

Teaching and learning communication skills in medicine: a review with quality grading of articles

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Summary

A literature search for articles about 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 randomised studies, 38 open effect studies and 12 descriptive studies.

Communication skills can be taught at 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 which has specifically addressed this question. After a short training, doctors can be effective as teachers. The

teaching method should be experiential since it has conclusively been shown 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 organisers.

Since there is only one really long term follow up into residency of communication skills training at medical school, those who have done randomised studies in the field should if possible make a few more follow up studies.

Introduction

In 1981, Sanson-Fisher, Fairbairn and Maguire published a critical review of the methodology of teaching communication skills to medical students (82). 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, physicians, 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 randomised studies
- B open effect studies, or studies with a non-randomised control arm
- C descriptive studies
- 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 1-3, using similar criteria to Sanson-Fisher, Fairbairn and Maguire (82). 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's 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 who fulfilled the "high" and "medium" quality criteria were 31 randomised 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:

- 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 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 (58) with an overrating (64) or underrating (29) on the students' behalf. OSCE can be used for measuring complex communication skills (36). 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 (11). The evaluation by "simulated patients" correlates well with that by teachers, but the students are systematically given higher scores by the lay people (16, 30). Communication skills emphasized by academic teachers do not reflect the skills considered important by patients (16). Kraan and coworkers have reviewed and evaluated commonly used methods and instruments in communication skills training research (50).

Effect of communication skills training

There is overwhelming evidence for a positive effect of communication skills training. Randomised studies have shown that medical students (13, 25,

26, 27, 58, 59, 64, 70, 79, 83), students of dentistry (22), nurse students (20), junior doctors (52, 57, 60, 61, 69, 75, 89, 90, 91), senior doctors (54, 77), oncology nurses (74) and a mixed group of gynaecologists and midwives (86) can and do learn different communication skills by training. The conclusion is substantiated by a large number of open effect studies. 19 such studies show that a group of medical students improved their ability to interview and/or gain information from the patients (1, 12, 15, 17, 24, 34, 39, 40, 42, 44, 47, 51, 72, 80, 94, 95, 96). Three crosssectional studies from separate medical schools confirm this (9, 21, 49). Residents and interns (10, 14, 33, 78, 84, 97) as well as senior doctors (2, 4, 7, 8, 31, 54) improve their skills after a course. A study of medical and paramedical personnel in terminal care shows the same result (73). Only one study did not report a significant positive effect (66). This was a study among medical students who were trained by a 3 hours long 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 (2, 31, 73) 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 (3). Their development is instead associated with the content of the clinical clerkships (6, 65).

Effect of communication skills training over time

A crosssectional study (9) 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 (12, 17, 24, 68) also show that acquired skills decline shortly after training. A crosssectional 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 (37). Another crosssectional study shows that students improve their ability to structure the medical interview during preclinical training, but not their interpersonal skills (49). However, one study was found which showed that students' communication skills increased during the study time (46). Effect measure in this study was 'patient satisfaction'. Only one study of medical students with a long term follow

up into residency was found (60). It showed a lasting effect of a 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 (71). In another similar study the students gave higher scores to general practitioners than to psychiatrists (56). At the Arizona Medical School, instructed patients have been used in the triple role of patient, teacher and evaluator, with documented positive effects (93). Practising doctors can, after instruction, rate their own videotaped interviews (35, 85). 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 (19).

Training of teachers for communication skills

Experiential training of teachers makes them significantly more aware of the quality of the students' interviews (76). Teachers trained with experiential methods have better results with their students than teachers trained with instruction only (32, 67). The best way to train teachers is to let them have the same training as the students get (32). In experiential communication skills training, teachers with a limited teaching experience have similar end results to more experienced teachers (28).

"Simulated" patients in communication skills training

The usefulness of simulated patients has been investigated in a randomised study which showed that the students reacted similarly to real and to simulated patients (81). The authors conclude that simulated patients can be used both in the teaching and the examination of communication skills.

Teaching method: Instructional or experiential

The 'instructional' or 'traditional' methods 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. 'Experiential' is to first do the interview oneself with later feedback from the teacher. Experiential methods thus presuppose some form of recording of the student's interview, easiest done by video- or audiotaping.

Beginning in 1976, a group of medical teachers from Manchester published a series of randomised studies on the teaching of communication skills. Rutter and Maguire randomised 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 (79).

Then Maguire, Clarke and Jolly (58) randomised medical students in their first clinical year to three teaching formats:

- A Traditional teaching by demonstration and repetition (control group).
- B First reading a primer material, then watching a demonstration of a videotaped interview by a teacher and a repetition of it by a student, followed by group discussion.
- C First reading a primer material and formulating own questions to it, 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 blinded independent observer. Groups B and C obtained significantly more information from the patient in the test interview.

Maguire and co-workers then randomised students to:

- A Traditional teaching by auscultation (control group)
- B Videotaped patient interview which was rated by a teacher who gave written feedback after a few days.
- C Audiotaped patient interview with immediate individual feedback by a teacher.
- D Videotaped patient interview with immediate individual feedback by a teacher.

The teaching lasted for four weeks. Pre- and posttest were by videotaped standardised interviews, rated by blinded independent observers. The trial showed that students who got some form of feedback (groups

B, C, D) obtained significantly more information than the control group. When interpersonal skills were rated, groups C and D were significantly better than groups A and B (59). Feedback of four students simultaneously was as effective as giving individual feedback to students one at a time (63).

These results were confirmed by other workers in a high quality randomised study (70). Here students were randomised to A. auscultation, B. instruction and C. instruction plus immediate feedback on student's own videotaped interview. Pre- and posttests were done and rated by an independent blinded observer. The result showed that only students in group C improved their ability to interview.

A third high quality study was performed by Evans and coworkers (25). Students were randomised to A. five lectures, or B. five lectures plus 3 x 2 hours of videorecorded role-plays and discussion. Results were judged from pre- and posttest interviews, rated by an independent blinded observer. Group B was significantly better on 12 out of 16 studied variables. In a follow up study, the amount of obtained information from the patients was studied. Also in this respect the students in group B scored significantly better (26, 27). Marteau and coworkers reported similar results from a randomised study among medical students, but of lower quality (64) than the three studies mentioned before. A similar randomised study has been done in a group of obstetricians and midwives (86) 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 (43). Of these, Allen E. Ivey's 'Microskills training' is perhaps the best known (41). 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 and Faulkner (62) where students are motivated by letting themselves choose which situations to train. Fairly recent is 'The Lipkin Model' (55) which is based on 'The Bio-Psycho-Social Model of Disease and Illness' (23), the theory of 'The Three Functions of the Medical Interview' (53) and 'Theory of Adult Learning' (18). Norman Kagan's model 'Interpersonal Recall' (42) 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 which 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 ref. 48). 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 randomised study, Maguire and coworkers 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 (60, 61). In a Royal New Zealand College of General Practitioner 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 (95). In an extensive review, Kinderman and Humphris 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 (45).

Stewart studied 24 general practitioners' interviews with 140 patients with new or chronic disease. She found that a patient centered behaviour in the physicians was correlated with a significantly higher compliance with treatment (92). In a similar study from Holland, Bensing found that a person-centered and affective behaviour by the physician was positively correlated with patient satisfaction (5).

Roter and co-workers further studied this issue in a carefully designed randomised study of the effect of two different training methods on primary care physicians (77). 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 8 hour training program, 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 (64). One reason for this can be 'countertransference' in the interview situation. This was studied by Smith with a qualitative method among 15 medical students (87) and 19 residents

(88). 87% and 84% respectively of these avoided psychosocial issues and/or controlled the patient excessively due to, for example, fear of hurting the patient or loose 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 randomised study (89) and two open effect studies (37, 64) and one descriptive study (38) 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 which were found relate entirely to this field. Thus there may exist methods which 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 which 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 were 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 when in the studies 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 (12, 49) 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 (60,61). 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 more.

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 (60, 61), students have only been followed during their time in medical school, and registrars and senior doctors only a few months after a training course.

Because the study groups in the Manchester trial were small (See Table1), there is clearly a need for a few 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 of different experiential methods as to which of them is the most cost-effective, this could well be an area of further research. An interesting fact that emerged is that after a short training only, doctors are effective teachers of communication skills, measured both as outcome and students' perception, which may be due to the fact that the content of the course is more important than teachers' performance.

No less than ten 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.

Review of communication skills training

Reference Number	Published	Quality grade	Subjects	Group size	Pre-test	Evaluation method	Variable/s studied
80	1976	2	Medical students	12+12	No	B	Information elicited
59	1977	2	Medical students, clinical course	10+10+10	Yes	F	Information elicited, Communication skills
60	1978	1	Medical students, psychiatry	12+12+12+12	Yes	F	Information elicited, Communication skills
76	1979	2	Residents	26+25	Yes	A,C,E,G	Empathy, Communication skills
84	1981	2	Medical students, 5 th year	26+26	No	I	Information elicited, Communication skills
71	1982	2	Medical students, 3-4 th year	43+20+21	Yes	G	Communication skills
61+62	1986	1	Registrars	20+20	Yes	G	Communication skills, Give information
22	1987	2	Dentistry students	21+21	Yes	G	Communication skills
20	1988	2	Nurse students	24+29	Yes	G	Communication skills
70	1988	2	Residents	11+8	Yes	G,I,J	Communication skills, Patient health outcome
25	1989	1	Medical students, 4 th year	30+30	Yes	G	Communication skills
26	1991	1	Medical students, 4 th year	30+30	Yes	G	Diagnostic efficiency
65	1991	2	Medical students, 1 st clinical year	28+45	No	A,D,G	Attitudes, Communication skills
55	1993	2	Practising physicians	16+15	Yes	G	Communication skills
75	1993	1	Oncology nurses	36+36	No	E,G	Attitudes, Stress, Communication skills
78	1995	1	Primary care physicians	22+23+24	No	B,G,J	Information elicited, Communication skills, Patient health outcome
87	1995	2	Obstetricians, Midwives	11+11+13	Yes	G	Give information, Communication skills
90	1995	2	Residents	12+14	Yes	I	Patient satisfaction
91	1995	2	Residents	15+14	No	C,D	Knowledge, Attitudes
13	1996	2	Medical students, 4 th year	44+44	Yes	G	Counselling skills, Knowledge, Attitudes
27	1996	2	Medical students, 4 th year	30+30	Yes	G	Information elicited, Communication skills
53	1998	1	Residents	23+19	Yes	G, I	Information elicited, Communication skills, Patient satisfaction
58	1998	2	Residents	6+6	Yes	C,D,G,I	Knowledge, Attitudes, Information elicited, Communication skills
92	1998	2	Residents	31+32	Yes	C,G,I,J	Knowledge, Attitudes, Communication skills, Patient health outcome

Table 1

This table gives details of 24 randomised 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 health outcome

Recommendations

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.

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