



The Effect of a Storytelling Course on Medical Students' Empathy toward Patients

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Quantitative Study

Abstract

Background: Empathy is a cognitive characteristic defined as the ability to understand people's experiences, interests, and viewpoints and the capacity to share this understanding. Empathy constitutes the foundation for the patient-physician relationship, leading to both the patients' and physicians' satisfaction, and is effective on the patients' cooperation and clinical outcomes. Many studies have shown that the level of empathy decreases in students during their clinical course. Learning literature and art is theoretically one of the methods to increase empathy in clinical environments. We aimed to assess the efficacy of storytelling on medical students' empathy toward patients.

Methods: This quasi-experimental study with a nonequivalent group pretest-posttest design was performed during 2010-2011 in Zahedan, southeast Iran. We initially invited all fourth and fifth-year medical students studying at Zahedan University of Medical Sciences to participate in our study. The volunteers were asked to complete the Persian version of the Jefferson Scale of Physician Empathy-students version (JSPE-S) plus questions regarding their demographic data and the field in which they would like to continue their education. The case group was enrolled in 10 sessions of storytelling, each lasting for 2 hours. Part of a book was initially selected by the researcher and the students were unaware of the story. The participants then discussed the story recited by the researcher.

Results: After the intervention, a decrease was observed in the mean of JSPE-S score of the control group, and an increase in the mean score of the case group. The participants did not differ significantly in terms of sex, age, duration of training course, and intended field of study. We found that the empathy score was not significantly related to the participants' sex ($p = 0.086$), duration of training course ($p = 0.210$), age ($p = 0.902$), and tendency to study in different fields ($p = 0.815$).

Conclusion: Storytelling courses are possibly effective both in maintaining the level of medical students' empathy toward patients and in preventing the reduction of empathy during their education.

Keywords: Empathy, Literature, Medical students

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Introduction

Empathy is mainly a cognitive characteristic which is defined as the ability to understand people's experiences, interests, and viewpoints accompanied by the capacity to share this understanding (Hojat, 2009). Empathy constitutes the foundation for the patient-physician relationship, leading to both the patient and physicians' satisfaction, and is effective on the patients' cooperation and clinical outcomes (Chen, Lew, Hershman, & Orlander, 2007).

Empathy is fundamentally a clinical manner and a personal characteristic that cannot be taught easily (Hardee, 2003; Hojat, Gonnella, Nasca, Mangione, Vergare, & Magee, 2002). However, currently, researchers in the field of education believe that empathy is a skill that can be taught, and consequently, learned (Hardee, 2003). For instance, as stated in the reports of the American Medical Colleges' Association on the aims of medical colleges, medical colleges are expected to train compassionate physicians that empathize with their patients and treat them humanely (Hojat et al., 2002).

Many studies have shown that the level of empathy decreases in students during their clinical course (Chen et al., 2007; Sherman, & Cramer, 2005; Mangione, Kane, Caruso, Gonnella, Nasca, & Hojat, 2002; Hojat, Mangione, Nasca, Rattner, Erdmann, Gonnella, & et al., 2004). Some researchers state that learning literature and art is one of the methods to increase empathy in clinical environments through familiarizing students and healthcare employees with the values and experiences of these environments (Hojat, 2009). Therefore, we aimed to assess the impact of storytelling on medical students' empathy toward patients. If storytelling is proven to be effective, it can be used to enhance the patient-physician relationship.

Methods

This quasi-experimental study with a nonequivalent group pretest-posttest design was performed during 2010-2011 in Zahedan, southeast Iran. We initially invited all fourth and

fifth-year medical students studying at Zahedan University of Medical Sciences to participate in our study. In order to avoid bias in selecting the groups, we did not initially explain the aim of our study and the content of the course to the students in our invitation. We included all students who were in their fourth or fifth year of medical education and were willing to participate in the study. Students who were absent from more than one session were excluded from our study.

The volunteers were initially asked to complete the Persian version of the Jefferson Scale of Physician Empathy-student version (JSPE-S) plus questions regarding their demographic data (except their name) and the field they would like to continue their education in (group 1: internal medicine, family medicine, pediatrics, neurology, physiotherapy, psychiatry, emergency medicine, gynecology, ophthalmology, dermatology; group 2: pathology, surgery, radiology, oncology, radiotherapy, anesthesiology, orthopedics, neurosurgery; and group 3: other fields).

This questionnaire is the first specific tool for measuring the level of empathy among medical students and physicians and has been used in different studies (Shariat, Eshtad, & Ansari, 2010). It was designed by Mohammad Reza Hojat et al. in 2001 in America (Hojat, Mangione, Gonnella, Nasca, Veloski, & Kane, 2001). Different researchers have reported a reasonable amount of validity and reliability for this questionnaire (Hojat et al., 2002; Shariat et al., 2010; Hojat, Gonnella, Nasca, Mangione, Veloksi, & Magee, 2002). This questionnaire has 20 items and the students state their agreement or disagreement with each item using the corresponding scales of 1-7 for each item (1: completely disagree; 2: completely agree).

In the next stage, the case group was enrolled in 10 sessions of storytelling, each lasting for 2 hours. In these sessions, a part of a book was initially selected by the researcher and the students were unaware of the story. The participants then

discussed the story recited by the researcher. The stories were selected from the literature and were mainly about human conditions concerning illness and suffering. At the end of the course the students were asked to complete the JSPE-S) again.

Students who had answered less than 80% of the items (16 items) were excluded from the study and their questionnaires were not considered for data analysis. When the students had not answered 4 or less items, the mean score of the total answered items was considered as the score of the unanswered items. The total score of each questionnaire was obtained from the total sum of all scores (maximum score: 140) (Hojat et al., 2002).

Data were analyzed using SPSS for Windows (version 11; SPSS Inc., Chicago, IL, USA). For comparing the participants' age and duration of study in both groups, Student's independent t-test was used. Moreover, we used the chi-square test to determine the relationship between sex and the desired field for continuing their education among the participants. In order to compare empathy scores between both groups at the beginning and end of the study, and the empathy scores of each group at the beginning and end of the

study separately, Student's independent t-test was used. We used the Pearson's correlation coefficient to assess the relationship between the empathy scores, and age and duration of elapsed training. In addition, we used t-test to determine the relationship between desired field of study for the future and sex, and the empathy scores. Moreover, the mean changes of each item in both groups, total reliability, and the effect of deleting each item on total reliability was determined by calculating Cronbach's alpha.

Results

All participants who voluntarily registered in case ($n = 16$) and control ($n = 25$) groups finished the study. The results showed that although the participants were enrolled in the study non-randomly and voluntarily, they did not differ significantly in terms of sex, age, duration of training course, and intended field of study (Table 1).

Moreover, by comparing the mean total score of the students in both groups at the beginning and at the end of the study, and the total score of the students in each group at the beginning and end of the study, we found no significant difference (table 2).

Table 1: Demographic data of the participants

Variables	All participants	Case group	Control group	P value
Age (years)	23.7 ± 1.15	23.7 ± 1.20	23.3 ± 0.92	0.279
Sex (% Female)	63.4	75	56	0.322
Duration of training (months)	15.1 ± 5.28	16.9 ± 4.18	13.9 ± 5.62	0.061
Intended field of future study				
Group 1	48.8	56.3	44	
Group 2	41.5	31.3	48	0.498*
Group 3	9.8	12.5	8	

*P-value was calculated after omitting group 3 because of its low frequency

Table 2: Mean ± SD total scores of the participants in both groups

Groups	Beginning of study	End of study	P-value
Case	106.7 ± 12.78	107.6 ± 11.32	0.809
Control	105.8 ± 15.24	100.12 ± 14.04	0.154
P-value	0.989	0.95	

Table 3: Mean \pm SD of each question's score of JSPE-S in case and control groups

Questions	Case group (before intervention)	Case group (after intervention)	P-value	Control group (beginning of study)	Control group (end of study)	P-value
1	5.4 \pm 1.63	4.60 \pm 2.16	0.305	6.0 \pm 1.5	5.0 \pm 1.70	0.019
2	6.5 \pm 0.89	6.0 \pm 0.45	0.669	6.4 \pm 0.82	6.1 \pm 1.41	0.468
3	4.6 \pm 1.63	3.9 \pm 1.54	0.196	5.0 \pm 1.57	4.2 \pm 1.44	0.038
4	5.7 \pm 1.08	6.2 \pm 0.91	0.184	5.8 \pm 1.59	5.4 \pm 1.22	0.119
5	5.4 \pm 1.41	5.0 \pm 1.83	0.696	5.0 \pm 1.4	5.1 \pm 1.66	0.7
6	4.2 \pm 1.56	3.8 \pm 1.52	0.515	4.4 \pm 1.87	4.3 \pm 1.49	0.768
7	6.3 \pm 0.77	5.7 \pm 1.3	0.239	6.0 \pm 1.55	5.6 \pm 1.66	0.251
8	4.6 \pm 1.63	4.9 \pm 1.36	0.724	4.2 \pm 1.88	4.6 \pm 1.71	0.549
9	4.7 \pm 1.66	4.6 \pm 2.13	0.985	5.4 \pm 1.38	4.6 \pm 1.71	0.078
10	6.3 \pm 0.87	5.8 \pm 1.56	0.539	5.9 \pm 1.19	5.7 \pm 0.75	0.135
11	6.5 \pm 0.63	6.1 \pm 1.15	0.468	5.6 \pm 1.96	5.8 \pm 1.42	0.651
12	5.6 \pm 1.26	5.8 \pm 0.83	0.926	5.2 \pm 1.97	5.0 \pm 1.83	0.571
13	4.9 \pm 1.45	5.5 \pm 1.32	0.287	5.3 \pm 1.60	4.0 \pm 1.26	0.193
14	5.6 \pm 2.0	6.0 \pm 1.55	0.642	5.6 \pm 1.69	5.1 \pm 1.79	0.292
15	5.9 \pm 1.59	6.1 \pm 1.00	0.985	5.6 \pm 1.32	5.2 \pm 1.38	0.216
16	60.0 \pm 0.97	6.0 \pm 0.97	1	5.8 \pm 1.4	5.4 \pm 1.08	0.099
17	3.1 \pm 2.03	4.8 \pm 2.29	0.043	4.2 \pm 1.59	3.4 \pm 1.67	0.102
18	2.8 \pm 1.33	3.5 \pm 1.46	0.239	2.4 \pm 1.29	2.9 \pm 1.36	0.202
19	6.3 \pm 1.39	6.6 \pm 1.02	0.515	5.9 \pm 1.88	6.1 \pm 1.64	0.860
20	6.1 \pm 1.57	5.9 \pm 1.5	0.642	5.6 \pm 1.29	5.6 \pm 1.15	0.992

Table 4: The effect of deleting each question on the total reliability (0.787)

Question	Cronbach's alpha	Question	Cronbach's alpha
1	0.765	11	0.763
2	0.782	12	0.778
3	0.785	13	0.778
4	0.786	14	0.763
5	0.782	15	0.769
6	0.775	16	0.772
7	0.762	17	0.796
8	0.801	18	0.796
9	0.762	19	0.769
10	0.777	20	0.764

The mean \pm SD initial scores were 109.4 \pm 12.5 and 100.5 \pm 15.51 in the women and men, respectively. In group 1, group 2, and group 3, the mean \pm SD initial scores were 107.3 \pm 12.86, 106.2 \pm 14.71, and 100 \pm 20.46, respectively. The Student's independent t-test and chi-square test showed that the empathy score was not significantly related to the participants' sex ($p = 0.086$), duration of training course ($p = 0.210$, $r = -0.203$), age ($p = 0.902$, $r = 0.021$), and tendency to study in different fields ($p = 0.815$).

Only the mean scores of items 1 and 3 in the control group, and item 17 in the case group

differed significantly at the beginning and end of the study (Table 3). Moreover, the total reliability of the questionnaire was 0.767, which is reasonably good, and the omission of none of the items affected the total reliability. The highest amount of change in total reliability was obtained by deleting item 8 (Table 4).

Discussion

This study assessed the efficacy of a storytelling course on medical students' empathy toward patients by JSPE-S. We found that the mean total score of the participants in both groups at the

end of the study, and the total score of the participants in each group at the beginning and end of study did not differ significantly. However, the mean score of the control group decreased from 105.8 ± 15.24 to 100.12 ± 14.04 (about five points) and the mean score of the case group increased from 106.7 ± 12.78 to 107.6 ± 11.32 (about one point). Therefore, the final score of both groups differed by about 6 points. This shows that although the effect of the intervention was not statistically significant, we cannot disregard the resulting numeric changes.

Some researchers in the field of education believe that clinical education could have a negative effect on the students' or residents' empathy toward patients. In 2006, a cross-sectional study was conducted in Boston on all freshman and senior medical students to determine the amount of change in the students' level of empathy toward patients. The duration of the study at this university was 4 years; consisting of 2 years of pre-clinical education (with limited contact with patients) and 2 years of active clinical education. The researchers found that the freshman students had the highest level of empathy (118.5) while the seniors had the lowest (106.6). The scores of the first and second year students, as well as the third and fourth year students differed significantly ($p < 0.001$) (Chen et al., 2007). The reduction of empathy toward patients was also observed in dental students as they took more responsibility during their educational course (Sherman, & Cramer, 2005). The results of another study in America showed that 5 months after the beginning of the training course, the rate of anger, depression, and fatigue had increased among the participants while their empathy had reduced. These changes were consistent throughout the course (Bellini, Baime, & Shea, 2002). The scores of some variables such as anger and fatigue returned to their initial state during residency, but the empathy scores continued to decline (Bellini, & Shea, 2005).

It seems that occupational constraints, such as

long working hours and sleep disorders, relying on modern technology for diagnosing diseases, and the shortened length of hospital admission and the time spent talking with patients has led to the decreased level of empathy toward patients (Chen et al., 2007). Other possible causes are the emphasis of modern medical education on the physicians' emotional detachment, maintaining emotional distance from patients, clinical impartiality, and the lack of role models and educational experiences (Hojat et al., 2004).

Evidence exists on the relationship between the level of empathy in medical students and their intended field of study for higher education. In 1989, Harsch rejected such a relationship and stated that students with higher or lower scores of empathy might be interested in any medical field of study (Harsch, 1989). This is consistent with the results of our study. Newton et al. found that students intending to study in fields such as radiology and pathology have lower empathy scores compared with those students intending to study in fields such as pediatrics and family medicine (Newton, Savidge, Barber, Cleveland, Clardy, Beeman, & et al., 2000). Another study on 704 physicians showed that the mean empathy score of 462 physicians working in human-centered fields, such as gynecology, emergency medicine, and psychiatry, was higher than those working in technology-centered fields, such as anesthesia, pathology, radiology, and orthopedics, (121 ± 11.6 vs. 117.2 ± 12.1 , $P < 0.001$) (Hojat, Mangione, Gonnella, Nasca, Veloski, & Kane, 2001). The difference in the scores of different fields might be caused by the fact that different people with different communicational skills (which are evident in their empathy scores) might tend towards certain fields, or the emphasis on interpersonal communication skills might differ from field to field (Harsch, 1989; Hojat et al., 2002). The possible reason for the inconsistency of our findings might be our small sample size.

Hojat et al. found that the mean empathy

scores were 119.1 ± 11.8 and 120.9 ± 12.2 in the men ($n = 507$) and women ($n = 179$) in their study, respectively, with a close-to-significant difference ($p = 0.08$) (Hojat et al., 2002). Another study also confirmed that the empathy scores are higher among female medical students compared with male students (116.5 vs. 112.1 , $p < 0.001$) (Chen et al., 2007). Researchers believe that women receive emotional signals better than men and this leads to better empathetic communication (Hojat, Gonnella, Mangione, Nasca, Veloski, Erdmann, & et al. 2002). Our small sample size could be the reason for the inconsistency of our findings with the previously mentioned studies.

We found that only the mean score of item 17 (physicians should try to think like their patients in order to provide better services for them) had a significant difference at the beginning and end of the study. Since in our medical schools' physicians decide based on their personal clinical experiences and not the patients', the students might have accepted that they should not think like their patients as a clear principle at the beginning of intervention. Only after the intervention had they understood that thinking like their patients might enhance giving services to them.

There are contradictory findings on whether empathy can be taught or not. Some researchers believe that empathy is a personal state, the level of which can decrease during a medical student's course of study; however, the student can enhance his/her level of empathy using targeted educational activities. Others believe that empathy is a personal characteristic that cannot be taught easily (Hojat et al., 2002). Several approaches have been presented for increasing the level of empathy in healthcare environments such as enhancing interpersonal communication skills, use of audio/visual cassettes or CDs about the method of coping with patients, use of role models, role playing, and use of literature and drama (Hojat, 2009). Feighny et al. studied the effect of education on

the level of empathy and found that educating students in their initial years of study can enhance their empathetic behavior (not their emotional or cognitive empathy) and communication skills (Hojat et al., 2004).

Some researchers believe that paying attention to emotions expressed in artwork can teach individuals how to express their feelings (Oatley, 2004). Listening and seeing artwork exposes individuals to a rich source of knowledge and insight on human pain and suffering and other people's viewpoints, which in turn could enhance the capacity to form empathetic relationships (Acuna, 2000; Kumagai, 2008).

In 2001, a four-week training course about concepts such as empathy, death, weakness, addiction, and the patient-physician relationship was held for senior medical students. This course aimed to enhance critical reading and writing skills, and understanding of the relationship between medicine and literature through poetry, drama, short stories, novels, films, and other dramatic art. The results showed that this course had the highest effect on increasing the level of empathy in the students (Lancaster, Hart, & Gardner, 2002). Another study also showed that the level of empathy and tendency towards human sciences increased among freshman medical students after 8 sessions of reciting and discussing poetry, drama, and short stories. This qualitative and quantitative study also showed that the participants developed a more extensive and complex understanding of the patients' viewpoints and the students stated that reading literature had helped them adjust to the tensions of their educational course (Shapiro, Morrison, & Boker, 2004).

Human sciences remind healthcare workers that they are dealing with very complex individuals with unique needs. Sinclair states that "literature has a lot to teach the healthcare world about medicine. Literature is messy. There's no black and white answer. So much of

the expectations on them are black and white, to have an answer. This helps them fit into that hard space, of not necessarily knowing the answer" (Zagier, 2010).

However, some studies have reported inconsistent findings. Markham reported that taking humanities courses in medical schools does not increase the level of attention medical students pay to patients as human beings. Of course, this inconsistency could be because the level of empathy was measured by a non-specific tool, or due to the lack of clarity in educational goals (Hojat et al., 2004).

One of the limitations of our study was that scoring was done by the students themselves and not by observing their behavior. Therefore, the scores students give to themselves, are not necessarily indicative of their amount of empathy during practice. Of course, researchers have reported significant relationships between the scores students give themselves in the JSPE-S questionnaire at the beginning of their third year of education and the scores residency program managers give them three years later, which indicates the long-term predictive value of this questionnaire (Hojat, Mangione, Nasca, Gonnella, & Magee, 2005). Other limitations are the small sample size and the fact that the study was limited to only one medical school. Furthermore, the results might be affected by the novelty of the study in the research setting, and if the study is repeated in the same setting, different results might be reached.

Conclusion

Storytelling courses are possibly effective in maintaining the level of medical students' empathy toward patients and might prevent the reduction of empathy during their educational course. We suggest similar studies be done in other medical schools and on a larger sample of students in order to discover whether storytelling is effective in increasing the level of empathy toward patients in Iran's cultural setting. Following the participants to find

whether these courses are still beneficial after graduation is also suggested.

Conflict of Interests

Authors have no conflict of interests.

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