

Medical Education

Impact of communication training on physician expression of empathy in patient encounters

Kathleen A. Bonvicini^{a,*}, Michael J. Perlin^b, Carma L. Bylund^c, Gregory Carroll^a,
Ruby A. Rouse^d, Michael G. Goldstein^a

^a Institute for Healthcare Communication, United States

^b Southern Connecticut State University, United States

^c Memorial Sloan-Kettering Cancer Center, United States

^d University of Phoenix, School of Advanced Studies, United States

ARTICLE INFO

Article history:

Received 27 May 2008

Received in revised form 29 August 2008

Accepted 17 September 2008

Keywords:

Physician–patient relations

Communication

Empathy

Research

Measurement

Quantitative

Educational intervention

Medical education

Physician training

ABSTRACT

Objective: To examine whether an educational intervention that focused on physician communication training influenced physician empathic expression during patient interactions.

Methods: This study used a quantitative research method to investigate the influence of communication training on physician-expressed empathy using two measures (global and hierarchical) of physician empathic behavior.

Results: The differences in global empathy scores in the physician training group from baseline to follow-up improved by 37%, and hierarchical scores of physician empathic expression improved by up to 51% from baseline scores for the same group.

Conclusions: The results strongly supported the hypotheses that training made a significant difference in physician empathic expression during patient interactions demonstrated by both outside observer measures of global ratings and hierarchical ratings of physician empathic behavior.

Practice implications: These findings have significant implications for program design and development in medical education and professional training with the potential to improve patient outcomes.

© 2008 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Health outcomes are associated with the human connectedness between patients and their physicians [1–3]. Although measuring the degree of connectedness that patients feel with their physicians presents a methodological challenge for researchers, physician empathy has been identified as one of the most essential relational elements valued by patients [1,4]. Caring, as demonstrated by physician-expressed empathy, is considered a core and teachable communication skill. Despite the evidence demonstrating the high value placed on physician empathy by patients, studies document that this element is often lacking in medical encounters [5,6].

A 2001 consensus statement produced by experts and authorities in medical education delineated a coherent set of essential elements based upon the premise that “a strong, therapeutic relationship is the sine qua non of physician–patient communication” p. 391 [7]. These essential elements, an integration of fundamental aspects of communication models [8,9], provided a coherent framework for training and assessment and listed rapport-building and trust as primary skills [10]. Yet research studies have indicated that physicians acknowledge a gap in communication skills training particularly in managing emotional and behavioral reactions of patients [11,12].

The impetus for this study was the dearth of evidence of how an educational intervention for physicians enhances the likelihood that they will respond effectively to empathic opportunities in their patient interactions. There are limited research studies of physician behavior using multiple measurements with an intervention such as communication training to evaluate the specific question of whether empathy can be taught [12–18]. Using observational data collected from a randomized controlled trial of a physician communication training intervention, this research

* Corresponding author at: Institute for Healthcare Communication, 555 Long Wharf Drive, 13th floor, New Haven, CT 06511, United States. Tel.: +1 203 772 8285; fax: +1 203 772 1066.

E-mail address: kbonvicini@healthcarecomm.org (K.A. Bonvicini).

investigated whether the intervention improved physician empathic expression.

To address this question, we utilized observational measures of expressed empathy that included assessment of the frequency and nature of physician empathic responses to empathic opportunities presented by patients. The investigators hypothesized that the training intervention would significantly increase physician expression of empathy when compared to the control condition.

1.1. Physician empathy: essential to patient-centered care

The Institute of Medicine Report on Health Professions and Training [19] called upon educators and licensing organizations to strengthen physician and health professional training requirements in the delivery of patient-centered care. The patient-centered care model [20] underscores the essential features of the physician–patient relationship. This model of care relies heavily on core communication skills, such as open-ended inquiry, reflective listening and empathy, as a way to respond to the unique needs, values and preference of individual patients [21].

Empathy is considered essential to quality medical care [22]. A 2002 meta-analysis of medical interactions in primary care found that physician empathic appreciation of the patient's situation was linked with increased patient satisfaction, adherence, patient comprehension, and patient perception of a good interpersonal relationship [23]. Other research has supported the contention that physician-expressed empathy enhances the quality and quantity of clinical data [24], promotes patient satisfaction [25], reduces malpractice risk [26], and leads to improved patient health status [2,27,28].

Despite significant evidence suggesting that empathy is a core skill for physicians and that its expression is most valued by patients [1,7,29–31], most doctors fail to effectively exhibit empathy toward their patients. Levinson et al. [6] found that physicians responded to patients' emotional clues in only 21% of primary care and 38% of surgical cases; they also frequently missed opportunities to acknowledge the patient's actual feelings. The literature suggests there are specific physician behaviors, both verbal and nonverbal, that increase the probability that a patient will perceive the physician as caring [23].

Recent research has begun to examine the extent to which patients present opportunities to physicians to communicate empathically [6,32–35] and how physicians respond to those opportunities. Several studies have investigated the outcomes of missed patient emotional cues during the medical encounter [12,36]. For instance, Easter and Beach [37] found that 70% of physician opportunities to address patients' emotional cues were missed among residents in first-visit oncology interviews. Bylund and Makoul [34] reported that the majority of patient consultations include one or more empathic opportunities as previously reported in the literature [6,32,35]. Levinson et al. [6] identified patient clues as direct and indirect comments where the patients communicated personal aspects of their lives and emotions and reported that physicians frequently missed opportunities to adequately acknowledge and address those clues. Medical consultations with adverse outcomes are frequently characterized by unvoiced patient concerns and agenda items [5]. Further, when physicians frequently interrupt, it often results in patients' failure to disclose important problems and concerns [24,38].

1.2. Physician–patient communication training in empathic responding

Previous evaluation studies of the impact of communication training on physician empathy have not provided sufficient

methodology to adequately study how empathic communication occurs between physician and patient. Many studies of physician communication behaviors, including those that investigated physician empathy, used single evaluation measures such as physician self-report, a method found to be often inaccurate in assessment of physician communication behaviors [13–15]. Further, the literature lacked an adequate intervention study of physician empathy using large datasets, multiple measurements, and actual medical encounters that have taken place over time before and after a medical education intervention.

2. Methods

The research evaluated the effects of an educational intervention on physician-expressed empathy using audiotaped physician–patient interactions from a large randomized control trial. The original study, which recruited 160 doctors and a convenience sample of their patients over an 11-month period, is described in detail elsewhere [39]. The main research question in the current study was: What impact does physician communication training have on physician expression of empathy during medical encounters?

This investigation tested the impact of two treatment conditions: physician communication training; and a wait-list control group, a comparison condition in which the communication training was given after the end of the study period. Physician empathic expression (the dependent variable) was measured at two time points, during patient encounters before communication training (baseline) and during patient encounters 6 months after training was completed.

The original dataset, comprised of 1800 audiotaped interactions between 160 doctors and their patients were coded using the Global Rating Scale (GRS), a third-party coding instrument used for measuring overall ratings of physician empathy. Using power calculations to estimate a desired sample size and a multi-step method for sample selection [40], a random sample ($n = 232$) of audiotaped physician–patient interactions was drawn from the original dataset of the randomized control trial for recoding using a second measurement, Empathy Communication Coding System (ECCS) [33,34]. Audiotapes chosen for analyses were randomly selected from among the audiotapes from the original dataset for each study physician ($n = 160$) at each of the two assessment time points (Fig. 1).

Specific rules for study sample inclusion were based on the ECCS measure [33,34] that provided a finite set of patient statements defined as patient-created empathic opportunities whether initiated by the patient or following facilitating behavior by the physician. As shown in Fig. 1, the randomly selected interactions were reviewed to assure that at least one empathic opportunity was present to meet study inclusion criteria. In the event that an interaction did not meet the criteria, another interaction was randomly selected until the established sample size was achieved.

2.1. Measurement

The random sample ($n = 232$) was recoded using the ECCS developed by Bylund and Makoul [33,34]. This coding system provides rules for outside observers to rate the level of physician response to three types of empathic opportunities (Table 1) presented by patients including statements of progress, challenge, or emotion [41]. The ECCS instrument was used to measure hierarchical physician verbal expression of empathy in response to the patient created opportunities in the study sample of audiotaped interactions (see Table 2).

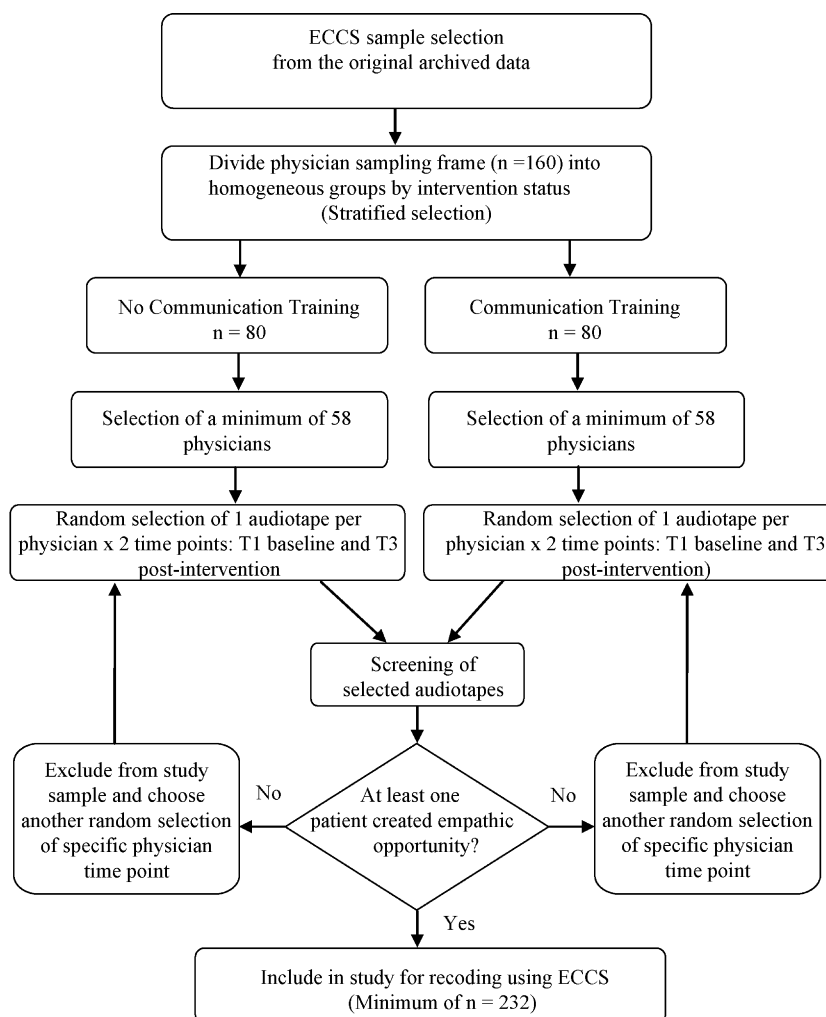


Fig. 1. Sampling method flow chart.

The ratings of responses in the ECCS ranged from the lowest rating of 0 (*denial of patient perspective*) which was characterized by the physician either ignoring the patient's statement or saying something that was disconfirming to the statement. An example of this taken from the ECCS manual might be if the patient stated, "I'm really concerned about going off this medication" followed by the physician's response of "You can go ahead and change into the gown now." This contrasted with the highest ratings of 6 (shared feeling or experience) in the empathic response in the

ECCS characterized by the physician making an explicit statement that he or she had a similar experience or emotion that the patient shared. An example of this from the ECCS manual was if the patient stated, "I'm so worried about this biopsy next week" followed by the physician's response of "I can understand how scary this is. My husband recently had a biopsy and we were worried."

The GRS was adapted from a measure developed to assess the quality of motivational interviewing interventions [42] and was

Table 1
Empathic opportunity rules of the empathic communication coding system (ECCS).

Level and name	Description of patient created empathic opportunities
Category 1—emotional feeling statement	
An emotional feeling statement is one where the patient describes him or herself feeling an emotion. This emotion should be one that is being felt at the present time. The emotional statement may be related to a physical problem ("My knee really hurts and I'm worried that it might be bone cancer."), a psychosocial concern ("I am scared that I am going to be laid off from my job" and may be either negative as in the above examples or positive ("I am so proud of myself for quitting smoking."))	
Category 2—progress statement	
A progress statement is an explicit statement that the patient makes about a positive development in physical condition that has improved quality of life, a positive development in the patient's life, or a recent, very positive, life-changing event. Examples include, "By following that diet, I've gotten my weight down pretty good," "I just retired."	
Category 3—challenge statement	
A challenge statement is an explicit statement that the patient makes about the negative effect a physical or psychosocial problem is having on the patient's quality of life, or a recent, devastating, life-changing event. Examples include, "My arm hurts so bad, I can't do my work very well," "My husband and I decided that we are going to get divorced."	

From "Empathic opportunity identification rules" by Bylund, and Makoul, 2004, Unpublished Coding Manual [37].

Table 2
Empathic communication coding system (ECCS) of physician responses.

Level and name	Description
Level 6—shared feeling or experience	A response should be categorized in this level if the physician makes an explicit statement that he or she either shares the patient's emotion or has had a similar experience, challenge, or progress.
Level 5—confirmation	Responses in this level convey to the patient that the expressed emotional feeling, progress or challenge is legitimate. This can be done in several different ways depending on the empathic opportunity. For example, this type of response may be a congratulatory remark, an acknowledgment that the challenge the person is experiencing is difficult, or a statement legitimizing the patient's emotion. Also, by making a statement that others have experienced this same emotion, progress or challenge, the physician is providing confirmation. A physician's statement that he or she understands a patient's emotion also fits in this category.
Level 4—acknowledgement of patient statement with pursuit	This level is characterized by the physician's acknowledgment of something that the patient has either said explicitly or that the physician has inferred from the patient's statement. Often the response is a restatement of what the patient has said. In addition, the physician pursues the topic with the patient by asking the patient a question, clearly elaborating on a point the patient has raised, or trying to comfort the patient.
Level 3—acknowledge of patient statement without pursuit	This level is also characterized by the physician's acknowledgment of something that the patient has either said explicitly or that the physician has inferred from the patient's statement. However, level 3 is distinct from level 4 because the physician does not pursue the topic with the patient.
Level 2—implicit recognition of patient perspective	This level contains responses that do not explicitly recognize the central issue in the empathic opportunity, but focus on a peripheral aspect of the statement. These statements tend to be more content-based, or focused on the biomedical issue, not dealing directly with the progress, challenge or emotion. These may also include questions or advice.
Level 1—perfunctory recognition of patient perspective	This level is characterized by a physician's automatic, scripted-type response (back-channeling cues) to a patient's statement. These are minimal responses that do not truly acknowledge that the patient has been heard.
Level 0—denial of patient perspective	This response is characterized by the physician either ignoring the patient's empathic opportunity or by making a disconfirming statement.

From "Empathic communication coding system: Audiotapes and transcripts," by Bylund, and Makoul, 2004, Unpublished Coding Manual [37].

designed to assess the presence of a broad range of physician communication behaviors during clinical interactions [43]. The three items from the GRS utilized in the present study were identical to the conceptual and operational definition of physician empathic expression used in the original study. These three items provided (1) a direct measure of empathy expression; (2) connecting with the patient as a person; and (3) an item that focused on physician elicitation of patient feelings and perspective. The GRS is a summation of the three rated items of physician behavior pertaining to empathy expression providing a more comprehensive measure than a single item. Specific items were coder-rated using a Likert scale from 1 to 7 (see Table 3). Each audiotaped physician–patient interaction from the original study was scored by trained third-party coders using the GRS and was obtained from the original dataset.

2.2. Communication training

Participating physicians in the study were randomly assigned into one of two conditions (intervention and no intervention). The communication training intervention consisted of a series of workshops using didactic and experiential teaching modalities, individual coaching, and skills practice sessions. The three, 6-h communication skills-based workshops were presented on a consecutive monthly basis. The first workshop, Clinician–Patient Communication to Enhance Health Outcomes, focused on a broad set of effective communication techniques known collectively as

the "4Es" (Engage, Empathize, Educate and Enlist) [9]. The second workshop, Choices and Changes: Clinician Influence and Patient Action, focused on strategies to help patients to change or adopt health behaviors, and featured strategies associated with motivational interviewing, including expressing empathy [44].

The final 6-h workshop, Difficult Clinician–Patient Relationships, addressed the sources and nature of interpersonal difficulties between clinicians and patients and included training in the following skills related to empathic responsiveness: recognizing and assessing tensions in relationships, acknowledging problems, discovering meaning, and showing compassion [45]. Physicians also received a 30–45 min individual coaching session after each workshop that included a review of an audiotape of a recent patient visit.

2.3. Data analysis

Both observer-rated variables (ECCS and GRS) measuring physician empathy were coded from the audiotaped interactions at baseline and at 6 months follow-up. The scored items on the GRS were summed to create a single value. The second measure of physician empathic expression using the ECCS was designed as a hierarchical variable, with a higher score indicating greater empathy. For encounters with multiple patient-created empathic opportunities in which the physician used a mixed level of responses, the mean of the combined physician empathic expression scores was calculated.

Table 3
Physician-expressed empathy: global rating scale measures of physician-expressed empathy from Kemp-White dataset [40].

Item		Physician-expressed empathy ratings						
		Poor				Excellent		
GRS-1	The physician connected with the patient as a person.	1	2	3	4	5	6	7
GRS-2	The physician was empathic with the patient.	1	2	3	4	5	6	7
GRS-3	The physician invited the patient to share their understanding, perspective, and feelings.	1	2	3	4	5	6	7

Eight third-party coders, blinded to the training intervention condition, reviewed and coded the audiotaped physician–patient interactions using the GRS coding form in the original study. Acceptable reliability levels reported in the original study were achieved for the multiple coders of the GRS (Pearson's correlation coefficients between $r = .67$ and $.77$) (Kemp-White, 2001). The random sample of audiotaped interactions was recoded using the ECCS by two coders (CS, KB). The coding reliability training plan for the ECCS included a self-study and review of the coding manual followed by face-to-face training with the primary author of the ECCS (Bylund) to review the two-part coding system, review 10 audiotapes together to apply the coding system and discuss and resolve coding decisions and disagreements. Following the training, a random sample of audiotapes from the identified sample was independently coded by both coders to establish acceptable reliability levels for the ECCS. Inter-rater reliability determination revealed strong agreement (Pearson's correlation coefficient of .91).

Data analysis related to change in physician empathy was performed by comparing the baseline and follow-up scores for both the GRS and the ECCS by physician training group. The randomized control trial design allowed the use of statistical techniques including paired t -tests to assess for the association between variables [46]. Selection of statistical level of significance at the .05 level served to minimize Type-I error in reporting differences between the intervention (physician training) groups [47].

3. Results: study population

Physician and patient characteristics were examined between the intervention and comparison condition. There were no significant differences in demographic characteristics of patients and physicians between the two conditions (Tables 4 and 5). In this study, the demographic characteristics of physicians and patients were available only as aggregate data.

The mean interaction length was 13:31 (S.D. = 8.07) and 14:08 (S.D. = 7.07), respectively, for the trained and untrained group. The mean duration per interaction of the two groups were not significantly different at baseline ($t(54) = 0.43$, $p = 0.67$). At follow-up, the total duration of the interactions in the trained group was not significantly different (13:54, S.D. = 6.97) to that of the untrained group (11:56, S.D. = 6.47). The t -statistic of 1.57(114) showed no significant difference ($p = .11$).

3.1. Results: physician empathic expression

At baseline, the two groups of physicians had similar scores on both empathy measures. For the ECCS, the untrained group had a

Table 4

Demographic characteristics of the archived physician sample by training group.

Characteristic	Trained ($n = 79$)		Untrained ($n = 76$)	
	n	%	n	%
Gender				
Males	50	63.3	48	63.2
Females	29	36.7	28	36.8
Ethnicity				
Caucasian	28	35.4	33	43.4
Asian	34	43.0	32	42.1
All other	17	21.6	11	14.5
Age	Mean = 37.43 S.D. = 11.01		Mean = 37.17 S.D. = 9.39	

mean score of 2.58 (median 3, mode 3) compared to a mean of 2.66 for the trained group (median 3, mode 3). For the GRS, the respective mean scores were 8.09 (median 8, mode 7) and 8.43 (median 8, mode 8).

The data analysis showed the mean change in physician empathic response scores (ECCS) at follow-up to be higher ($t(114) = -6.26$, $p < .01$) among the trained condition than the delayed training condition. In order to test whether there was any significant change in physician empathic response scores between baseline and follow-up in either of the two conditions, additional student t -tests were conducted. A paired t -test was conducted at baseline and follow-up scores in the trained group as shown in Fig. 2. The results ($t(57) = -9.39$, $p < .01$) showed that there was a significant positive increase of physician empathic response scores from baseline (mean = 2.66, 95% CI of 2.48–2.84) to follow-up (mean = 4.01, 95% CI of 3.89–4.12), a percentage rise of 50.75% in the trained group. Similarly, a paired t -test was conducted to test whether there was a change in physician empathic response scores between baseline and follow-up in the delayed training group. The results ($t(57) = 0.40$, $p = 0.70$) showed that there was no significant difference in empathic response scores from baseline (mean = 2.57, 95% CI of 2.38–2.78) to follow-up (mean = 2.51, 95% CI of 2.32–2.69) in the delayed training group. The difference between changes in the two groups was 3.86.

Each of the 232 coded interactions contained three ratings and a single score for the variable of global empathy (GRS), calculated by summing the three ratings. This single score was treated as a continuous variable (range 3–21). Data analysis showed a mean change in scores of physician global empathy rating at follow-up to be higher among the trained group than the untrained group ($t(114) = -5.01$, $p < .01$).

Table 5

Demographic characteristics of the archived patient sample by physician training group.

Characteristic	Trained		No training	
	n	%	n	%
Gender	Trained		No training	
Males	439	44.9	473	46.9
Females	538	55.1	535	53.1
Ethnicity	Trained		No training	
Asian	54	5.6	51	5.1
Caucasian	530	55.3	580	57.9
Hispanic	235	24.5	234	23.4
African American	73	7.6	61	6.1
All other	66	6.9	76	7.6
Age	Trained		No training	
	Mean 49.85	$n = 958$	Mean = 51.15	$n = 976$
	S.D. = 17.78		S.D. = 17.60	

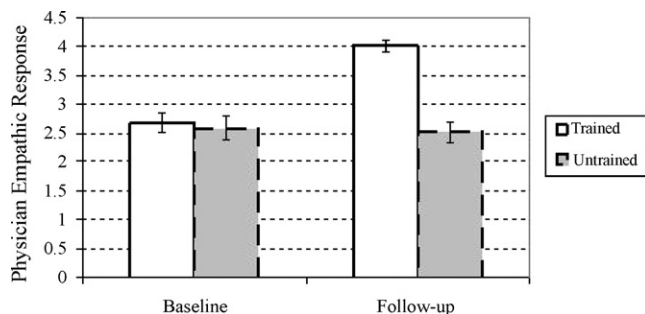


Fig. 2. Communication training influence on physician empathic response (ECCS).

In order to test whether there was any significant change in scores of physician global empathy ratings between baseline and follow-up in either of the two groups, additional *t*-tests were conducted. The paired *t*-test was conducted on baseline and follow-up scores in the trained group. The results showed that there was a significant improvement in global empathy scores from baseline (mean = 8.43, 95% CI of 7.82–9.03) to follow-up (mean = 11.59, 95% CI of 10.99–12.18) as shown in Fig. 3. The percentage rise in global empathy scores in the trained group increased by 37.49% ($t(57) = -5.05, p < .01$). Similarly, a paired *t*-test conducted to test whether there was a change in global empathy scores from baseline (mean = 8.09, 95% CI of 7.55–8.61) to follow-up (mean = 7.38, 95% CI of 6.96–7.79) in the untrained group ($t(57) = 1.56, p = .12$). The difference between changes in the two groups was 1.41.

4. Discussion and conclusion

4.1. Discussion

This study examined the impact of an educational intervention to improve physician communication skills on observed physician expression of empathy during subsequent physician–patient encounters. The design accessed archival data from a randomized controlled trial of physician communication training in which audiotaped physician–patient interactions, obtained before and 6 months after the educational intervention were coded and analyzed.

The main findings strongly support the study hypothesis that training would significantly increase physician empathic expression during patient interactions. This conclusion was demonstrated with both observer measures of empathy: a global rating scale and a scale measuring physician response to patient empathic opportunities.

The global empathy scores in the physicians exposed to the training intervention increased by more than 37% from baseline to

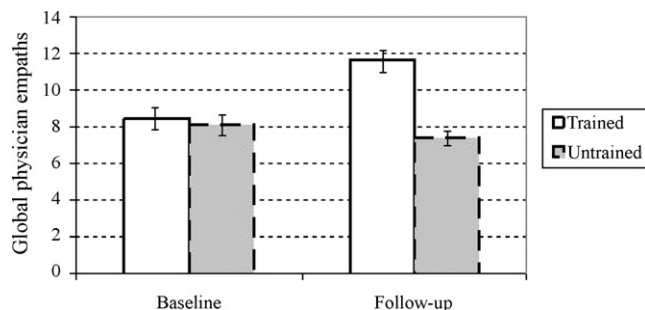


Fig. 3. Communication training influence on physician global empathy.

follow-up, while there was no change in this measure among physicians who did not receive training during the study period. The global measure is based on blinded coders' assessment of three physician behaviors closely linked to physician empathic behavior.

The significant improvement in empathy scores on the global measure was further supported by the results using a second measure, the ECCS, which provided hierarchical ratings of empathic responses to specific statements made by the patient. In this study, physicians most often responded with *acknowledgment and pursuit* to progress and challenge statements such as when a patient stated, "It's been more difficult especially since I've been arguing more with my daughter." An example of a response rated as *acknowledgment and pursuit* might include "Sounds like it's been hard for you. What kinds of things do you do to cope when you get angry?" This level of response includes two elements. The first element consists of a reflective statement indicating that the physician heard and acknowledged the patient. The second element is that of inquiry whereby the physician invites the patient to provide additional information to elaborate on the topic raised.

Trained physicians were more likely to respond by acknowledging the patient's expressed emotion, challenge, or progress and by inviting further discussion. This contrasted with the lower level of empathic response displayed by the untrained physicians who tended to use more implicit responses that only indirectly or peripherally addressed the patient's statements.

While the global measure was based on the entire interaction, the ECCS provided a more specific method of addressing the degree to which physicians respond to patients' concerns and feelings. The differences in the hierarchical ratings of physician response scores among the trained group also showed dramatic improvements of 51% from baseline to follow-up. This was in contrast to those physicians randomly assigned to the delayed treatment group; there was no increase in physician empathy ratings on either of the measures.

The findings of this study clearly demonstrate the impact that an educational intervention can have on physician behaviors related to empathic communication. The effectiveness of communication training may be attributed to the specific and unique combination of educational elements used in this study. The training intervention in this study employed a combination of several teaching modalities over a 3-month period. The training intervention was relatively intensive and included three 6-h highly interactive workshops using brief presentations, video review, role-play, and experiential learning [45]. Moreover, each workshop was followed by an individual coaching session while the time between sessions allowed for ample practice opportunities. This intervention was more intensive than previously studied interventions [48] in order to see the effects between the control and intervention groups and based on evidence that training programs of short duration have failed to demonstrate a successful training effect in the past [49].

Generalization of the results of this study to other groups of physicians is limited as a result of the sampling of physicians in this study: physicians in primary care, family practice, and gynecology in southern California and a convenience sample of their patients. Thus, the results cannot be generalized to physicians from different medical settings, other physician specialties, other regions of the country, and physician and patient samples that differ ethnically and culturally from those that participated in this study.

In addition, the analysis was limited by the availability and structure of the archived dataset which included use of an empathy instrument (GRS) for which only measures of reliability were reported from the original study. Further, the study sample was not large enough to conduct analyses to determine the

influence of physician or patient characteristics on the effects of the intervention. Patients were selected in the study by a convenience sample of those visiting their physician on the day of data collection. The research design of randomized treatment assignment served to decrease the chance of selection bias. Previous researchers have reported that use of volunteer patients drawn from practice sites may have differential social and psychological characteristics as compared with non-volunteers [50]. Although beyond the scope of this study, multi-level modeling may have been useful to uncover differences of patient characteristics between physicians.

Empathy is a multi-dimensional concept and skill with cognitive, affective, and behavioral elements [31,51]. For this study, the measurement of physician empathy was based on the behavioral component measured by third-party observers through audiotape coding. This method assumed a direct relationship exists between felt empathy conveyed by the physician and physician verbal expression of that felt empathy, which may be a potentially problematic assumption. Empathy as experienced by the patient was not addressed in this study.

Since the study utilized audiotaped physician–patient interactions, the measure used by third-party raters was primarily limited to verbal expression of empathy. While some degree of empathic expression in this research study could be captured as nonverbal such as voice tone, it is important to emphasize that the third-party measures failed to fully account for the impact of nonverbal communication in empathic expression. Nonverbal communication that has been associated with empathic expression such as facial expression, use of touch, and other forms of empathy were undetected due to the methodology of the original study. For instance, the outside observer listening for a physician response to an empathic opportunity would give the lowest rating if no verbalizations were heard. However, the physician may have been nodding and communicating an empathic connection through facial expression undetectable to the coder. Furthermore, these limitations also prevented identification of interactions where a physician's verbal expression of empathy may have been incongruent with their nonverbal expression such as facial expression, indicating a potential contradictory message toward the patient. While both outside observer measurements relied upon specific coding rubrics, the GRS was based on an overall judgement by the observer of the entire interaction. This contrasted with judgement of specific events based on patient opportunities in the hierarchical ratings (ECCS). The hierarchical coding system provided a more refined and precise measurement of empathic expression that was patient-focused compared to the measure using global empathy in the GRS. While the researchers in the original study reported acceptable inter-rater reliability for the GRS, the validity of this measure has not been determined. Finally, as noted previously, the combination of items into a single variable for the GRS measure may have obscured effects and findings.

4.2. Conclusion

This study investigated the impact of physician communication training on physician empathic expression with patients. Using archival data from a randomized controlled trial of physician communication training, the study utilized 232 audiotaped physician–patient interactions to measure physician empathic expression before and 6 months after training.

This research adds to the literature by investigating whether physician training produced observable increases in empathy expression. The results revealed significant positive improvements of up to 51% in empathic ratings among the trained physicians in

the study sample. Trained physicians responded to patient empathic opportunities with higher levels of empathic responses than physicians in the control condition.

4.3. Practice implications

This study provided information that may be useful to medical educators, physicians and other clinicians, and researchers. The results contribute to previous findings [48] that when communication training is limited to a single session without follow-up reinforcement training, learned skills tend to fade over time. However, these results confirmed that exposure to a more comprehensive educational program can lead to a positive change in expression of empathy in clinical practice that is evident up to 6 months later. This intervention was highly successful in improving the trained physicians' ability to communicate empathy. The educational intervention employed didactic and experiential teaching modalities and skills practice and individual follow-up practice coaching sessions. The combination of teaching modalities used in this educational intervention is consistent with the belief that in order to be effective in changing physician behavior, continuing education should use multi-model learning strategies [7]. Further, the educational design of repeated sessions with individual coaching may have served to help consolidate skill acquisition, and reinforce behavior change. Given the preponderance of evidence showing that difficulties in interpersonal interactions place physicians at risk for malpractice litigation [20,52,53], improving the capacity for empathic connection may reduce patient claims or their intention to take formal action outside the relationship.

Acknowledgements

Funding for the design and implementation of the randomized controlled trial was provided by the Bayer Pharmaceutical Corporation to the Institute for Healthcare Communication (formerly known as the Bayer Institute). The views expressed in this paper are those of the authors and do not imply endorsement by the funding source. The authors would also like to thank the researchers involved in the original study design and implementation conducted at University of California, Irvine including Drs. Robert Rosenthal, and Maysel Kemp-White, and Dr. Robin DeMatteo from the University of California, Riverside. Special acknowledgements to Dr. Peg Gallup for statistical assistance and Adam B. Gschwender for technical assistance.

References

- [1] Colliver JA, et al. Assessment of empathy in a standardized-patient examination. *Teach Learn Med* 1998;10:8–11.
- [2] Christenfeld N, Gerin W. Social support and cardiovascular reactivity. *Biomed Pharmacother* 2000;54:251–7.
- [3] Bikker A, Mercer S, Reilly D. A pilot prospective study on the consultation and relational empathy, patient enablement, and health changes over 12 months in patients going to the Glasgow Homoeopathic Hospital. *J Altern Complement Med* 2005;11:591–600.
- [4] Mercer SW, et al. The consultation and relational empathy (CARE) measure: development and preliminary validation and reliability of an empathy-based consultation process measure. *Fam Pract* 2004;21:699–705.
- [5] Barry CA, et al. Patients' unvoiced agendas in general practice consultations: qualitative study. *Br Med J* 2000;320:1246–50.
- [6] Levinson W, Gorawara-Bhat R, Lamb J. A study of patient clues and physician responses in primary care and surgical settings. *J Am Med Assoc* 2000;284:1021–7.
- [7] Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. *Acad Med* 2001;76:390–3.
- [8] Bird J, Cohen-Cole SA. The three-function model of the medical interview. An educational device. *Adv Psychosom Med* 1990;20:65–88.
- [9] Keller V, Carroll J. A new model of physician–patient communication. *Patient Educ Counsel* 1994;23:131–40.

- [10] Buyck D, Lang F. Teaching medical communication skills: a call for greater uniformity. *Fam Med* 2002;34:337–43.
- [11] Ptacek JT, Eberhardt TL. Breaking bad news. A review of the literature. *J Am Med Assoc* 1996;276:496–502.
- [12] Tulskey JA. Interventions to enhance communication among patients, providers, and families. *J Palliat Med* 2005;8(Suppl 1):S95–102.
- [13] Hulsman RL, et al. Teaching clinically experienced physicians communication skills. A review of evaluation studies. *Med Educ* 1999;33:655–68.
- [14] Laidlaw T., et al. Evaluating the evaluators: communication skills assessment by experts, standardized patients and self-raters; 2004.
- [15] Waitzkin H. Information giving in medical care. *J Health Soc Behav* 1985;26:81–1010.
- [16] Fallowfield L, et al. Efficacy of a Cancer Research UK communication skills training model for oncologists: a randomised controlled trial. *Lancet* 2002;359:650–6.
- [17] Fallowfield L, et al. Enduring impact of communication skills training: results of a 12-month follow-up. *Br J Cancer* 2003;89:1445–9.
- [18] Pollak KI, et al. Oncologist communication about emotion during visits with patients with advanced cancer. *J Clin Oncol* 2007;25:5748–52.
- [19] Institute of Medicine. *Health professions education: a bridge to quality*. Washington, DC: National Academy Press; 2003.
- [20] Stewart MA. Effective physician–patient communication and health outcomes: a review. *Can Med Assoc J* 1995;152:1423–33.
- [21] Stewart M, et al. The impact of patient-centered care on outcomes. *J Fam Pract* 2000;49:805–7.
- [22] Larson EB, Yao X. Clinical empathy as emotional labor in the patient–physician relationship. *J Am Med Assoc* 2005;293:1100–6.
- [23] Beck RS, Daughtridge R, Sloane PD. Physician–patient communication in the primary care office: a systematic review. *J Am Board Fam Pract* 2002;15:25–38.
- [24] Beckman H, Frankel R. The effect of physician behavior on the collection of data. *Ann Int Med* 1984;101:692–6.
- [25] Bendapudi NM, et al. Patients' perspectives on ideal physician behaviors. *Mayo Clin Proc* 2006;81:338–44.
- [26] Levinson W, et al. Physician–patient communication: The relationship with malpractice claims among primary care physicians and surgeons. *J Am Med Assoc* 1997;277:553–9.
- [27] Cape J. Patient-rated therapeutic relationship and outcome in general practitioner treatment of psychological problems. *Br J Clin Psychol* 2000;39(Pt 4):383–95.
- [28] Di Blasi Z, et al. Influence of context effects on health outcomes: a systematic review. *Lancet* 2001;357:757–62.
- [29] Kim SS, Kaplowitz S, Johnston MV. The effects of physician empathy on patient satisfaction and compliance. *Eval Health Prof* 2004;27:237–51.
- [30] Street Jr RL, et al. Patient participation in medical consultations: why some patients are more involved than others. *Med Care* 2005;43:960–9.
- [31] Mercer SW, Reynolds WJ. Empathy and quality of care. *Br J Gen Psychiatry* 2002;52(Suppl):S9–12.
- [32] Branch WT, Malik TK. Using 'windows of opportunities' in brief interviews to understand patients' concerns. *J Am Med Assoc* 1993;269:1667–8.
- [33] Bylund CL, Makoul G. Empathic communication and gender in the physician–patient encounter. *Patient Educ Couns* 2002;48:207–16.
- [34] Bylund CL, Makoul G. Examining empathy in medical encounters: an observational study using the empathic communication coding system. *Health Commun* 2005;18:123–40.
- [35] Suchman AL, et al. A model of empathic communication in the medical interview. *J Am Med Assoc* 1997;277:678–82.
- [36] Butow PN, et al. Oncologists' reactions to cancer patients' verbal cues. *Psychooncology* 2002;11:47–58.
- [37] Easter DW, Beach W. Competent patient care is dependent upon attending to empathic opportunities presented during interview sessions. *Curr Surg* 2004;61:313–8.
- [38] Marvel MK, et al. Soliciting the patient's agenda: have we improved? *J Am Med Assoc* 1999;281:283–7.
- [39] Haskard KB, et al. Physician and patient communication training in primary care: effects on participation and satisfaction health psychology, in press.
- [40] Bonvicini KA. Physician empathy: impact of communication training on physician behavior and patient perceptions, in *Dissertation Abstract International*, B 68/08. University of Phoenix, School of Advanced Studies, 2007.
- [41] Bylund C, Makoul G. Empathic communication coding system: audiotapes and transcripts, 2004.
- [42] Miller WR, et al. Manual for the motivational interviewing skill code (MISC), 2003.
- [43] Kemp-White M. Unpublished raw data. Bayer Institute for Health Care Communication and University of California Health Systems Collaborative Research Outcome Study; 2002.
- [44] Miller WR, Rollnick S. *Motivational interviewing*. Second edition: preparing people for change, 2nd ed., New York: The Guilford Press; 2002.
- [45] Kemp-White M. Unpublished raw data, Bayer Institute for Health Care Communication and University of California Health Systems Collaborative Research Outcome Study; 1999.
- [46] Creswell JW. *Educational research: planning, conduction, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson; 2002.
- [47] Freedman KB, Back S, Bernstein J. Sample size and statistical power of randomised, controlled trials in orthopaedics. *J Bone Joint Surg Br* 2001;83:397–402.
- [48] Aspegren K. BEME Guide No. 2: Teaching and learning communication skills in medicine—a review with quality grading of articles. *Med Teach* 1999;21:563–70.
- [49] Levinson W, Roter D. The effects of two continuing medical education programs on communication skills of practicing primary care physicians. *J Gen Intern Med* 1993;8:318–24.
- [50] Rosenthal R, Rosnow R. *Essentials of behavioral research: methods and data analysis*, 2nd ed., Boston: McGraw-Hill; 1991.
- [51] Hojat M, et al. Physician empathy: definition, components, measurement, and relationship to gender and specialty. *Am J Psychiatry* 2002;159:1563–9.
- [52] Beckman HB, et al. The doctor–patient relationships and malpractice: lessons from plaintiff depositions. *Arch Intern Med* 1994;154(june):1365–70.
- [53] Liebman CB, Hyman CS. A mediation skills model to manage disclosure of errors and adverse events to patients. *Health Aff (Millwood)* 2004;23:22–32.