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Communication skills in the training of psychiatrists: A systematic review of current approaches

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Abstract

Objectives

A range of communication skills training (CST) programs have been developed targeting trainees in various medical specialties, predominantly in oncology but to a lesser extent in psychiatry. Effective communication is fundamental to the assessment and treatment of psychiatric conditions, but there has been less attention to this in clinical practice for psychiatrists in training. This review examines the outcomes of CST interventions in psychiatric specialty training.

Methods

The published English-language literature was examined using multiple online databases, grey literature and hand searches. The review was conducted and reported using PRISMA guidelines. Studies examining the efficacy of CST were included. Randomised controlled trials (RCTs), pseudo-randomised studies and quasi-experimental studies, as well as observational analytical studies and qualitative studies that met criteria were selected and critically appraised. No limits were applied for date of publication up until 16th July 2016.

Results

Total search results yielded 2574 records. Of these, 12 studies were identified and reviewed. Two were randomised controlled trials and the remaining 10 were one-group pretest/posttest designs or post-test only designs, including self-report evaluations of CST and objective evaluations of trainee skills. There were no studies with outcomes related to behaviour change or patient outcomes. Two RCTs reported an improvement in clinician empathy and

psychotherapeutic interviewing skills due to specific training protocols focused on those areas. Non-randomised studies showed varying levels of skills gains and self-reported trainee satisfaction ratings with programs, with the intervention being some form of CST.

Conclusion

The heterogeneity of CST is a barrier to evaluating the efficacy of different CST programs. Further validation studies examining specific models and frameworks would support a stronger evidence base for CST in psychiatry. It remains a challenge to develop research to investigate behaviour change over time in clinical practice or to measure patient outcomes due to the effects of CST.

Keywords

Communication skills training; psychiatry; postgraduate; medical education; CST

Introduction

Rationale

The benefits of effective clinical communication are well established. For example, effective clinical communication leads to better health outcomes, including higher satisfaction, improved illness understanding, and improved adherence to treatment (Maguire and Pitceathly, 2002), and increased clinician confidence and reduced levels of clinician distress (Cegala and Lenzmeier Broz, 2002; Maguire and Pitceathly, 2002). However, evidence shows insufficient communication skills across several clinical fields, including psychiatry (Maguire and Pitceathly, 2002).

It is also well established that communication skills can be learnt, with strong evidence of the efficacy of communication skills training (CST) programs (Maguire and Pitceathly, 2002) in undergraduate medicine and some specialties (e.g. oncology) (Barth and Lannen, 2011; Uitterhoeve et al., 2010). CST in medical schools often includes generic skills such as active listening, questioning, and appraising cues (Kissane et al., 2012), but postgraduate CST assists trainees to apply communication skills relevant to their discipline.

Despite this evidence the uptake of CST is varied, with research focusing on primary care and oncology (Barth and Lannen, 2011; Uitterhoeve et al., 2010; van den Eertwegh et al., 2013; Aspegren, 1999; Cegala and Lenzmeier Broz, 2002; Kissane et al., 2010; Delvaux et al., 2005; Lienard et al., 2010; Merckaert et al., 2015; Razavi et al., 2003). However, there is a significant gap in the literature concerning CST for psychiatry, including its impact on clinical practice change and patient outcomes.

In many postgraduate educational programs, communication skills are considered core curriculum. For example, competency-based requirements in both Canada (Leverette et al., 2009) and the US emphasise teaching and assessment of communication skills (Rider and Keefer, 2006). Similarly, the new competency-based Royal Australian and New Zealand College of Psychiatrists (RANZCP) Fellowship Training Program identified communication skills among the Entrustable Professional Activities required for progression through training, for example providing a family member with an explanation about a young adult with a major mental illness. Regardless, there is a paucity of teaching tools that target specific skills such as communicating a diagnosis or prognosis (Seeman, 2010). Limited empirical research indicates that, not unlike people with other medical conditions, people with psychiatric disorders wish to be informed about their diagnosis (Mitchell, 2007; Giacco et al., 2014). The majority of psychiatric patients (>90%) wish to receive this information through discussion with their treating psychiatrist (Hallett et al., 2013). Although guidelines stating that patients be informed about the nature of their illness currently exist (e.g., the National Institute for Health and Care Excellence guideline; NICE, 2014), fewer than half of psychiatrists explicitly inform patients of their diagnosis (Clafferty, 2001; Magliano et al., 2008; McDonald-Scott et al., 1992; Outram et al., 2014), with rates of disclosure varying across different diagnostic conditions. Euphemistic terminology for severe conditions (e.g., "psychosis" for schizophrenia) is frequently used but does not enhance patient understanding (Cleary et al., 2009). Clinicians indicate insufficient communication skills for these types of conversations (Levin et al., 2011).

This systematic review provides a rigorous, structured examination of what CST programs have been conducted in postgraduate psychiatry, the efficacy of these interventions, and a critical

analysis of the methods and models used in an attempt to determine best practice in this area. To our knowledge, this is a first for the field.

For the purposes of this review, communication skills are defined as the direct or indirect transmission of information between two or more people that is achieved through verbal and non-verbal methods, including speech units, eye contact, body language, gestures and facial expressions, as well as listening methods. Effective use of these skills enables the other party to understand and process the information provided, to share their concerns, and to ask questions. Although teaching psychotherapeutic skills or clinical interviewing skills for specific purposes (e.g., risk assessments or mental state examinations) also use communication skills, this review focuses primarily on training interventions that explicitly deal with the development of communication skills, per se.

Methods and Analysis

We used the PRISMA (preferred reporting items for systematic reviews and meta-analyses) statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions (Liberati et al., 2009). We specified methods and inclusion criteria in advance and listed the protocol with Prospero, accessible at http://www.crd.york.ac.uk/PROPSERO/display_record.asp?ID=CRD42016033333 .

Eligibility criteria

Population: Medical doctors of any age participating in a postgraduate psychiatry specialty-training program. For this review, "residents" or "registrars" are considered equivalent to

postgraduate trainees in a psychiatry specialty-training program. Studies included were English-language only with no date limit (i.e., before 16th July 2016).

Types of intervention: We included studies examining the efficacy of CST. We excluded studies evaluating training in psychotherapies, although these met inclusion criteria if they addressed CST.

Types of outcome measures: The main outcomes of interest were trainee satisfaction, behaviour change or skill retention over time, and impact on patient health outcome - measured quantitatively or qualitatively. Secondary outcomes included any validated outcome measure of CST in psychiatry, as well as any unintended adverse effects or barriers associated with the intervention, including its effect on patients, clinicians, health services, or other health professionals. We took an inclusive approach to allow any study type and any outcome given the paucity of existing literature and the need to capture all studies available.

Comparator(s)/control: In comparative studies, CST interventions were required to have been tested pre- and post-training, or versus a non-exposed control group, other educational institutions, or alternative methods of CST. We also included non-comparative studies.

Types of studies: We included randomised controlled trials (RCTs), pseudo-randomised studies and quasi-experimental studies, as well as observational analytical studies and qualitative studies that met the above criteria. We excluded conference abstracts, unpublished data and clinical trials.

Information sources

We used a snowballing technique to identify studies, by searching electronic databases, scanning reference lists of articles, and by conducting a grey literature search of Google Scholar (with the first 200 citations examined). We also ran a dedicated search for known authors in the field. Electronic databases provided all results with no additional studies found using other methods. A search was developed for Medline and adapted and applied to all the following databases: A+ Education (1978+), CINAHL (complete), Cochrane library, Dissertations & Theses (Proquest International), Embase, ERIC (Proquest), Informit Database Collection, Medline (1946+), Mednar, Prospero, PsycINFO, PsycEXTRA and Scopus.

Search

We conducted the initial search on 5th February 2016 and set up search alerts to capture any new additions to the literature up until 16th July 2016. No new additions were found. Search criteria and strategies for all databases are provided in Appendix 1.

It became apparent after a hand search of citations that the term "interview skills" should also be included in the search strategy. For the most part, this term related to clinical interviewing strategies, but was occasionally used interchangeably with "communication skills". We added this term to the keywords, and repeated the search in all databases, yielding an additional four papers.

Study selection and data collection process

Two authors (PDP and CL) independently performed initial screening using title and abstract, followed by full-text eligibility assessment in an un-blinded, standardised manner. We resolved disagreements by consensus, and where necessary, arbitrated by another author (BK). The lead author (PDP) extracted data, which was checked by the second author (CL).

Data items

Outcomes identified in the data extraction included change in communication skill ability, self-evaluation including satisfaction with CST, and self-ratings of attitudes. Information extracted from each study included sample size, participant characteristics (i.e., age and gender), the study's inclusion and exclusion criteria, sample size, type of intervention, and type of outcome measure.

Risk of bias in individual studies

For further information about some studies, we contacted corresponding authors by email. Authors PDP and CL independently conducted a 'risk of bias' using the Cochrane tool (Cochrane Collaboration, 2011) for quality assessment, assessing the following domains as high risk, low risk, or unclear: sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessors, incomplete outcome data, selective outcome reporting, and other sources of bias. However, the Cochrane tool is not optimal to determine the quality of non-randomised studies in the field of medical education and does not take into account the hierarchy of educational outcomes (Kirkpatrick, 1967; Sullivan, 2011; Reed et al., 2007). Therefore, we also used the validated *Medical Education Research Quality Instrument* (MERSQI; Reed et al., 2008).

Summary measures

The principal summary measures varied due to the heterogeneity of reporting and include differences in pre/post means, percentage of respondent ratings, mean change scores, and qualitative themes.

Synthesis of results

We decided (a priori, as published in the protocol) not to conduct a meta-analysis in this review as any comparison of effect size could be misleading due to the differences in CST delivery in dose, frequency, duration and methods. Similarly, we did not impute missing standard deviations, p-values or effect sizes in the extracted data because sample sizes were too small. We restricted our analysis to a qualitative overview with critical appraisal of all included citations, presented narratively with a summary of the strength and direction of quantitative evidence.

Results

Study selection

The PRISMA diagram below (Figure 1) provides details of screened records.
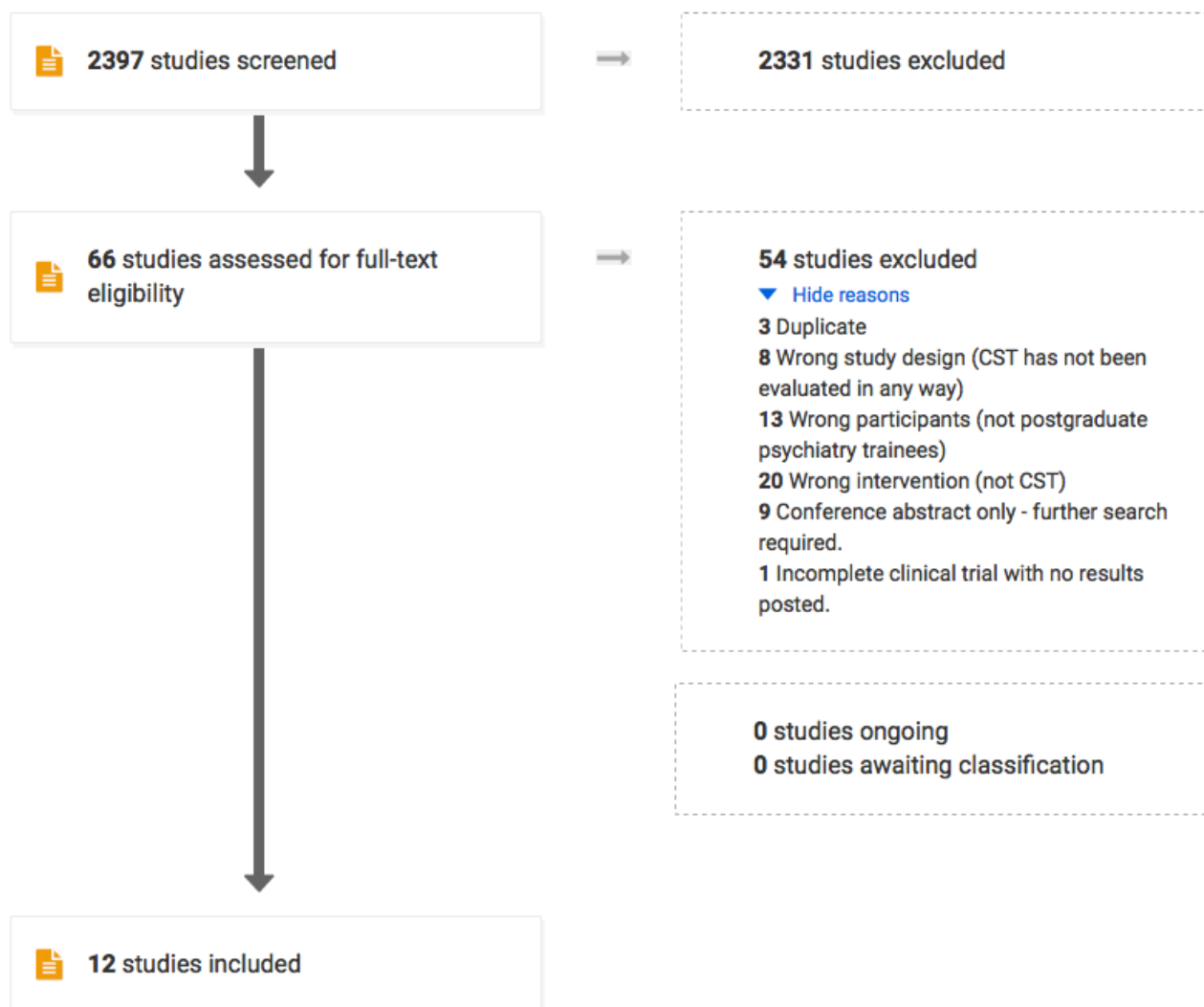
Figure 1. Flow diagram for systematic review (produced from Covidence software).

The initial search produced 2574 records, which we imported into EndNote. Of these, 177

duplicates were identified and removed, and we imported the remaining 2397 records into

Covidence, an online tool for managing systematic reviews. We screened all records by title and abstract, after which 58 conflicts were resolved by consensus. A further 2331 records were excluded as irrelevant based on the title and abstract because they included the wrong participants (not postgraduate psychiatry trainees), the wrong intervention (not CST), or the wrong study design (CST was not evaluated in any way). The remaining 64 articles were then further assessed for eligibility by reading the full-text versions. Exclusions were based on wrong intervention (n=20), wrong participant group (n=13), conference abstracts only (n=9), wrong study design (n=8), duplicates (n=3), and incomplete results (n=1). The fourth author (BK) arbitrated on two of the 12 remaining studies given their focus (psychotherapeutic skills and sexual medicine), and determined they were eligible as they included CST. In total, 12 studies were deemed eligible for inclusion in the review.

Study characteristics

Tables 1 and 2 provide a tabulated summary of included studies' outcome measures and characteristics.

Table 1. Outcome measures of included studies.

Study	Outcome	Measure	Judge	Reliability
Ditton-Phare et al., 2016	CS change	CCS (Comskil Coding System; rating of videotaped interviews)	Two independent, blinded raters	ICC = .54 to .80
Drummond et al., 1988	CS change and satisfaction with CST	Modified Maguire rating scales (0-3; rating of videotaped interviews) and questionnaire (CST satisfaction; visual analogue scales)	Three independent, blinded raters (video) Self (questionnaire)	"…no correlation or trend was found in the reliability…" – therefore no results reported for

				videotaped interviews. CST satisfaction rated post-test only.
Fernandez-Liria et al., 2010	CS change	MCQ questionnaire and test Rating of videotaped interviews	Two independent, blinded raters Two independent, blinded raters	Cronbach's $\propto$ = .789 Cohen's κ = .832
Harrison et al., 1993	CS change	Utterances, Interview Sections, and Global Measures (rating of videotaped interviews)	One (not independent), blinded rater	(pilot reliability with two raters) Cohen's κ = .85 (utterance) and agreement between 70 and 100% on other scales
Ikkos, 2003	Satisfaction with CST	Satisfaction with CST questionnaire	Self	n/a
Junek et al., 1979	CS change	Modified Barrett-Lennard Relationship Inventory (rating of videotaped interviews)	Three independent, blinded raters	"satisfactory reliability at the 5 percent confidence level"
Kowalski et al., 2015	Satisfaction with CST and rating of attitudes	Satisfaction with CST and own communication skills	Self	n/a
Loughland et al., 2015	Satisfaction with CST and rating of attitudes	Satisfaction with CST and own communication skills	Self	n/a
Riess et al., 2012	CS change	CARE (Consultation And Relational Empathy) scale (rating of in situ interview)	Patients	Cronbach's $\propto$ = .92
Rimondini et al., 2010	CS change	VR-PICS (Verona Psychiatric Interview Classification System; rating of speech units (audio) in interviews)	Two blinded raters	Cohen's κ = .87 to .88

Rosen et al., 2006	Satisfaction with CST and rating of attitudes	Satisfaction with CST and own communication skills	Self	n/a
Yutani et al., 2011	Rating of attitudes	CSQ (Communication Skills Questionnaire); rating of own communication skills	Self	n/a

Table 2. Included studies' characteristics.

Study	Country	Sample size analysed: Total (psychiatry residents)	Age (y)	Male (N)	Design	Major inclusion criteria	Inter-vention	Control	Loss to follow-up
Ditton-Phare et al., 2016	Australia	30 (30)	mdn 32	15	One group pretest/ posttest	Psychiatry residents	CST	None	5 non-attendance at training (but analysed as quasi-control)
Drummond et al., 1988	UK	10 (10)	nr	nr	One group posttest rating	Psychiatry residents	CST	None	6 dropped out throughout the course
Fernandez-Liria et al., 2010	Spain	170 (128)	mean 28.2	49	RCT parallel group, open-label	Psychiatry residents and clinical psychology residents	CST	Standard residency training	0
Harrison et al., 1993	UK	16 (16)	nr	nr	One group pretest/ posttest	Psychiatry residents	CST	None	2 left the region, 2 recordings missing or poor quality
Ikkos, 2003	UK	26 (24?)	nr*	nr*	One group posttest rating	Psychiatry residents / Vocational Training Scheme trainees /	CST	None	8 – reasons nr

						staff grade trust doctors			
Junek et al., 1979	Canada	5 (5)	nr	nr	One group pretest/ posttest	Psychiatry residents	CST	None	1 declined to be assessed
Kowalski et al., 2015	UK	39 (39)	nr	nr^	One group pretest/post test + qualitative thematic analysis	Psychiatry residents	CST	None	0
Loughland et al., 2015	Australia	38 (38)	range 25-49	19	One group pretest/ posttest	Psychiatry residents	CST	None	3 non-attendance at training, 3 missing data
Riess et al., 2012	USA	99 (12)	mean 30.6	77	RCT parallel group	Residents and fellows from six specialties	CST	Standard residency or fellowship training	1 non-attendance at training, 6 lost to follow up, 1 dropout in control group
Rimondini et al., 2010	Italy	10 (10)	range 28-44	6	ITS (un-controlled)	Psychiatry residents	CST	None	0
Rosen et al., 2006	USA	34 (11?)	<30 = 27.3% 30-50 = 61.4% >50 = 11.4%	17	One group pretest/ posttest with follow up	Residents from general medical specialties	CST	None	12 – reasons nr

						or			
						psychiatry			
Yutani et al., 2011	Japan	34 (34)	nr	nr	One group pretest/ posttest	Psychiatry residents	CST	None	10 – reasons nr

nr = not reported; RCT = randomised controlled trial; ITS = interrupted time series

* contact with author confirmed that sex ratio was likely 1:1 and age ranged from early 20s to early 40s.

^ contact with author confirmed more females than males.

Risk of bias within studies

Figure 2 shows the risk-of-bias assessment for the included studies. Each of the 10 non-randomised studies was at high risk of bias for sequence generation and allocation concealment by having a single-group pretest/posttest design or a posttest-only design with no comparator or control group allocated. There was no ability for blinding of outcome assessors in self-report designed studies and blinding of participants or personnel was not possible where both the trainers and trainees were aware of the training intervention. Therefore, a more meaningful assessment of quality for studies regarding evaluations of medical education in this review is provided by the MERSQI (Table 3). There was also a potential for risk-of-bias as 2 out of 12 (17%) of the included studies are by the same author team doing this review. However, all reviewers attempted to conduct this review systematically, truthfully and without bias.

In a study by the current authors (Ditton-Phare et al., 2016), participants were allocated to the training group across two institutions, without comparison group. Pre and post digital recordings

of trainee encounters were objectively and independently rated by blinded coders. A quasi-control group of five participants who participated in the pre/post assessments but did not participate in the training were allocated non-randomly with reasons for attrition reported. Whilst not reported in the final publication, two of the empathic communication skills and one Information Organisation skill were removed from analysis due to poor interrater reliability, leaving 17/20 discrete skills taught during the intervention reported. Originally, this was included in a footnote and mistakenly removed during editing.

Drummond et al. (1988) ran a single-group posttest study with three independent raters who were blinded to pre/post using objective ratings of skills change. High dropout rates lead to high risk of incomplete outcome data, and outcome data for skills change was not reported due to the unreliability of raters, therefore only satisfaction self-ratings were reported. The risk of selective outcome reporting was unclear because the number of items and actual questions in the questionnaire were not reported. This paper reported satisfaction ratings with predominantly descriptive analysis and one t-test comparison of dropouts and the attending group.

In a study by Fernandez-Liria et al. (2010), the control group (n=35) was randomly selected from three teaching units using an independent service for randomisation. Two independent raters objectively evaluated the interviews, with two different raters evaluating the questionnaires. All were blinded to the source of the material and whether it was from pre- or post-assessment. No attrition was reported. It is unclear how many people were initially invited to participate (although 170 people are reported to have accepted the invitation).

Harrison and Goldberg (1993) used a one-group pretest/posttest-designed intervention. One of the outcome assessors was also a trainer and not an independent rater, making it unclear whether this person was truly blinded. Although one of the authors who was "blind to pre/post training status" and another person randomised the recordings, it is nonetheless possible that the trainer, in providing the training and knowing the trainees, may have been able to tell the difference between pre and post outcomes.

Ikkos (2003) reported a one-group post-test evaluation. Only 26 of the 34 doctors returned completed questionnaires, revealing a high risk of incomplete outcome data. The author confirmed that feedback collection started 1-2 years after training and some doctors had moved on. There was an unclear risk of other bias because the author conceded that they were unable to distinguish between responses from different grades of doctors, and that his multiple capacities as teacher and assessor made it possible that respondents did not honestly report their opinions.

Junek et al. (1979) reported a one-group pre- and post-training evaluation. Independent raters rated 30 video segments from various points of the recorded interviews in random order, suggesting that they were blinded to pre- or post-training. It was unclear whether there was incomplete outcome data because although the attrition of one participant was reported, he was referred to as a "poor" performer. Given the small participant pool (n=6), the inclusion of this participant may have impacted the overall results of this study. A baseline imbalance was found between native English speakers and those from non-English speaking backgrounds. Because of the small sample size with insufficient power to conclude any reasonable findings; other sources of bias were unclear.

Kowalski and Sathanandan (2015) presented findings from a one-group pretest/posttest study that included a qualitative component. Other potential bias may be present as teachers of the training intervention analysed both the data and the interviews. Reporter bias may therefore have been introduced due to trainees wanting to please the trainers.

The current authors (Loughland et al., 2015) conducted a self-report one-group pretest/posttest study. Thirty-eight participants attended the CST, however, the evaluations reported consisted of only 32 participants. Although 3 were missing data due to training non-attendance, 3 other participants did not submit their pre/post self-assessments and thus were excluded from the analysis. The risk for incomplete outcome data is therefore high. One item was removed from analysis because it did not discriminate among respondents, but this was reported adequately.

In a study by Riess et al. (2012), trainee participants from two institutions were randomly assigned in a 1:1 allocation ratio to a training intervention group or a control group (training as usual). A computer generated number sequence determined allocation and participants and patient raters were both blinded to the randomisation. The blinding of outcome assessors was not clear, as the patients knew that they were rating their doctor and what they were rating them on, however, they were blinded to whether the doctor had completed training yet or not.

Rimondini et al. (2010) reported an interrupted time series design with one group and no comparator or control group. Recorded interviews were randomly assigned to two objective raters, who were blinded to the purposes of the study and to whether the recordings were pre- or post-training. Missing data was attributed to damaged tapes, not attrition. It was

acknowledged that significance testing of pre/post outcomes could not be performed due to the small sample size and regression analyses had to be performed on the units of speech, but this was reported.

Rosen et al. (2006) performed a one-group pretest/posttest study. A total of 46 residents were reported to have attended the program, but data was only available for 34 of these. No reason was reported as to whether the remaining 12 simply did not fill in the evaluations, or did not stay until the end of the program. In addition, only 9 of the 34 completed the follow-up questionnaire. The number of trainees to answer each question was variable, so there was missing data. Whilst it was reported that 28 participants were residents and 17 were attending/faculty, other students or guests (making a total of 45 participants), the authors reported 46 in the study. Therefore, the risk of incomplete outcome data is high and it remains unclear whether there is bias of selective outcome reporting. Since this research was funded by a grant from a pharmaceutical company (Pfizer, Inc.), there is an unclear risk of bias about whether the communication skills training may have involved discussions about medications. If not, it is unclear why a pharmaceutical company would fund this study.

The Yutani et al. (2011) study was a one-group pretest/posttest self-evaluation. The risk for incomplete outcome data was unclear because although 44 agreed to participate, data was analysed for only 34 participants with no information provided about the 10 who did not respond. Therefore, there is unclear risk of possible bias as to why they did not report their own performance. Whilst other papers in the review indicated their funding source or acknowledgements, this paper did not, so it was unclear whether there was any other source of bias.

Figure 2. Potential sources of bias in included trials using the Cochrane tool for quality assessment.

MERSQI

Two authors (PDP and RD) independently conducted a MERSQI assessment for each study. Reliability between the ratings was tested using the Intra-class Correlation Coefficient (ICC; two-way, mixed, alpha model using absolute agreement rating, reporting average measures with lower and upper bounds). There was no variance between the raters for the sections of study design, content validity, relationships to other variables, appropriateness of analysis, and outcome. Reasonable reliability was found for institutions ICC(3,2) = .88 [95%CI: .60, .97], type of data ICC(3,2) = .91 [95%CI: .70, .97], and sophistication of analysis ICC(3,2) = .90 [95%CI: .63, .97]. However, there was poor reliability regarding response rate and internal structure. The authors met to discuss inconsistencies, clear up any misinterpretation and unanimous agreement was reached for all sections. It was unclear in all studies whether the intervention groups represented the entire cohort of that type of participant available in the area or institution, or whether the group consisted of just those who consented to participate.

Table 3. Quality assessment of non-randomised studies using the Medical Education Research Quality Instrument (MERSQI).

All studies' scores on the MERSQI items

Domain	MERSQI item (possible score)	Ditton-Phare et al., 2016	Drummond et al., 1988	Fernandez-Liria et al., 2010	Harrison et al., 1993	Ikkos, 2003	Junek et al., 1979	Kowalski et al., 2015	Loughland et al., 2015	Riess et al., 2012	Rimondini et al., 2010	Rosen et al., 2006	Yutani et al., 2011
Study design	Single group cross-sectional or single group posttest only (1)		1			1							
	Single group pretest and posttest (1.5)	1.5			1.5		1.5	1.5	1.5		1.5	1.5	1.5
	Nonrandomised, 2 groups (2)												
	Randomised controlled trial (3)			3						3			
Sampling	Institutions studied:												
	1 (0.5)		0.5		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
	2 (1)	1								1			
	3 (1.5)			1.5									
	Response rate (%):												
	Not applicable (0)												
	<50 or not reported (0.5)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	50-74 (1)												
	≥75 (1.5)												
Type of data	Assessment by participants (1)		1			1		1	1			1	1
	Objective measurement (3)	3		3	3		3			3	3		
	Internal structure:												

Validity of evaluation instrument	Not reported (0)	0	0		0	0	0	0	0			0	0
	Reported (1)			1						1	1		
	Content:												
	Not reported (0)		0		0	0	0	0	0			0	0
	Reported (1)	1		1						1	1		
	Relationships to other variables:												
	Not reported (0)		0		0	0	0	0				0	
	Reported (1)	1		1					1	1	1		1
Data analysis	Appropriateness of analysis:												
	Inappropriate for study design or type of data (0)												
	Appropriate for study design and type of data (1)	1	1	1	1	1	1	1	1	1	1	1	1
	Complexity of analysis:												
	Descriptive analysis only (1)					1		1				1	
	Beyond descriptive analysis (2)	2	2	2	2		2		2	2	2		2
Outcomes	Satisfaction, attitudes, perceptions, opinions, general facts (1)		1			1		1	1			1	1
	Knowledge, skills (1.5)	1.5		1.5	1.5		1.5			1.5	1.5		
	Behaviours (2)												
	Patient/health care outcome (3)												
Total score	**Out of possible 18**	**12.5**	**7**	**15.5**	**10**	**6**	**10**	**6.5**	**8.5**	**15**	**13**	**6.5**	**8.5**

Results of individual studies

Tables 4a, 4b, and 4c provide a tabulated summary of included studies' quantitative extracted data and results.

4a. One-group pretest / posttest (including interrupted time series).

Study design – one group pretest / posttest (including ITS)	Primary Outcome measure/s	Results				
		Mean (pre / post)	SD (pre/post)	N	p-value	Effect size
Ditton-Phare et al., 2016	Agenda Setting	1.22 / 2.32	0.88 / 1.23	25	<.001	d=-0.82
	Checking	2.26 / 2.76	nr	25	.191	nr
	Questioning	5.78 / 4.58	2.60 / 2.03	25	.010	d=-0.44
	Information Organisation	1.26 / 1.66	nr	25	.216	nr
	Empathic communication	3.30 / 4.18	nr	25	.086	nr
Harrison et al., 1993			CIs reported			
	Utterance: Open/Directive Questions	25.00 / 33.00	17-33 / 27-40	16	NS	nr
	Utterance: Neutral Questions	14.00 / 15.00	6-22 / 11-19	16	NS	nr
	Utterance: Multiple Choice Questions	3.00 / 3.00	2-6 / 0-6	16	NS	nr
	Utterance: Closed Questions	48.00 / 38.00	45-54 / 32-44	16	<.01	nr
	Utterance: Leading Questions	0.00 / 0.00	0-2 / 0-3	16	NS	nr
	Utterance: Compound Questions	2.00 / 3.00	0-10 / 0-6	16	NS	nr
	Utterance: Not Question	0.00 / 0.00	0-2 / 0-8	16	NS	nr
			Individual range			
	Requests for clarification	21.00 / 20.00	0-3 / 0-3	16	NS	nr
	Supportive utterances	5.00 / 28.00	0-3 / 0-7	16	<.01	nr
	Summarising utterances	6.00 / 18.00	0-3 / 0-3	16	.06	nr
	Transition statements	9.00 / 5.00	0-1 / 0-1	16	NS	nr
	Responses to non-verbal cues	2.00 / 2.00	0-1 / 0-1	16	NS	nr
	Delayed responses to verbal cues	4.00 / 9.00	0-2 / 0-2	16	NS	nr
	Understanding hypotheses	1.00 / 3.00	0-1 / 0-1	16	NS	nr
Junek et al., 1979	Empathy	6.90 / 12.80	nr	5	<.001	nr
	Congruence	9.90 / 15.10	nr	5	<.001	nr
	Level of regard	12.40 / 17.40	nr	5	<.001	nr
	Unconditionality	11.60 / 14.60	nr	5	<.001	nr
Loughland et al., 2015	Diagnosis: training delivery	3.83 / 4.30	0.39 / 0.53	14	<.001	nr
	Diagnosis: own communication skills	3.43 / 3.76	0.63 / 0.55	14	.139	nr
	Prognosis: training delivery	3.78 / 4.33	0.46 / 0.56	18	.019	nr

	Prognosis: own communication skills	3.39 / 4.07	0.55 / 0.39	18	.012	nr
Rimondini et al., 2010	Patient-centred expressions	33.1 / 36.2	13.9 / 15.6	10	nr*	nr
	Handling emotion	36.6 / 42.2	14.3 / 17.0	10	nr*	nr
	Doctor-centred expressions	27.4 / 18.3	13.3 / 11.1	10	nr*	nr
	Neutral expressions	42.6 / 36.8	19.4 / 19.2	10	nr*	nr
Yutani et al., 2011	Communication Skills Questionnaire	243.7 / 251.2	35.5 / 38.9	34	.037	nr
	Cooperative Communication Skills	170.9 / 174.7	21.8 / 24.4	34	.091	nr
	Assertive Communication Skills	50.1 / 54.0	11.9 / 13.4	34	.01	nr
	General Communication Skills	22.7 / 22.5	3.7 / 4.5	34	.817	nr

ITS = interrupted time series

* statistical analyses done on the Rimondini et al, 2010 study did not include significance testing of pre/post changes due to the small sample size. Regression model analyses demonstrated performance profiles at intervals with variability of the performance index over the four post-training interviews.

4b. One-group posttest % respondent ratings.

Study design – one group posttest % respondent ratings		% Respond-ents	Rating	N
Drummond et al. (1988)	*Post-training ratings:*		*Visual analogue scales (range, SD):*	10 for all
	Rated workshops useful	85.5	Useful-useless (77-95%, 6.5)	
	Rated workshops interesting	78.9	Boring-interesting (48-94%, 14.9)	
	Rated workshops relevant to MRCPsych	86.8	Relevant-not relevant (73-96%, 7.4)	
	Rated workshops relevant to clinical practice	81.5	Relevant-not relevant (55-94%, 13.7)	
Ikkos (2003)	*Post-training ratings:*		*Scale of 10 (excellent) to 1 (terrible)*	26 for all
	Overall rating of being trained by patients	69.2	9 or 8	
		15.4	7 or 6	
		11.5	5	
		3.8	3	
Kowalski et al., 2015	*Post-training ratings:*		*"…mixture of Likert scales and free-text boxes…"*	39 for all
	Learning in small groups useful	100.0		
	Simulation training good use of training time	95.0		
	Communication skills improved	100.0		
	More able to defuse angry/tense situation at work	97.0		
	More able to deal with complicated situation requiring sophisticated communication skills	92.0		
	Regular simulation training would be valuable	97.0		
Rosen et al., 2006	*Post-training levels of satisfaction with training:*			
	Q24 workshop presentations	92.6	Moderately or highly informative	39
	Q25 workshop format	94.7	Moderately or highly interactive	38
	Post-training ratings of perceived interviewing:			
	Q20 identify/recognise sexual problems	92.7	A great deal or moderately	41
	Q21 develop comfort/skill in sexual history taking	92.3	A great deal or moderately	39
	Q22 understand role of specialist	72.9	A great deal or moderately	37
	Q23 awareness of common sexual problems	97.5	A great deal or moderately	39
	Post-training ratings of practice patterns (follow up 6 months):			
	Q2 comfort in sexual interviewing	88.9	Increased a little or a lot	9
	Q3 active participation in management of sexual patients	66.7	Increased a little or a lot	9
	Q4 use of referral services for sexual medicine complaints	55.6	Increased a little or a lot	9

4c. Randomised controlled trials.

Study design - RCT	Primary Outcome measure/s	Result							
		Mean Intervention Group (pre / post)	SD (pre/post)	N	Mean Control Group (pre/post)	SD	N	p-value of comparison	Effect size of change in Intervention group
Fernandez-Liria et al., 2010	Theoretical questionnaire	10.85 / 16.69	3.52 / 3.24	135	11.75 / 12.50	2.98 / 3.11	35	<.001	d=1.726
	Interview evaluation	4.42 / 6.47	1.72 / 1.75	135	4.66 / 5.32	1.68 / 1.47	35	<.001	d=1.181
	Skill evaluation	11 of 12 skills were significantly improved from pre- to post-training in the intervention group (*p-values ranging from <.001 to .003 for listening attitude, attention to the non-explicit, exploring incomplete speech, explicit-implicit speech, exploring recursive speech, paraphrases, empathic reflection, recapitulation, open questions, closed questions, and clarification)*, with one non-significant skill change (*facilitators*) *p*=.066. One significant skill change in the control group (*clarification*), *p*=.023.							
Riess et al., 2012	Empathic and relational skills (CARE)	Mean Change Score Intervention Group	SD	N	Mean Change Score Control Group	SD	N	p-value of comparison	Effect size
		0.7	7.9	54	-1.5	6.0	45	0.04	0.31

RCT = randomised controlled trial

In addition to the above quantitative data, qualitative responses were presented in the Kowalski et al. (2015) study and the Ikkos (2003) study. Neither of these studies employed a stringent qualitative methodology. Participants were asked questions in semi-structured interviews (Kowalski) or on a form (Ikkos). Questionnaire feedback from Ikkos "indicated some specific criticisms of a number of participants and dissatisfaction by a small minority of doctors, but the overall evaluation of the experience was positive" (p.312). Qualitative analysis of themes in the Kowalski study "showed that trainees found the scenarios realistic, that the experience had led to an increased awareness of their communication style and that original improvements in confidence had translated to their clinical work" (p.29). Readers are directed to view these papers for narrative summaries of qualitative responses.

Synthesis of results

A description of each CST and each study's findings are reported in Table 5 below.

Table 5. Intervention description and findings.

Study	Training description	Findings post-training
Ditton-Phare et al., 2016	Training in agenda setting, questioning, checking, information organisation, and empathy. 2 modules, approximately 3 hours each in length. Each module consists of a didactic session, utilising exemplary videos, and 2 hours of small-group role play with feedback from peers, facilitator and video playback.	Increase in agenda setting skills. Decrease in questioning skills. Higher dose of training (two modules as opposed to one or none) resulted in increased skills uptake in agenda setting.
Drummond et al., 1988	Training in interview techniques. Held weekly for 20 weeks. Exemplary videos presented. Homework given making videotapes of self and getting peers to comment. Teaching to appraise skills objectively.	Most trainees valued the course.
Fernandez-Liria et al., 2010	Training in psychotherapeutic interviewing. 2 levels of learning: basic (general interviewing skills) and advanced (techniques used). Practical and experiential. 8 x 2-hour weekly sessions.	Increase in theoretical knowledge. Increase in using adequate intervention. Increase in 11 of 12 discrete skills.
Harrison et al., 1993	Training in questioning and behaviours, important aspects of particular sections of interview and overall style. Trainees attend in first year of psychiatry training over 10 weeks. Teaching is in small groups with feedback from the author and other trainees on recordings of patient interviews.	Decrease in closed questions. Increase in supportive utterances. Increase in summarising utterances.
Ikkos, 2003	Training in basic interview skills. 1.5 hrs weekly for 6 months, using 'Three Function Model of Interview' (Bird & Cohen-Cole, 1990), assumptions, expectations and feelings prior to interview, terminating interview. Seminars and role-play. Barnet Voice patients contributed to teaching.	Most trainees rated being trained by patients highly.
Junek et al., 1979	Modification of Ward and Stein's teaching technique by 'encountering' patients. Weekly 1.5 hr sessions for 12 weeks. Practice with patients. Process emphasised over content. Feedback from self, group, supervisors.	Increase in empathy, congruence, level of regard and unconditionality.
Kowalski et al., 2015	Training in confidence managing difficult situations at work. Six scenarios of varying mental health situations with	Increase in communication skills and ability to deal with difficult situations (self-rated)

	simulated patients in one afternoon with small groups of 3-4 trainees. Each group had two facilitators (a consultant and an advanced trainee). Actors rotated around the groups. Each trainee undertook at least 2 scenarios with feedback from facilitators, peers and actors using Pendleton's rules.	High level of satisfaction with training. Themes from qualitative analysis included scenarios, feedback, small groups, self-awareness, educational impact, exams, and benefits of simulation.
Loughland et al., 2015	Training in agenda setting, questioning, checking, information organisation, and empathy. 2 modules, approximately 3 hours each in length. Each module consists of a didactic session, utilising exemplary videos, and 2 hours of small-group role play with feedback from peers, facilitator and video playback.	Increase in rating of training delivery for both modules. Increase in ratings of own communication skills for one module (Prognosis).
Riess et al., 2012	Training in empathy and relational skills. 3 x 60 min modules over 4 weeks. Groups of 6-15 in same specialty.	Increase in empathy in training group. Decrease in empathy in control group.
Rimondini et al., 2010	Training in patient-centred interviewing skills. 4 consecutive weekly small group sessions of 4hr each. Two facilitators. Feedback on videotaped consultations, analyses and exercises regarding transcripts, critical incident reports, role-play with video feedback.	No significance testing undertaken but performance analysis revealed the following: Increase in emotion handling. Decrease in closed-ended questions. > Variability across post-training interviews.
Rosen et al., 2006	Training in sexual medicine, but in terms of the CST component, included training in communication skills and sexual-interviewing techniques. Didactic presentations with small group discussions.	More likely to engage in sexual inquiry. Lasting changes in attitudes and practices (self-rated). High level of satisfaction with training.
Yutani et al., 2011	Training in psychiatric interviewing. Lectures and role-plays with feedback.	Increase in assertive communication skills. Factors associated with greater improvement in skills were clinicians with higher self-esteem and lower depressive mood and anxiety.

Discussion

Summary of evidence

The aim of this review was to examine the efficacy of CST programs in postgraduate training in psychiatry. Overall, evidence from self-reported feasibility studies and objective skills evaluations support the applicability of CST in postgraduate psychiatry; however, no studies measured skill retention over time in clinical practice, or patient outcomes. All studies in this review reported either an increase in communication skills following CST, and/or high satisfaction with the CST employed.

The majority of the studies in this review were non-randomised with small sample sizes ranging from 5-44 with outcomes showing varying levels of communication skills gains and increased self-reported trainee satisfaction ratings with CST programs. However, the overall risk of bias and the highly heterogeneous nature of training interventions, the evaluation tools used, and the methodologies employed precluded any useful hypothesising about the efficacy of CST in psychiatry based on these studies. This said, these comprehensively described CST programs and their training delivery methodologies provided evidence of their feasibility and acceptability and an excellent platform for future replication studies.

The outcomes from two RCTs included an increase in clinician empathy (rated by patients) resulting from training in empathy and relational skills; and an increase in psychotherapeutic theoretical knowledge, the ability to choose the right intervention, and an increase in communication skills as a result of training in psychotherapeutic interviewing. This tells us that embedding components of CST within specifically focused programs for empathy development or psychotherapeutic interviewing is effective, inviting future studies to reflect on how CST embedded within skill-specific programs might enhance CST skill retention as opposed to teaching the skills on their own without a goal driven focus.

Inherent across most studies reviewed were problems with achieving rigour. These included:

Sample size: Due to the population of interest, cohorts were often small. Studies may therefore need to be run over multiple years to obtain larger samples. Fernandez-Liria et al. (2010) achieved a larger sample by recruiting across the country of Spain and managed to train all 135 participants over an 8-week course in the intervention group with no reported missed sessions. However, most training units that run programs for a number of weeks may have more difficulty recruiting across such a wide geographical area, with greater dropout rates for some sessions likely. It may be that for most training institutions, dose of training and sample size are a trade-off due to geographical limitations and availability of large cohorts.

Study design: RCTs are inherently problematic to conduct, especially with respect to evaluating CST in postgraduate psychiatry. For example, there is often a strong desire for training by trainees, but the need for a control group may mean withholding access to training for a proportion of trainees, raising concerns about how ethical wait-listing might be. Crossover trials provide a solution of sorts to this issue. However, trainees do not necessarily stay in one service or location for long as they rotate geographically throughout their training years, or may leave services. Therefore, the threat of dropout or loss to follow-up over a multi-year

crossover trial is high. Rosen et al. (2006), even with a simple pen-and-paper questionnaire, lost 74% of their cohort to follow-up after 6 months (from 34 down to 9). In addition, some programs run their CST at a certain point in training (e.g., the Ditton-Phare et al., 2016 program runs CST in the first-year formal education course), making a crossover design impossible in these contexts.

An alternative research design might be a larger interrupted time series. The Rimondini et al. (2010) study offers a model that included a pre-training time series of four assessments and a post-training time series of four assessments, but their uncontrolled study had a small sample size (N=10), preventing them from conducting any significance testing of before and after effects. Conducting many assessment points over time, however, not only requires a large amount of resources, but also faces the same loss to follow-up challenges as a crossover trial if the length of time between the first and last assessment is long. It seems that research groups with greater access to resources, time and available participant cohorts have a better chance of conducting a rigorous study to determine objectively whether communication skills of psychiatry trainees improves due to CST.

Another alternative would be to conduct a study of higher order educational outcomes to examine how CST for psychiatry trainees impacts clinical practice and patient perspectives and clinical outcomes. Whilst Riess et al. (2012) asked patients to rate the empathy of their doctors, future studies need to determine patients' attitudes about their care and whether medication adherence, length of stay in hospital, recurring admissions, suicide rates, and other measures of patient outcome are affected by treatment from doctors with better communication skills. How to measure these outcomes within this paradigm has not yet been explored and remains a target for future studies of this type.

While there is very little robust evidence concerning the efficacy of CST in psychiatry, there is a clear need for such training with an abundance of evidence concerning the efficacy of CST in other specialty areas. There is evidence also for its translation into the workplace (van den Eertwegh et al., 2013; Merckaert et al., 2015; Lienard et al., 2010) and in this context, the lack of literature available for CST in psychiatry does not constitute a lack of efficacy. Rather, it reflects the lack of available literature in this growing field and the need for quality and consistency in reporting. Importantly, there is a need in psychiatry to demonstrate that CST can be translated into clinical practice and better patient outcomes. Although the variability of translation studies in this area has been highlighted by van den Eertwegh et al. (2013), studies such as

these are important for understanding the barriers and enablers to translations of CST to clinical practice (van den Eertwegh et al., 2014).

Limitations

There are a number of limitations associated with this review, mainly that the training interventions and outcomes are not the same across studies and the quality of the studies varied. Restriction of the review to English-language publications may have also been a limitation, and decisions about study selection were sometimes difficult. A publication bias may have influenced the findings of this review, as no studies reported nil significant findings. It is unknown whether or how many unpublished studies with no significant findings exist. Six out of twelve studies used self-reporting to ascertain training effects, which may introduce reporter bias due to selective reporting of information, potentially because attitudes towards facilitators and trainers conducting the training might influence reporting of training outcomes. In addition, research into self-assessment suggests that the least skilled residents may be most at risk of inaccurately assessing their abilities (Hodges et al., 2001).

Conclusions

There have been no previous systematic reviews or meta-analyses conducted examining the effect of CST on postgraduate psychiatry trainees' communication skills, although 12 different articles have been published between 1979 and 2016. All confirmed increased communication skill ability following a CST intervention. However, the estimated impact of CST is impossible to calculate for a variety of reasons, including the lack of statistical power due to small sample sizes, the heterogeneity of training interventions with differing dose, frequency, duration and methods, different methods of measuring the effect of CST, and varying quality and risk of bias of the studies' methodology.

The next step for future studies would be to conduct either a large-scale RCT or interrupted time series study (potentially multisite to ensure adequate statistical power) with a follow-up assessment that measures skill retention over time, and demonstrating skill retention 'in vivo' in clinical practice. There is a particular need to look at how skills translate to real world practice outside the controlled setting of training and to determine what factors encourage or inhibit implementation in practice, as well as assessing how doctors trained in communication skills affect the outcome of patients. A substantial body of work done in oncology residency

demonstrates the need for supplementation of training and follow-up workshops, due to high attrition in skills over time if 'refresher' sessions are not provided (Delvaux et al., 2005; Razavi et al., 2003; van den Eertwegh et al., 2013). Other types of studies that should be conducted include assessments of the cost-effectiveness of these training interventions to aid the decision-makers in health departments when considering funding programs of this nature. The heterogeneity of CST is a fundamental reason for the difficulties in comparing the efficacy of different CST programs to one another. However, further validation studies examining specific models and frameworks would support a stronger evidence base for this component of education.

Funding

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
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Appendix 1. Search strategies for all databases

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
S44	S15 AND S23 AND S27 AND S42
S43	S15 AND S23 AND S27 AND S42
S42	S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41
S41	"quality"
S40	"program evaluation"
S39	"professional competence"
S38	"analys*"
S37	"perform*"
S36	"perception*"
S35	"patient satisf*"
S34	"patient outcome*"
S33	"outcome*"
S32	"feasibil*"
S31	"evaluat*"
S30	"measure*"
S29	"assess*"
S28	"efficac*"
S27	S24 OR S25 OR S26
S26	(psychiatr* n3 (train* or teach* or educat* or program*))
S25	"psychiatry train*"

|	
S24	(MH "Psychiatry+")
S23	S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22
S22	(MH "Interns and Residents") OR (MH "Internship and Residency")
S21	"vocation*"
S20	"residen*"
S19	"registrar*"
S18	"post-graduate*"
S17	"postgraduate*"
S16	(MH "Education, Medical+") OR (MH "Education, Graduate+") OR (MH "Education, Medical, Continuing")
S15	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14
S14	"consultation skill*"
S13	"CST"

S12	"communicat* train*"
S11	"communicat* skill* program*"
S10	"communication program*"
S9	"communication education"
S8	"truth disclosure"
S7	"difficult conversation*"
S6	"difficult news"
S5	"break* bad news"
S4	communicat* n3 skill* OR interview* n3 skill*
S3	(MH "Clinical Competence")
S2	(MH "Physician-Patient Relations")
S1	(MH "Communication Barriers") OR (MH "Nonverbal Communication") OR (MH "Communication Methods, Total") OR (MH "Communication Skills Training") OR (MH "Communication Skills") OR (MH "Communication Protocols") OR (MH "Communication")

Cochrane library

#1	MeSH descriptor: [Communication] this term only	(m)
#2	MeSH descriptor: [Health Communication] this term only	(m)
#3	MeSH descriptor: [Nonverbal Communication] this term only	(m)
#4	MeSH descriptor: [Communication Methods, Total] this term only	(m)
#5	MeSH descriptor: [Communication Barriers] this term only	(m)
#6	MeSH descriptor: [Physician-Patient Relations] this term only	(m)
#7	MeSH descriptor: [Clinical Competence] this term only	(m)
#8	communicat* near/3 skill* or interview* near/3 skill*	[TH]
#9	break* bad news or "difficult news" or difficult conversation* or "truth disclosure"	[TH]
#10	"communication education" or communication program* or communicat* skill* program* or communicat* train* or consultation skill* or CST	[TH]
#11	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10	[TH]
#12	MeSH descriptor: [Education, Medical, Graduate] explode all trees	(m)
#13	MeSH descriptor: [Education, Medical, Continuing] explode all trees	(m)
#14	postgraduate* or post-graduate* or registrar* or residen* or vocation*	[TH]
#15	MeSH descriptor: [Internship and Residency] explode all trees	(m)
#16	#12 or #13 or #14 or #15	[TH]
#17	MeSH descriptor: [Psychiatry] explode all trees	(m)
#18	psychiatry train*	[TH]
#19	psychiatr* near/3 train*	[TH]
#20	psychiatr* near/3 teach*	[TH]
#21	psychiatr* near/3 educat*	[TH]
#22	psychiatr* near/3 program*	[TH]
#23	#17 or #18 or #19 or #20 or #21 or #22	[TH]
#24	efficac* or assess* or measure* or evaluat* or feasibil* or outcome* or patient outcome* or patient satisf* or perception* or perform* or analys* or professional competence or program evaluation or quality*	[TH]
#25	#11 and #16 and #23 and #24	[TH]

Dissertations & Theses (Proquest International)

((Communication) OR ((health communication OR nonverbal communication)) OR ((communication methods OR communication barriers)) OR ((physician-patient relations OR clinical competence)) OR (communicat* NEAR/3 skill* OR interview* NEAR/3 skill* OR difficult conversation*) OR (break* bad news OR "difficult news") OR ("truth disclosure" OR "communication education") OR (communication program* OR communicat* skill* program*) OR (communicat* train* OR consultation skill*) OR CST) AND (su(Education, Medical, Continuing OR Education, Medical, Graduate) OR (postgraduate* OR post-graduate* OR registrar* OR residen* OR vocation*) OR (Internship AND residency)) AND ((psychiatry) OR (psychiatry train* OR psychiatr* NEAR/3 train* OR psychiatr* NEAR/3 teach* OR psychiatr* NEAR/3 educat* OR psychiatr* NEAR/3 program*)) AND (efficac* OR assess* OR measure* OR evaluat* OR feasibil* OR outcome* OR patient outcome* OR patient satisf* OR perception* OR perform* OR analys* OR "professional competence" OR program* evaluation OR quality*) AND la.exact("English")

Embase

1. Communication/ or Nonverbal Communication/

2. Communication Skills/

3. Professional Competence/

4. (communicat* adj3 skill*).mp.

5. (interview* adj3 skill*).mp.

6. (break* bad news or difficult news or difficult conversation* or truth disclosure).mp.

7. (health communication or communication barriers or communication methods or physician-patient relations or communication education or communication program* or communicat* skill* program or communicat* training or consultation skill* or CST).mp.

8. 1 or 2 or 3 or 4 or 5 or 6 or 7

9. exp Postgraduate Education/

10. exp Medical Education/

11. (postgraduate* or post-graduate* or registrar* or residen* or intern* or vocation*).mp.

12. 9 or 10 or 11

13. exp Psychiatry/

14. psychiatry train*.mp.

15. (psychiatr* adj3 (train* or teach* or educat* or program*)).mp.

16. 13 or 14 or 15

17. (efficac* or assess* or measure* or evaluat* or feasibil* or outcome* or patient outcome* or patient satisf* or perception* or perform* or analys* or professional competence or program evaluation or quality*).mp.

18. 8 and 12 and 16 and 17

19. limit 18 to (english language and humans)

ERIC (Proquest)

((communicateion) OR ((health communicateion OR nonverbal communicateion)) OR ((communicateion methods OR communicateion barriers)) OR ((physician-patient relations OR clinical competence)) OR (communicate* NEAR/3 skill* OR interview* NEAR/3 skill* OR difficult conversation*) OR (break* bad news OR "difficult news") OR ("truth disclosure" OR "communicateion educateion") OR (communicateion program* OR communicate* skill* program*) OR (communicate* train* OR consultation skill*) OR CST) AND (su(educateion, Medical, Continuing OR educateion, Medical, Graduate) OR (postgraduate* OR postgraduate* OR registrar* OR resident* OR vocation*) OR (Internship AND residentcy)) AND ((psychiatryy) OR (psychiatryy train* OR psychiatry* NEAR/3 train* OR psychiatry* NEAR/3 teach* OR psychiatry* NEAR/3 educate* OR psychiatry* NEAR/3 program*)) AND (efficacy* OR assess* OR measure* OR evaluate* OR feasibil* OR outcome* OR patient outcome* OR patient satisfy* OR perception* OR perform* OR analyst* OR "professional competence" OR program* evaluateion OR quality*) AND la.exact("English")

Informit Database Collection

(Communication OR "physician-patient relations" OR "clinical competence" OR (communicat* %3 skill*) OR (interview* %3 skill*) OR "difficult conversation"* OR (break* !1 "bad news") OR "difficult news" OR "truth disclosure" OR (communicat* !1 skill* !1 program*) OR (communicat*!1 train*) OR "consultation skill"* OR CST) AND ("Medical Education" OR "Medical Graduate" OR postgraduate* OR "post-graduate"* OR registrar* OR residen* OR intern* OR vocation*) AND (psychiatry OR (psychiatr* %3 train*) OR (psychiatr* %3 teach*) OR (psychiatr* %3 educat*) OR (psychiatr* %3 program*)) AND (efficac* OR assess* OR measure* OR evaluat* OR feasibil* OR outcome* OR "patient outcome"* OR "patient satisf"* OR perception* OR perform* OR analys* OR "professional competence" OR (program* !1 evaluation) OR quality*)

Medline (1946+)

1. Communication/ or Nonverbal Communication/

2. Communication Skills/

3. Professional Competence/

4. (communicat* adj3 skill*).mp.

5. (interview* adj3 skill*).mp.

6. (break* bad news or difficult news or difficult conversation* or truth disclosure).mp.

7. (health communication or communication barriers or communication methods or physician-patient relations or communication education or communication program* or communicat* skill* program or communicat* training or consultation skill* or CST).mp.

8. 1 or 2 or 3 or 4 or 5 or 6 or 7

9. exp Postgraduate Education/

10. exp Medical Education/

11. (postgraduate* or post-graduate* or registrar* or residen* or intern* or vocation*).mp.

12. 9 or 10 or 11

13. exp Psychiatry/

14. psychiatry train*.mp.

15. (psychiatr* adj3 (train* or teach* or educat* or program*)).mp.

16. 13 or 14 or 15

17. (efficac* or assess* or measure* or evaluat* or feasibil* or outcome* or patient outcome* or patient satisf* or perception* or perform* or analys* or professional competence or program evaluation or quality*).mp.

18. 8 and 12 and 16 and 17

19. limit 18 to (english language and humans)

Mednar

Communication OR "health communication" OR "nonverbal communication" OR "communication methods" OR "communication barriers" OR "physician-patient relations" OR "clinical competence" OR communicat* W/3 skill* OR interview* W/3 skill* OR difficult conversation* OR break* bad news OR "difficult news" OR "truth disclosure" OR "communication education" OR communication program* OR communicat* skill* program* OR communicat* train* OR consultation skill* OR CST AND "medical education" OR "Medical Graduate" OR postgraduate* OR post-graduate* OR registrar* OR residen* OR intern* OR vocation* AND psychiatry OR psychiatry train* OR psychiatr* W/3 train* OR psychiatr* W/3 teach* OR psychiatr* W/3 educat* OR psychiatr* W/3 program* AND efficac* OR assess* OR measure* OR evaluat* OR feasibil* OR outcome* OR patient outcome* OR patient satisf* OR perception* OR perform* OR analys* OR "professional competence" OR program* evaluation OR quality*

Prospero

(Communication OR "physician-patient relations" OR "clinical competence" OR (communicat* %3 skill*) OR (interview* %3 skill*) OR "difficult conversation"* OR (break* !1 "bad news") OR "difficult news" OR "truth disclosure" OR (communicat* !1 skill* !1 program*) OR (communicat*!1 train*) OR "consultation skill"* OR CST) AND ("Medical Education" OR "Medical Graduate" OR postgraduate* OR "post-graduate"* OR registrar* OR residen* OR intern* OR vocation*) AND (psychiatry OR (psychiatr* %3 train*) OR (psychiatr* %3 teach*) OR (psychiatr* %3 educat*) OR (psychiatr* %3 program*)) AND (efficac* OR assess* OR measure* OR evaluat* OR feasibil* OR outcome* OR "patient outcome"* OR "patient satisf"* OR perception* OR perform* OR analys* OR "professional competence" OR (program* !1 evaluation) OR quality*)

PsycINFO

1. Communication/ or Nonverbal Communication/

2. Communication Skills/

3. Professional Competence/

4. (communicat* adj3 skill*).mp.

5. (interview* adj3 skill*).mp.

6. (break* bad news or difficult news or difficult conversation* or truth disclosure).mp.

7. (health communication or communication barriers or communication methods or physician-patient relations or communication education or communication program* or communicat* skill* program or communicat* training or consultation skill* or CST).mp.

8. 1 or 2 or 3 or 4 or 5 or 6 or 7

9. exp Postgraduate Education/

10. exp Medical Education/

11. (postgraduate* or post-graduate* or registrar* or residen* or intern* or vocation*).mp.

12. 9 or 10 or 11

13. exp Psychiatry/

14. psychiatry train*.mp.

15. (psychiatr* adj3 (train* or teach* or educat* or program*)).mp.

16. 13 or 14 or 15

17. (efficac* or assess* or measure* or evaluat* or feasibil* or outcome* or patient outcome* or patient satisf* or perception* or perform* or analys* or professional competence or program evaluation or quality*).mp.

18. 8 and 12 and 16 and 17

19. limit 18 to (english language and humans)

PsycEXTRA

1. Communication/ or Nonverbal Communication/

2. Communication Skills/

3. Professional Competence/

4. (communicat* adj3 skill*).mp.

5. (interview* adj3 skill*).mp.

6. (break* bad news or difficult news or difficult conversation* or truth disclosure).mp.

7. (health communication or communication barriers or communication methods or physician-patient relations or communication education or communication program* or communicat* skill* program or communicat* training or consultation skill* or CST).mp.

8. 1 or 2 or 3 or 4 or 5 or 6 or 7

9. exp Postgraduate Education/

10. exp Medical Education/

11. (postgraduate* or post-graduate* or registrar* or residen* or intern* or vocation*).mp.

12. 9 or 10 or 11

13. exp Psychiatry/

14. psychiatry train*.mp.

15. (psychiatr* adj3 (train* or teach* or educat* or program*)).mp.

16. 13 or 14 or 15

17. (efficac* or assess* or measure* or evaluat* or feasibil* or outcome* or patient outcome* or patient satisf* or perception* or perform* or analys* or professional competence or program evaluation or quality*).mp.

18. 8 and 12 and 16 and 17

19. limit 18 to (english language and humans)

Scopus

Communication OR "health communication" OR "nonverbal communication" OR "communication methods" OR "communication barriers" OR "physician-patient relations" OR "clinical competence" OR communicat* W/3 skill* OR interview* W/3 skill* OR difficult conversation* OR break* bad news OR "difficult news" OR "truth disclosure" OR "communication education" OR communication program* OR communicat* skill* program* OR communicat* train* OR consultation skill* OR CST AND "medical education" OR "Medical Graduate" OR postgraduate* OR post-graduate* OR registrar* OR residen* OR intern* OR vocation* AND psychiatry OR psychiatry train* OR psychiatr* W/3 train* OR psychiatr* W/3 teach* OR psychiatr* W/3 educat* OR psychiatr* W/3 program* AND efficac* OR assess* OR measure* OR evaluat* OR feasibil* OR outcome* OR patient outcome* OR patient satisf* OR perception* OR perform* OR analys* OR "professional competence" OR program* evaluation OR quality*