

## A pilot randomized controlled trial on the effectiveness of inclusion of a distant learning component into empathy training

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### Abstract

**Background:** Studies have shown a gradual decline in empathy of medical trainees with increasing years of education. Methods to augment empathy show some promise, but the most effective methods are both expensive and time consuming. To assess effectiveness of communication skills training program as a distant learning method in improving empathy.

**Methods:** Fourteen first year residents of psychiatry were randomly allocated to either participate in a two day workshop on communications skills (attending group) or to watch the videotape of the first day and participate in the second day (distance learning group). Assessments included Jefferson Scale of Empathy (JSE) and objective assessment of empathy (OAE) during a simulated interview, before and 3 months after the training.

**Results:** The empathy was significantly increased in the attending group as measured by OAE. The score of JSE also increased in the attending group but did not reach a significance level. No increase in empathy was seen in the distance learning group.

**Conclusion:** Watching the videotape of the workshop is not effective in improving empathy of residents. More interactive methods should be sought if we plan to use distance learning methods in enhancement of empathy.

**Keywords:** empathy, medical education, medical student.

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### Introduction

Empathy is an important part of every relationship and especially patient-physician relationship. Nonetheless, there is a considerable uncertainty on the definition of empathy in the literature (1). Recently, Hojat has tried to decrease the ambiguity around the concept of physician empathy by defining it as “a predominantly cognitive (rather than emotional) attribute that involves an understanding (rather than feeling) of experiences, concerns and perspectives of the patient, combined with a capacity to com-

municate this understanding” (2). However, empathy has also been defined as a concept that includes emotive, moral, cognitive, and behavioral dimensions (3). In this view, emotional engagement, as well as the cognitive understanding, is crucial for effective empathy.

Despite the vagueness of its definition, there is a consensus on the beneficial effects of empathy on both treatment outcomes and patient satisfaction (4, 5). But the disappointing issue is that, several studies have shown a decreasing trend of empa-

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thy scores in medical students and residents with increasing years of education (6-9). Therefore, it is an important concern of medical educators to have effective and less complicated training methods for enhancement of empathy.

In a review, Hojat et al has mentioned 10 approaches that has been used for enhancement of empathy in health professionals (10), including improving interpersonal skill, exposure to role models, shadowing a patient, hospitalization experiences etc. In another study, Stepien and Baernstein reviewed strategies for teaching empathy to medical students (3). Both reviews have mentioned that empathy could be improved via different strategies. However, the studies on enhancement of empathy have limitations that make further researches necessary, including small sample size, lack of appropriate control group, lack of specificity of the instrument for physician empathy, and not assessing the durability of change.

Communication skill training is one of the more frequently studied methods, which has been shown to be effective in improving empathy both in short and long term (11-13). However, the method is time consuming and a limited number of participants can take part in each workshop. As a result, these programs should be repeated for several groups of target populations. An alternative cheaper method with comparable effectiveness would be of great interest. This pilot study was designed to assess if participating in a part of the program and watching the videotape of the other part could be as effective as participating in the workshop in improving empathy after 3 months or not.

Furthermore, we would like to see if the score of the scale that is frequently used for assessment of empathy (Jefferson Scale of Empathy) is correlated with objective assessment of empathy performed by specialists and with the evaluation of a standardized patient from empathy of physician.

## Methods

### *Participants*

Subjects of the study included 14 first year residents of psychiatry of the Tehran Institute of Psychiatry and Department of Psychiatry of Iran University of Medical Sciences during the study. All of the approached residents accepted to participate in the study. Subjects were randomly allocated to two groups of 7 residents, considering gender as a stratum to have two male residents in each group. All of the participants were between 30 to 40 years old.

### *Intervention and study groups*

Our intervention included a training workshop of communication skills, which was taught by an experienced academic psychiatrist on two days with a one week interval. Each day of the workshop lasted 6 hours. First day of the workshop included a 2 hour lecture on basic communication skills and one role playing on "clinical setting and basic communication skills in therapeutic relationship". The second day of the workshop included two different role plays on "getting information from patient" and "giving information to patient". All of the role plays of the two day workshop were performed twice; first, with some mistakes and negative points in the performance of the "physician", and then in a professionally correct manner. After the "flawed" performance, residents discussed the negative points with the instructor. Furthermore, each session ended with a group discussion on the topics of that session.

One group of the subjects was planned to attend the two days of the workshop (attending group) and the other group to view the videotape of the first day and to receive a text on the topic of communication skills and to attend the second session of the workshop (distance learning group). Only one of the subjects of the attending group declared that she cannot participate in the first day of the workshop and was then replaced with another subject from the other group.

### *Ethical considerations*

All of the participants could freely choose to participate in the study or not and all of them signed a written form of informed consent. The study was approved by the ethics committee of Tehran University of Medical Sciences. All of the data were considered as confidential and not disclosed to those not involved in the study.

### *Assessments*

Jefferson Scale of Empathy (JSE) is a self-report scale specifically designed to assess patient-physician empathy that is currently translated to more than 38 languages including Persian. Its Persian version has been shown to have acceptable validity and reliability (8, 14). JSE has 20 items that each item is scored in a 7 point Likert type scale from strongly disagree to strongly agree. All of the subjects completed JSE before and three months after the intervention. Both exploratory and confirmatory factor analysis have shown that JSE item could be grouped into three factors; namely, perspective taking, compassionate care, and standing in patient's shoes (8, 15).

*Objective assessment of empathy (OAE) during interview:* We tried to assess empathy of the subjects objectively during their interview with standardized patients (SP) both before and 3 months after the intervention. For pre-training objective assessment of empathy we used the scores of the subjects in the routine OSCE that was performed one month before the intervention. This exam included 4 stations that in each of these stations two board certified psychiatrists independently rated the performance of the residents. We only extracted scores of the two items that were dedicated to assessment of empathy and communication skills of the subjects in these stations and added them up to a single score. For post-training objective assessment of empathy we held an interview with an SP, during which two board-certified psychiatrists rated the empathy and communication skills

of the subjects in two items that were again summed up to a single score. In order to make the pre- and post-training scores comparable, we divided the obtained scores by the maximum possible score. The raters and the SP were blind to the group status of the subjects.

Jefferson Scale of Patient's Perception of Physician Empathy (JSPPE) is a 5 item scale developed to assess the perception of the patient from the empathy of his/her physician (16). Each item is scored in a 5 point Likert type scale from strongly disagree to strongly agree. The scale has been translated to Persian and used in a study (17). In the objective evaluation of the subjects 3 months after the intervention, the SP was asked to rate all of the subjects using this scale, immediately after each interview. The SP was a board certified psychiatrist and did not know any of the subjects and was also blind to the group status of the subjects.

### *Statistical analyses*

All of the data were entered to SPSS software version 16 and analyzed using descriptive statistics including mean and standard deviation as well as Mann-Whitney U test to compare the groups before training, Wilcoxon signed ranks to compare each group before and after the training, Pearson correlation to assess the correlation of the scores of JSE, JSPPE, and OAE. We also subtracted the mean scores of JSE before and after training and compared this score between the two groups using Mann Whitney U test. The significance level of less than 0.05 was considered for all of the analytical tests.

The study is registered as a clinical trial in the Iranian Registry for Clinical Trials website with the IRCT ID of IRCT 2012090510749N1.

### **Results**

The two groups did not differ in terms of gender, marital status, and age. Each group included 2 male and 3 married residents. Mean age of the attending group was 31.3

Table 1. Scores of OAE and JSE and its three factors in the two groups of study (attending group and distance learning group) before and three months after the training

Outcome	Attending group		Statistical sig.		Distance learning group		Statistical sig.	
	Pre training Mean (SD)	Post training Mean (SD)	Z	p	Pre training Mean (SD)	Post training Mean (SD)	Z	p
JSE	122.7 (4.8)	125 (7.9)	-0.76	0.44	116.3 (11.2)	114.3 (14.1)	-0.33	0.73
Factor I	59.7 (3.8)	60.3 (6)	-0.105	0.91	54.3 (7.1)	52.6 (7.6)	-0.76	0.44
Factor II	52.4 (2.6)	53.6 (1.8)	-0.93	0.35	51.1 (3.8)	49.9 (5.1)	-0.94	0.34
Factor III	10.6 (1.1)	11.1 (1.1)	-1.63	0.102	10.9 (1.6)	10.9 (2.5)	-1.18	0.23
OAE	0.73 (0.13)	0.79 (0.15)	-2.02	0.043*	0.6 (0.16)	0.6 (0.1)	-0.31	0.75

Table 2. Correlation of the scores of JSE, with OAE and JSPPE

Variables	1		2		3		4	
	r	p	r	p	r	p	r	p
1. JSE posttest	-	-						
2. JSE pretest	0.59	0.03	-	-				
3. OAE	0.39	0.2	0.32	0.31	-	-		
4. JSPPE	0.37	0.23	0.42	0.17	0.85	<0.001	-	-

(SD=3.9, median=30, IQR=7) and 29.4 in the distance learning group (SD=1.5, median=30, IQR=3). However, the attending group had a non-significant higher baseline score of JSE (m=122.7, SD=4.8) and OAE (m=0.73, SD=0.13) compared to the distance learning group (JSE: m=116.3, SD=11.2, U=12.5, p=0.124; OAE: m=0.6, SD=0.16, U=11.5, p=0.174) (Table 1).

### Change in empathy

Three months after the training, mean JSE score increased by more than 2 units in the attending group, but this change was not significant, probably due to our small sample size. Regarding the factors of JSE, factor II and III that are negatively worded items tended to increase, but factor I did not show a difference (Table 1). The difference made in each of the two groups before and after training was also compared with the other group, but did not reach significance level (U=19.5, p=0.52). The score of OAE significantly increased in the attending group, and showed no change in distance learning group.

### Correlation of empathy measures

JSE had a moderate correlation with OAE (0.39) and JSPPE (0.37). There was a strong correlation between JSPPE and OAE (0.85) (Table 2).

### Discussion

This pilot study suggests that a two day

communication skills workshop can be effective in improving empathy of the first year residents of psychiatry after three months. However, participating in one of the two days of this workshop and watching the videotape of the other day is not effective in improving empathy. Both OAE and JSE showed the improvement of empathy in the attending group after the intervention. However, the difference was not significant in the latter. All of the three factors of JSE shared a part in this improvement. This suggests that the beneficial effect of intervention has not been limited to a single factor. Interestingly, none of the factors of JSE showed an improvement in the distant learning group. This pattern of findings suggests that the difference in JSE could have reached significance level if our sample size was larger. Each group of our study only included seven participants, which limited the power of the study.

There are several studies that have assessed the effectiveness of communication skills workshops on empathy, but this is the first study on improvement of empathy with a distance learning component. Therefore, it is not possible to compare this finding with the previous studies. The reason for the lack of effectiveness of training in the distance learning group could be related to possible noncooperative participants that might not have seen the videotape and not have read the text provided to them. After the study we enquired about these issues

and two of the residents admitted that they had not watched the videotape or read the texts before the second session. It is well known that success of students in distance learning is directly related to their motivation (18, 19); and it is not an easy task to keep the students motivated out of the class. Another possible reason for non-effectiveness of our intervention in distance learning group to improve empathy could be the fact that, face to face encounter is a necessary component in training empathy. Because empathy is a quality that largely depends on interpersonal engagement.

Another point that we should consider in discussing the results is that, despite random allocation of the subjects to the study groups, the two groups did not have equal empathy levels before the intervention. Although the difference did not reach significance level, this should be considered as a limitation of our study. It is possible that the group with higher empathy has been more motivation to learn about empathy and communication skills than the other group.

Our study also showed that JSE has a moderate correlation with JSPPPE and OAE. The correlation of JSE and JSPPPE is consistent with the findings of two other studies that have reported comparable correlation coefficients (16, 20). The observed correlations are actually indicators of concurrent validity of JSE. It should be emphasized that in our study the SP that completed JSPPPE was a psychiatrist, which could more carefully evaluate the professional behavior of the residents.

In this study we also assessed the correlation of JSPPPE with OAE, which showed a very high correlation. This is in support of the validity of JSPPPE that has not been as widely studied and validated as JSE. We suggest that JSPPPE is a concise and valid tool to assess physician empathy from a third person perspective.

This study had some limitation that should be considered. First, as a pilot study, we had a small sample size, which limits the power of the study. Some of the com-

parisons could have become significant, if we had a larger sample. Second, the two groups of the study were not totally equal at the baseline, as mentioned above. Third, we did not assess the subjects immediately after the intervention, so we could not assess the early effectiveness in this study. However, we know that the long-term effectiveness is more important and is the desirable effect that is expected from the intervention.

Further research on adding distance learning components to empathy training could focus on other more interactive methods or some aspects of virtual reality to the program. Moreover, it is not known if adding components of distance learning to education of empathy (instead of replacing it with some parts of the educational program) would have an additive beneficial effect or not.

### Conclusion

Inclusion of distance learning methods in empathy training is a new area of research, which merits further study. Face to face interaction seems to be an essential component of empathy training, and finding an alternative for it in distance learning seems to be the major challenge. Balancing our expectations, as well as developing more interactive methods might be helpful in advancing this important and interesting area of research.

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