. As there is only one really long-term follow up into the residency phase of communication skills training at medical school, those who have done randomized studies in the field should if possible carry out further follow-up studies.*

Introduction

In 1981, Sanson-Fisher, Fairbairn & Maguire published a critical review of the methodology of teaching communication skills to medical students (Sanson-Fisher *et al.*, 1981). They used quality criteria to distinguish between studies of high and lower credibility. During the 18 years since that review, several studies have been published on the subject, and medical schools are including systematic training of communication skills in their curricula. Since this training is both costly and time consuming, there is a need to collect the present knowledge in the field of communication skills teaching and learning in order to make it easier for teachers and curricular committees to find the pertinent information on the subject.

Method

Databases Medline 1966–June 1999 and PsychLIT Journal Articles 1991–1998 were searched for articles. Key words were: communication, doctor–patient relationship, education, interview(s), interview methods(s), medical, learning, methods, postgraduate, physician(s), physician–patient relationship, psychology, skills, teaching, undergraduate. In

the articles published after 1980, all reference lists were also checked. Articles were classified as: (a) controlled randomized studies; (b) open effect studies, or studies with a non-randomized control arm; (c) descriptive studies; and (d) reviews. Reviews were used only to collect information about published studies.

Each article was graded for internal validity (bias control), precision and external validity on a scale of 1 to 3, using similar criteria to those of Sanson-Fisher *et al.* (1981). The articles which were assigned grade 1 in all three categories were considered ‘high quality’ while ‘medium quality’ was given to those with a mixture of grades 1–2 or grades 2 throughout. ‘Low quality’ was given to articles with one grade 3 or more. Only articles of ‘high’ and ‘medium’ quality were used in the analysis. Rater reliability was controlled for on two separate occasions with a kappa of 0.86 and 0.81 respectively.

Outcome of the literature search

All in all, 180 relevant articles were found. Of those that fulfilled the ‘high’ and ‘medium’ quality criteria, 31 were randomized studies, 38 studies with a control arm or open effect studies, and 14 descriptive studies. The remaining 97 studies were not used in the final analysis but some of them, i.e. reviews, are referred to in the text.

Results

How communication skills were measured in the various studies

Ten methods were found:

- (1) Course evaluation. The participants have stated their opinions about the usefulness etc. of the training.
- (2) Written report by the student of the contents etc. of an interview.
- (3) Cognitive testing of the knowledge about medical interviewing.
- (4) Self-rating scales.
- (5) Psychometric tests of some kind, which are assumed to correlate with communication skills.
- (6) Direct observation by an external observer, most often using a rating scale.
- (7) Video- or audiotaped interviews rated by an independent and trained observer using rating scale and/or global assessment.

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- (8) OSCE examination.
- (9) Patient's rating of the students' performance, often with the aid of a rating scale.
- (10) Patient health outcome.

In some of the studies, there is a discussion and sometimes a comparison of the different methods. This can be of guidance to educators considering which method to use. So, for example, when students' self-rating of their communication skills has been compared with external independent rating, there is a low correlation (Maguire *et al.*, 1977) with an overrating (Marteau *et al.*, 1991) or underrating (Farnhill *et al.*, 1997) on the students' behalf. OSCE can be used for measuring complex communication skills (Hodges *et al.*, 1997). The length of the test interview in the OSCE situation influences the validity and generalizability of the test situation, with 10 minutes better than 5 or 20 (Bogels *et al.*, 1995). The evaluation by 'simulated patients' correlates well with that by teachers, but the students are systematically given higher scores by lay people (Finlay *et al.*, 1995; Cooper & Mira, 1998). Communication skills emphasized by academic teachers do not reflect the skills considered important by patients (Cooper & Mira, 1998). Kraan and co-workers have reviewed and evaluated commonly used methods and instruments in communication skills training research (Kraan *et al.*, 1995).

Effect of communication skills training

There is overwhelming evidence for a positive effect of communication skills training. Randomized studies have shown that medical students (Rutter & Maguire, 1976; Maguire *et al.*, 1977, 1978; Schreier & Dub, 1981; Evans *et al.*, 1989, 1991, 1996; Marteau *et al.*, 1991; Quirk & Babineau 1992; Campbell *et al.*, 1996), students of dentistry (Dunning & Lange, 1987), student nurses (Daniels *et al.*, 1988), junior doctors (Robbins *et al.*, 1979; Maguire *et al.*, 1986a, 1986b; Putnam *et al.*, 1988; Smith *et al.*, 1995, 1998; Langewitz *et al.*, 1998; Madan *et al.*, 1998), senior doctors (Levinson & Roter, 1993; Roter *et al.*, 1995), oncology nurses (Razavi *et al.*, 1993) and a mixed group of gynaecologists and midwives (Smith *et al.*, 1995) can and do learn different communication skills by training. The conclusion is substantiated by a large number of open effect studies. Nineteen such studies show that a group of medical students improved their ability to interview and/or gain information from the patients (Rasche *et al.*, 1974; Kagan, 1975; Sanson-Fisher Poole, 1978; Engler *et al.*, 1981; Winefield, 1982; Alroy *et al.*, 1984; Irwin & Bamber, 1984; Knox & Bouchier, 1985; Cohen, 1989; Kramer *et al.*, 1989; Tamburrino *et al.*, 1990; Craig, 1992; Thomson, 1992; Intrinsic *et al.*, 1993; Kendrick & Freeling, 1993; Bogels, 1996; Greco *et al.*, 1998). Three cross-sectional studies from separate medical schools confirm this (Bishop *et al.*, 1981; Kraan *et al.*, 1990; Davis & Nicholaou, 1992). Residents and interns (Wolraich *et al.*, 1981; Sideris *et al.*, 1986; Rudner *et al.*, 1990; Gordon *et al.*, 1992; Bryson-Brockman & Fishbein, 1995; Cantwell & Ramirez, 1997) as well as senior doctors (Bird & Lindley, 1979; Bensing & Sluijs, 1985; Gask *et al.*, 1988; Bird *et al.*, 1993; Lipkin *et al.*, 1995; Aspegren *et al.*, 1996) improve their skills after a course. A study of medical and paramedical personnel in terminal care shows the same result (Razavi *et al.*, 1988). Only one study did not report a

significant positive effect (Moorehead & Winefield, 1991). This was a study among medical students who were trained by a three-hours introductory seminar followed by 10 hours of clinical experience in general practice. The training was probably too short to give an effect on the psychometric test used in the study.

An interesting result from three open effect studies (Gask *et al.*, 1988; Razavi *et al.*, 1988; Aspegren *et al.*, 1996) is that those students or doctors who scored low on the pre-training test show the greatest gain from the training. Professional attitudes among medical students in pre-clerkship classes do not, however, change after extensive communication skills training (Batenburg & Smal, 1997). Their development is instead associated with the content of the clinical clerkships (Bing-You, 1991; Merrill *et al.*, 1991).

Effect of communication skills training over time

A cross-sectional study (Bishop *et al.*, 1981) shows that medical students who did not have specific training in communication skills declined in their interviewing performance over three clinical years. Four follow-up studies of cohorts of medical students (Engler *et al.*, 1981; Craig, 1992; Bogels, 1996; Pfeiffer *et al.*, 1998) also show that acquired skills decline shortly after training. A cross-sectional study suggests this can be due to the structure of the courses with a problem-based curriculum having an advantage over a lecture-based one (Holm & Aspegren, 1999). Another cross-sectional study shows that students improve their ability to structure the medical interview during preclinical training, but not their interpersonal skills (Kraan *et al.*, 1990). However, one study was found which showed that students' communication skills increased during the study time (Klaman & Williams, 1997). The effect measure in this study was 'patient satisfaction'. Only one study of medical students with a long-term follow up into residency was found (Maguire *et al.*, 1986a). It showed a lasting effect of short training given during a clinical course of psychiatry at the medical school.

Who can teach communication skills?

One study compares the students' evaluation of doctors or social scientists as teachers in small-group communication skills training. Both groups were given very high scores, but social scientists were rated significantly higher than the doctors (Quirk & letendre, 1986). In another similar study the students gave higher scores to general practitioners than to psychiatrists (Madan *et al.*, 1998). At the Arizona Medical School, instructed patients have been used in the triple role of patient, teacher and evaluator, with documented positive effects (Stillman *et al.*, 1983). Practising doctors can, after instruction, rate their own videotaped interviews (Hays, 1990; Sideris *et al.*, 1990). Van Dalen and coworkers studied students' perception of the different components of learning at a communication skills course and, using regression analysis, found that a major contribution to learning was the content of the programme. The teacher's performance contributed much less to the variance (van Dalen *et al.*, 1999).

Training of teachers for communication skills.

Experiential training of teachers makes them significantly more aware of the quality of the students' interviews (Rost & Gordon, 1989). Teachers trained with experiential methods have better results with their students than teachers trained with instruction only (Naji *et al.*, 1986; Gask *et al.*, 1991). The best way to train teachers is to let them have the same training as the students get (Gask *et al.*, 1991). In experiential communication skills training, teachers with limited teaching experience have similar net results to those of more experienced teachers (Fairbairn *et al.*, 1983).

'Simulated' patients in communication skills training

The usefulness of simulated patients has been investigated in a randomized study which showed that the students reacted similarly to real and to simulated patients (Sanson-Fisher & Poole, 1980). The authors conclude that simulated patients can be used in both the teaching and the examination of communication skills.

Teaching method: instructional or experiential

The 'instructional' or 'traditional' method of learning communication skills in medicine is first to be shown how to do an interview by a teacher, either by lecture or by example, and then repeat it with or without feedback. The 'experiential' method is first to do the interview oneself and later to receive feedback from the teacher. Experiential methods thus presuppose some form of recording of the student's interview, which is easiest done by video- or audio-taping.

Beginning in 1976, a group of medical teachers from Manchester published a series of randomized studies on the teaching of communication skills. Rutter & Maguire randomized students at a clinical course in psychiatry to either traditional teaching or videorecorded patient interview with individual feedback by a teacher. After only one week's training the students in the experiential group gained significantly more information from the patients than the traditionally taught control group (Rutter & Maguire, 1976).

Maguire *et al.* (1977) then randomized medical students in their first clinical year to three teaching formats:

- (1) Traditional teaching by demonstration and repetition (control group).
- (2) First reading a primer material, then watching a demonstration of a videotaped interview by a teacher and repetition of it by a student, followed by group discussion.
- (3) First reading primer material and formulating one's own questions, later watching the teacher's and the student's videotaped interview, and discussing it.

The effect of the three teaching formats was controlled by subjecting all participating students to a standardized test interview which was recorded and later scored by a blind independent observer. Groups (2) and (3) obtained significantly more information from the patient in the test interview.

Maguire and co-workers then randomized students to:

- (1) Traditional teaching by auscultation (control group).

- (2) Videotaped patient interview, which was rated by a teacher who gave written feedback after a few days.
- (3) Audiotaped patient interview with immediate individual feedback by a teacher.
- (4) Videotaped patient interview with immediate individual feedback by a teacher.

The teaching lasted for four weeks. Pre- and post-test were by videotaped standardized interviews, rated by blind independent observers. The trial showed that students who got some form of feedback (groups 2, 3 and 4) obtained significantly more information than the control group. When interpersonal skills were rated, groups (3) and (4) were significantly better than groups (1) and (2) (Maguire *et al.*, 1978). Feedback of four students simultaneously was as effective as giving individual feedback to students one at a time (Maguire, 1990).

These results were confirmed by other workers in a high-quality randomized study (Quirk & Babineau, 1982). Here students were randomized to (1) auscultation, (2) instruction and (3) instruction plus immediate feedback on the student's own videotaped interview. Pre- and post-tests were done and rated by an independent blind observer. The result showed that only students in group (3) improved their ability to interview.

A third high-quality study was performed by Evans and co-workers (Evans *et al.*, 1989). Students were randomized to (1) five lectures, or (2) five lectures plus 3 × 2 hours of videorecorded role-plays and discussion. Results were judged from pre- and post-test interviews, rated by an independent blinded observer. Group (2) was significantly better on 12 out of 16 studied variables. In a follow-up study, the amount of information obtained from the patients was studied. Also in this respect the students in group B scored significantly better (Evans *et al.*, 1991, 1996). Marteau and co-workers reported similar results from a randomized study among medical students, but of lower quality (Marteau *et al.*, 1991) than the three studies mentioned before. A similar randomized study has been done with a group of obstetricians and midwives (Smith *et al.*, 1995), with the same results. The conclusion is that learning by doing is more effective than by instruction.

Different experiential teaching methods

There are descriptions of several teaching methods, most of which are related to educational theory (Kelley *et al.*, 1995). Of these, Allen E. Ivey's 'Microskills training' is perhaps the best known (Ivey, 1994). The method is founded in behaviouristic psychology and implies that separate and specific skills are trained stepwise with feedback given at every step. Most studies in the present review used a similar strategy by training the communication between patient and doctor in specific situations, such as interviewing or informing, with instant feedback. A variant is described by Maguire & Faulkner (1988) where students are motivated by letting themselves choose in which situations to train. Fairly recent is 'The Lipkin Model' (Lipkin *et al.*, 1995) which is based on 'The Bio-Psycho-Social Model of Disease and Illness' (Engel, 1997), the theory of 'The Three Functions of the Medical Interview' (Lazare *et al.*, 1995) and 'Theory of Adult Learning' (Cross, 1981). Norman Kagan's model 'Interpersonal Recall' (Kagan, 1975) is based on

psychoanalytical theory and focuses on the psychodynamics of the interaction between doctor and patient.

The effect of each of these methods in medical education is documented, mostly in open effect studies. The literature search yielded several studies of comparison between instructional and experiential methods, as given above, but there was no study that compares the outcome of the different experiential training methods.

Contents of communication skills training: what to teach

At present, there is no satisfactory integrated theory on the patient–physician relationship (for review, see Korsch *et al.*, 1995). Therefore, training courses are generally *ad hoc*. For example, most courses for undergraduate students emphasize the training of basic interviewing skills, while courses for doctors are directed towards more complicated skills such as the whole consultation process, breaking bad news, handling difficult situations etc.

There are observations which indicate that there is not one single communication skill to be learnt, but separate aspects of the interaction between physician and patient need to be trained *ad hoc*. In their long-term follow up of a randomized study, Maguire and co-workers found that students who had training in interviewing skills had an advantage over their non-trained comrades, but both groups were equally bad at giving information to the patient (Maguire *et al.*, 1986a, 1986b). In a Royal New Zealand College of General Practitioners entrance test, Thomson studied the outcome of three different communication skills stations and found that performance varied in the same individual and was context specific (Thomson, 1992). In an extensive review, Kinderman & Humphries discuss communication skills training in relation to learning theory, and stress the need for cognitive schemata or ‘scripts for action’ to be included in such training (Kinderman & Humphries, 1995).

Stewart studied 24 general practitioners’ interviews with 140 patients with new or chronic disease. She found that patient-centred behaviour in the physicians was correlated with a significantly higher compliance with treatment (Stewart, 1984). In a similar study from Holland, Bensing found that person-centred and affective behaviour by the physician was positively correlated with patient satisfaction (Bensing, 1991).

Roter and co-workers further studied this issue in a carefully designed randomized study of the effect of two different training methods on primary care physicians (Roter *et al.*, 1995). One of the methods emphasized emotional handling skills and the other problem-defining skills. Outcome was measured as doctors’ self-evaluation, doctors’ clinical proficiency and patient’s outcome as measured by the General Health Questionnaire (GHQ) scale. After an eight-hour training programme, both trained groups performed better than the untrained control group. The problem-defining trained doctors had superior results among GHQ-positive patients.

Maguire has observed that complex psychological skills can be learnt, but often are not used by doctors and nurses (Maguire 1990). One reason for this can be ‘countertransference’ in the interview situation. This was studied by Smith with a qualitative method among 15 medical students (Smith, 1984) and 19 residents (Smith, 1986). Some 87%

and 84% respectively of these avoided psychosocial issues and/or controlled the patient excessively because of, for example, fear of hurting the patient or losing control of the situation. The students and residents were unaware of these feelings during the interview with the patient.

Gender differences in learning communication skills

One randomized study (Smith *et al.*, 1995) and two open effect studies (Marteau *et al.*, 1991; Holm & Aspegren, 1999) and one descriptive study (Holm, 1996) show that females score better than males after a training course in communication skills.

Discussion

This review is limited to studies of communication skills teaching and learning in medicine. The articles that were found relate entirely to this field. Thus there may exist methods that develop communication skills better than those found in the search, but if so, they have not been used by medical educators. Another weakness is in the limitation of the studies almost exclusively to English-speaking countries, with a few from Holland and Sweden. The databases that were used register articles in non-English language if they have an English abstract. Such articles were found in the Czech, Italian, German, Russian and Spanish languages. However, none of these was of sufficient quality to be included in the review.

The main finding of the review is that there is overwhelming proof that communication skills in the patient–doctor relationship can be taught and are learnt. However, one day’s training or less is not effective. Another finding is that these skills are easily forgotten if not maintained by practice. No study was found which addresses the question as to where in the total study period communication skills training should be placed. However, there are indications that training in clinical clerkships is more effective than in a pre-clinical courses. Two high-quality studies from Maastricht (Kraan *et al.*, 1990; Bogels, 1996) indicate a slight effect of extensive communication skills training during clinical courses without clinical clerkships, while an early study of a short training course within a clinical clerkship showed a lasting long-term effect (Maguire *et al.*, 1986a, 1986b). Since it is important for doctors to learn communication skills effectively and the training of them is both time consuming and expensive, this matter is important and should be researched further.

Another notable finding is the lack of long term follow-up studies of the development of communication skills after training. Except for the study from Manchester mentioned above (Maguire *et al.*, 1986a, 1986b), students have only been followed during their time in medical school, and registrars and senior doctors for only a few months after a training course.

Because the study groups in the Manchester trial were small (see Table 1), there is clearly a need for more long-term follow-up studies in order to ascertain the effect of early communication skills training.

The review also shows that instructional methods should not be used in the teaching of communication skills, since they are ineffective in comparison with experiential methods. However, since there is no comparison between different

Table 1.

Ref. no	Published	Quality grade	Subjects	Group size	Pre-test	Evaluation method	Variable/s studied
Sanson-Fisher & Poole (1978)	1976	2	Medical students	12+12	No	B	Information elicited
Maguire <i>et al.</i> (1978)	1977	2	Medical students, clinical course	10+10+10	Yes	F	Information elicited
Maguire <i>et al.</i> (1986a)	1978	1	Medical students, psychiatry	12+12+12+12	Yes	F	Communication skills Information elicited
Rost & Gordon (1989)	1979	2	Residents	26+25	Yes	A, C, E, G	Communication skills Empathy
Sideriset <i>et al.</i> (1986)	1981	2	Medical students, 5th year	26+26	No	I	Communication skills Information elicited
Quirk & Letendre (1986)	1982	2	Medical students, 3-4th year	43+20+21	Yes	G	Communication skills Communication skills
Maguire <i>et al.</i> (1986b); Maguire & Faulkner (1988)	1986	1	Registrars	20+20	Yes	G	Communication skills
Dunning & Lange (1987)	1987	2	Dentistry students	21+21	Yes	G	Give information Communication skills
Daniels <i>et al.</i> (1988)	1988	2	Nurse students	24+29	Yes	G	Communication skills
Quirk & Babineau (1982)	1988	2	Residents	11+8	Yes	G, I, J	Communication skills Patient health outcome
Evans <i>et al.</i> (1989)	1989	1	Medical students 4th year	30+30	Yes	G	Communication skills
Evans <i>et al.</i> (1991)	1991	1	Medical students 4th year	30+30	Yes	G	Diagnostic efficiency
Merrill <i>et al.</i> (1991)	1991	2	Medical students 1st clinical year	28+45	No	A, D, G	Attitudes
Lipkin <i>et al.</i> (1995)	1993	2	Practising physicians	16+15	Yes	G	Communication skills Communication skills
Robbins <i>et al.</i> (1979)	1993	1	Oncology nurses	36+36	No	E, G	Attitudes Stress Communication skills
Rudner <i>et al.</i> (1990)	1995	1	Primary care physicians	22+23+24	No	B, G, J	Information elicited
Smith (1984)	1995	2	Obstetricians Midwives	11+11+13	Yes	G	Communication skills Patient health outcome Give information Communication skills
Smith <i>et al.</i> (1995)	1995	2	Residents	12+14	Yes	I	Patient satisfaction
Smith <i>et al.</i> (1998)	1995	2	Residents	15+14	No	C, D	Knowledge Attitudes.
Campbell <i>et al.</i> (1996)	1996	2	Medical students 4th year	44+44	Yes	G	Counselling skills
Evans <i>et al.</i> (1996)	1996	2	Medical students 4th year	30+30	Yes	G	Knowledge Attitudes Information elicited
Lazare <i>et al.</i> (1995)	1998	1	Residents	23+19	Yes	G, I	Communication skills Information elicited Communication skills
Maguire <i>et al.</i> (1977)	1998	2	Residents	6+6	Yes	C, D, G, I	Patient satisfaction Knowledge Attitudes Information elicited Communication skills
Stewart (1984)	1998	2	Residents	31+32	Yes	C, G, I, J	Knowledge Attitudes Communication skills Patient health outcome

Key: The table gives details of 24 randomized studies of communication skills training in medical context.

Codes for evaluation method are:

A. Course evaluation. The participants have stated their opinions about the usefulness etc. of the training.

B. Written report by the student of the contents etc. of an interview.

C. Cognitive testing of the knowledge about medical interviewing.

D. Self-rating scales.

E. Psychometric tests of some kind, which are assumed to correlate with communication skills.

F. Direct observation by an external observer, most often using a rating scale.

G. Video- or audiotaped interviews rated by an independent and trained observer using rating scale and/or global assessment.

H. OSCE examination.

I. Patient's rating of the students' performance, often with the aid of a rating scale

J. Patient's health outcome.

experiential methods as to which of them is the most cost-effective, this could well be an area for further research. An interesting fact that emerged is that after a short training period only, doctors are effective teachers of communication skills, when measured both in terms of outcome and of students' perception, which may be due to the fact that the content of the course is more important than teachers' performance.

No less than 10 different evaluation methods of the outcome of communication skills training were found. Clearly there is a need to simplify and standardize these methods in order to facilitate further research in the area.

Recommendations for undergraduate medical education based on this review

- All medical students should receive training in communication skills because if they acquire these, they will be better diagnosticians and their future patients' compliance will increase.
- The training should use experiential methods and primarily address problem-defining skills.
- To be effective, communication skills training should be given within clinical clerkships only. The evidence for this is at present indirect, but is congruent with adult learner theory.
- Attention should be paid to the fact that men are slower learners at communication skills courses than women.

Notes on contributor

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