

Effect of Fictional Reading on Empathy Development in Student Pharmacists

by
Karin Lilly Collins

A PROJECT

submitted to
Oregon State University
University Honors College

in partial fulfillment of
the requirements for the
degree of

Honors Baccalaureate of Science in Biology
(Honors Scholar)

Presented May 21st, 2015
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Abstract approved: _____

Adriane Irwin

Empathy and its development are crucial for student pharmacists and other health professional students. Methods of developing and maintaining high levels, however, are still being researched. To determine the impact of a short literary fiction intervention on empathy levels in student pharmacists, participants in this study were randomized to a control or intervention group and completed initial and final empathy assessments using the Jefferson Scale of Empathy – Health Profession Students version (JSE-HPS). Although there were no statistically significant differences between the cumulative scores of the control or intervention groups, results suggested that a difference between groups would be validated if the study were sufficiently powered. Further research is needed with larger sample sizes to verify the effectiveness of this low-intensity intervention when power is sufficient.

Key Words: Empathy, pharmacy students, pharmacy education, literary fiction

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Honors Baccalaureate of Science in Biology project of Karin Lilly Collins presented on May 21st, 2015.

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I understand that my project will become part of the permanent collection of Oregon State University, University Honors College. My signature below authorizes release of my project to any reader upon request.

Karin Lilly Collins, Author

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INTRODUCTION

Background and Literature Review

Empathy – the ability to understand and view the world from another’s perspective and connect with his or her experiences or feelings – is a vital emotion for any individual involved in patient care.¹⁻² It has been shown to increase patient adherence to treatment as well as patient satisfaction, and is mutually beneficial due to its cognitive nature.²⁻⁴ Empathy also assists in the development of successful patient-provider relationships while improving clinical results.³⁻⁶ As we look for ways to better our future health care providers, the development of this trait at the earliest time possible is made a reality when students are given ample opportunities to cultivate empathy.^{4,7}

A number of interventions to develop empathy in student pharmacists have been described in the literature.^{2-3,6-13} The first intervention focused on developing students’ empathy towards caring for underserved or elderly patients using a Patient Empathy Modeling assignment.³ This assignment consisted of a ten day period during which students simulated the lives of actual patients suffering from multiple chronic diseases as well as barriers to optimal health care. The intervention yielded an increase in empathy scores of student pharmacists on the Jefferson Scale of Physician Empathy - Health Professional version from 114 to 119.6, and students’ reflections included themes of appreciation for difficulties with adherence, empathy and appreciation for patients from different backgrounds, and applicability of the assignment to patient care roles.³ Although the sample size prevented statistical

analysis of the data, qualitative evaluation of this intervention showed a marked change in students' perspectives and nature toward patients.³

The second intervention used a 5-week module on death and dying to develop empathy in student pharmacists.² This intervention included course content such as the film *Wit*, reflective essays, and lectures on ethics. Positive changes in empathy of pharmacy students (as measured by the Balanced Emotional Empathy Scale (BEES)) were 14% and 9% for men and women, respectively ($p < 0.034$).²

Recently, a third intervention included a 3-day simulation of activity with loss of dominant hand usage, speech, and vision.⁶ This resulted in increased empathy scores for those in the intervention group (as measured by the Jefferson Scale of Empathy – Health Profession Students version) from 113.3 to 117.4 and decreased empathy scores for those in the control group from 110.6 to 108.9, with a significant difference between both groups ($p = 0.035$).⁶ However, this significant difference between groups was lost upon long-term follow up, as both the intervention and control groups returned to near-baseline scores of 115.3 and 112.2, respectively.

At the Oregon State University College of Pharmacy, another intervention has been developed through the elective course PHAR 705: Health Literature.⁸ Course objectives include: (1) Develop an understanding and appreciation of historic healthcare issues and how they impact pharmacy practice and the profession's future; (2) Recognize and understand divergent perspectives in health care; (3)

Discuss how understanding can be utilized to facilitate informed and constructive discussion; (4) Recognize implications of issues in health care for pharmacy practice and pharmacists' ability to meet patient care needs; (5) Develop a lifelong interest and appreciation in literature as a source to illustrate and highlight challenges in health and patient care.⁸ The effectiveness of this elective was assessed, and course evaluations showed an overwhelming agreement with improvement related to course objectives.⁸ These studies, along with current OSU College of Pharmacy course offerings, are extremely supportive of long-term, highly intensive methods of empathy development.

Recent research has shown, however, that short interventions may also improve empathy. Researchers demonstrated improved empathy using the Theory of Mind test after participants read short sections of literary fiction.¹⁴ This test included pictures of human eyes and then asked each participant to choose the adjective that best described the expression. An increase in participants' empathy was seen after reading literary fiction only, as opposed to popular fiction or no reading at all. Since these sections of literature were short, this suggests that intensive, long-term interventions may not be required to develop empathy. The objective of this study was to determine if a similarly designed literature intervention would demonstrate improved empathy in student pharmacists.

Thesis Statement and Hypothesis

Does reading short segments of fiction over an eight-week timeframe increase empathy development as measured by the "Jefferson Scale of Empathy – Health Profession Students version" in student pharmacists?

We hypothesize that reading short segments of fiction over an eight-week timeframe will increase empathy scores of student pharmacists as measured by the JSE-HPS.

METHODS

Study Design and Setting

This was a prospective randomized controlled study of students enrolled in the Oregon State University/Oregon Health and Science University (OSU/OHSU) Doctor of Pharmacy program. Volunteers were randomized into one of two groups: control or literature intervention. Participants in the literature intervention group were asked to read three short excerpts of literary fiction (approximately three to five minutes each) per week for 8 weeks.

The primary study outcome was increase in empathy as measured by the Jefferson Scale of Empathy – Health Profession Students version (JSE-HPS) assessed pre- and post-intervention. The JSE-HPS is a validated tool for the measurement of empathy in student pharmacists and other health professional students that takes

approximately 10 minutes to complete and has been reported as psychometrically sound with test-retest reliability.¹⁵⁻¹⁷

Study Procedures

First through third year students enrolled in the OSU/OHSU College of Pharmacy were informed of the study through a short announcement at the beginning of class during week one of Fall term. The announcement was followed by an email further explaining the study and inviting students to participate. In order to participate, students need to follow an embedded link and complete a short demographic survey to receive future communication. Students completing this process were then randomized into the intervention and control groups and received a second email informing them of their assigned group and providing directions to complete the JSE-HPS (See Appendix 1).

Those randomized to the literature intervention group were sent a weekly email that included their reading assignment and also requested it to be completed in multiple intervals (preferably three) throughout the week. These readings included sections from *The Fly* by Katherine Mansfield, *The Chrysanthemums* by John Steinbeck, *Big Mama's Funeral* by Gabriel Garcia Marquez, and *A Doctor's Visit* by Anton Chekhov (see Appendix 2 for example excerpt). Two weeks after the final reading was delivered, all participants were then asked to repeat the JSE-HPS questionnaire. Participants who completed both the pre- and post-empathy assessment were entered into a drawing for one of six \$25 or \$50 gift cards for

participants in the control and intervention groups, respectively. Study activities were reviewed and deemed exempt by the OSU Institutional Review Board.

Statistical Analysis

The JSE-HPS consists of 20 items and uses a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree (See Table 3 and Appendix 1). Total scores on the JSE-HPS range from 20 to 140 with higher scores reflecting higher empathic tendencies for participants during patient-provider interactions. Items on the JSE-HPS scale utilizing a reverse-scoring system were adjusted using the scoring instructions.

Categorical data is expressed using frequency and percentages and was compared using a Fisher's exact test due to sample size. Continuous data is expressed with median and interquartile range (IQR) or mean \pm standard deviation and was compared for changes in cumulative score using paired t-tests. All statistical analyses were performed using SPSS 22.0 (IBM, Armonk, NY).

RESULTS

A total of 13 intervention and 12 control participants completed the baseline with 11 and 10, respectively, also completing the final assessment, making them eligible for study inclusion. This equaled a dropout rate of 15.4% for the intervention and 16.7% for the control group, with an overall dropout rate of 16%. No significant demographical differences were found between intervention and control groups (Table 2).

Baseline JSE-HPS scores were similar between the intervention and control groups (112.1 (10.7) and 118.7 (12.6), respectively; $p= 0.1926$). After the intervention, JSE-HPS scores increased in the intervention group from 112.08 to 116.09 ($p=0.201$) and decreased in the control group from 118.70 to 113.00 ($p=0.188$). Differences observed between the intervention and control groups were also not statistically significant ($p=0.0621$).

DISCUSSION

Participants randomized to a literary intervention group over an 8-week period showed an increase in JSE-HPS score, while participants in the control group showed a decrease in JSE-HPS score. Changes in score and differences between groups were not statistically significant, but results suggest that literary fiction may contribute to improved empathy development in student pharmacists.

The impact of several high intensity interventions aimed at increasing empathic tendencies among student pharmacists have recently been published. As outlined in the introduction, these interventions included modules on death and dying, disability simulations, and elective courses.^{2,3,6,8,15} Out of the published interventions, the consistent approach is that many focus solely on long-term and/or highly intensive delivery models. However, it has recently been suggested that smaller interventions may achieve similar effects. While counter-intuitive, data in other areas of the medical literature have demonstrated positive outcomes with short interventions.^{14,18-19} For example, brief structured interventions in clinical counseling have been shown to improve rates of smoking cessation.¹⁸⁻¹⁹ In this study, small amounts of patient counseling and support for patients who smoked (3-10 minutes) led to a large increase in smoking cessation among patients.¹⁸⁻¹⁹ If similar or greater increases in empathy among student pharmacists could be achieved with the use of short or low intensity interventions, minimal changes in curricula could positively affect students' empathic tendencies.

As seen in this study, the reduction of empathy scores among the control group, although not statistically significant, may reflect an erosion of empathy over time similar to that observed in other health care professional students.²⁰ Multiple studies in the literature have indicated an erosion of empathy in the third year of medical school, leading to discussion and research surrounding empathy development among medical students as well as students in other health professions.^{5,9,20-21} In several cases, students' empathy levels have been reported as lowest when it is needed most: clinical portions of education.^{5,20-21} This relates particularly to pharmacy education, as pharmacists are considered the most accessible health care professionals.²⁰ Because of this, empathy retention and development are crucial throughout student pharmacists' education, and methods to achieve these are vital to future practice in Pharmacy.

The JSE-HPS, as described in the introduction, is one of several tools used to measure empathy in the literature. Throughout the development of this study, selection of a validated and effective tool was an important factor. As mentioned previously, the Theory of Mind and the Reading the Mind in the Eyes tests were distributed to participants to measure empathy after a short literary fiction intervention, which provided a reference for this study.⁸ The JSE-HPS tool was chosen over the ToM and Reading the Mind in the Eyes Test, however, for two main reasons. First, these tests lack proper validation for use in the empathy measurement of health professional students. Second, the vocabulary used in these tests reflects a high proficiency in English, which we believed might have proven

problematic for English as Second Language students. Because the ToM and Reading the Mind in the Eyes tests were limited in these areas, the JSE-HPS proved to be the most effective and validated tool for the current study.

This study included several limitations. First, the moderately high overall dropout rate of 16% resulted in a small sample size and low power. This rate, however, may provide some validity for the completion of interventions, as participants who did not complete the reading assignments as instructed may have chosen not to complete the final empathy assessment to prevent entry of inaccurate results. Second, this study did not assess the long-term maintenance or development of empathy in student pharmacists, which prevented any analysis related to the effect of the intervention after 90 days. Third, this study took place at a single institution, Oregon State University College of Pharmacy, which may limit validity outside of this program and the application of results to other populations. With that said, increasing enrollment to more institutions would increase the ability to generalize results to the greater population of student pharmacists.

Study findings raise interesting questions that provide ample opportunities for future research. Although the results were not statistically significant, the JSE-HPS scores in participants who received the intervention did, in fact, increase. Repeating the study with an increase in sample size would validate this effect. If future research were to demonstrate an impact, this would provide a novel, low-intensity approach for empathy development in health professional students. Suggestions for

future research could include a focus on assessing the longevity of any increases in empathic tendencies, as well as timing or type of readings assigned. Other potential research could evaluate the most effective timing of such interventions throughout education in order to integrate interventions in the most efficient way possible.

CONCLUSION

The development of empathy is critical to the education and practice of student pharmacists. Although not statistically significant, results of this study suggest that a short literary fiction intervention may help develop empathy. Further research is needed with larger sample sizes to validate the effectiveness of this intervention, and, if effective, to determine optimal implementation and procedures to facilitate long-term retention of empathy.

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Table 1. Baseline Characteristics of All Study Participants

Characteristics		Study Participants (n = 21)
Age, median (IQR)		2 (23-26)
Gender Female, n (%)		1 (85.7)
Year in Pharmacy School, n (%)		
	P1	1 (52.4)
	P2	3 (14.3)
	P3	7 (33.3)
English as first language, No, n (%)		(23.8)
Frequency of reading books for personal enjoyment, n (%)		
	Never	0 (0)
	Rarely	10 (47.6)
	On occasion	7 (33.3)
	Very often	4 (19.0)
Number of books read in the past six months, n (%)		
	0	3 (14.3)
	1-2	9 (42.9)
	3-4	6 (28.6)
	5+	3 (14.3)

IQR: interquartile range

Table 2. Baseline Characteristics of Study Participants by Group

Characteristics		Intervention Group (n=11)	Control Group (n=10)	p- Value
Age, median (IQR)		24 (23-26.5)	23.5 (22.3-25.5)	0.227
Gender, Female, n (%)		9 (81.8)	9 (90)	1.000
English as first language?				
	No, n (%)	1 (9.1)	4 (40)	0.148 6
Year in Pharmacy School, n (%)				
	P1	5 (45.5)	6 (60)	0.435
	P2	1 (9.1)	2 (20)	
	P3	5 (45.5)	2 (20)	
Frequency of reading books for personal enjoyment, n (%)				
	Never	0 (0.0)	0 (0.0)	0.146
	Rarely	3 (27.3)	7 (70)	
	On occasion	5 (45.4)	2 (20)	
	Very often	3 (27.3)	1 (10)	
Number of books read in past six months				
	0	1 (9.1)	2 (20)	0.706
	1-2	4 (36.4)	5 (50)	
	3-4	4 (36.4)	2 (20)	
	5+	2 (18.2)	1 (10)	

IQR: interquartile range

Table 3. Changes in JSE-HPS Scores from Baseline by Item

Item	Intervention Group (n = 11)		Control Group (n = 10)	
	Pre-Score (Mean SD)	Post-Score (Mean SD)	Pre-Score (Mean SD)	Post-Score (Mean SD)
1. Empathy is a therapeutic skill without which a health care provider's success is limited.	5.5 1.6	6.3 0.8	6.2 0.79	± 1.1
2. Patients value a health care provider's understanding of their feelings, which is therapeutic in its own right.	6.3 0.6	6.6 0.5	6.4 0.84	6.3 0.95
3. Health care providers' understanding of the emotional status of their patients, as well as that of their families is one important component of the health care provider-patient relationship.	6.4 0.8	6.5 0.5	6.8 0.42	6.5 0.71
4. Patients feel better when their health care provides understand their feelings.	6.2 1.0	6.5 0.7	6.6 0.70	6.4 0.52
5. I believe that empathy is an important factor in patients' treatment.	6.3 0.8	6.5 0.5	6.3 0.95	6.4 0.70
6. Health care providers should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language.	6.2 0.9	6.3 0.8	6.7 0.48	6.4 0.70
*7. I believe that emotion has no place in the treatment of medical illness.	1.7 0.5	1.7 0.5	1.9 1.52	2.2 1.55
*8. Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints.	2.3 1.8	1.5 0.7	1.5 0.71	2.4 1.65

9. Understanding body language is as important as verbal communication in health care provider-patient relationships.	6.2 1.3	5.6 2.1	6.2 ± 1.3	± 1.1
10. Health care providers should try to stand in their patients' shoes when providing care to them.	5.6 1.7	5.7 1.4	6.3 ± 0.8	5.8 ± 0.9
11. Health care providers should try to think like their patients in order to render better care.	4.9 1.5	5.6 1.5	5.7 ± 0.9	5.3 ± 0.9
*12. Health care providers' understanding of their patients' feelings and the feelings of their patients' families does not influence treatment outcomes.	2.1 0.7	2.1 0.3	2.7 ± 1.9	2.7 ± 1.3
*13. Attentiveness of patients' personal experiences does not influence treatment outcomes.	2.0 0.6	2.0 0.4	2.2 ± 1.1	2.7 ± 1.4
*14. Attention to patients' emotions is not important in patient interview.	1.7 0.8	1.6 0.7	1.4 ± 0.7	2.3 ± 1.3
*15. Patients' illnesses can be cured only by targeted treatment; therefore, health care providers' emotional ties with their patients do not have a significant influence in treatment outcomes.	2.0 1.0	1.9 0.7	1.8 ± 0.8	2.3 ± 1.2
16. A health care provider's sense of humor contributes to a better clinical outcome.	4.4 1.6	4.5 1.7	5.7 ± 1.1	5.5 ± 1.3
*17. Health care providers should not allow themselves to be influenced by strong personal bonds between patients and their family members.	4.1 1.7	3.6 1.4	4.1 ± 2.1	3.8 ± 1.6

*18. I do not enjoy reading non-medical literature or the arts.	1.8 ± 1.7	1.8 1.4	1.7 ± 1.1	1.9 ± 1.5
*19. Because people are different, it is difficult to see things from patients' perspectives.	3.6 ± 1.6	4.1 1.8	3.6 ± 2.3	3.6 ± 1.5
*20. It is difficult for a health care provider to view things from patients' perspectives.	4.3 ± 1.9	3.8 1.7	3.2 ± 1.7	3.7 ± 1.3

*Questions 7, 8, 12-15, and 17-20 were scored using a reverse Likert scale in calculation of the total. SD: standard deviation

Table 4. Changes in JSE-HPS Scores from Baseline by Total Score

	Pre-Score ^a		Post-Score ^b		p-Value
	Mean ± SD	Range	Mean ± SD	Range	
Intervention (n=11)	112.08 10.7	92-128	116.09 7.4	101-127	0.0621
Control (n=10)	118.7 ± 12.6	100-139	113.0 ± 15.9	81-137	

^a JSE-HPS administered prior to intervention

^b JSE-HPS administered 2 to 3 weeks after conclusion of the intervention

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APPENDIX 1 – Study Instrument

Demographic Information:

1. Gender:
 Male Female
2. Age: _____
3. Year in pharmacy school:
 P1 P2 P3 P4
4. Is English your first language?
 Yes No
5. Would you consider yourself an avid recreational reader?
 Yes No
6. How many books did you read (outside of assigned materials) in the past six months?
 0 1-2 2-3 3-4 5+

Please answer the following questions to the best of your ability using a scale of one (1) to seven (7), where one is strongly disagree and seven is strongly agree. (*Questions 7-25 are taken from the Jefferson Scale of Empathy – Health Profession Student version, a validated tool for assessing empathy in student pharmacists. Administration fee for this tool is included in the study budget.*)

7. Empathy is a therapeutic skill without which a health care provider's success is limited.
8. Patients value a health care provider's understanding of their feelings, which is therapeutic in its own right.
9. Health care providers' understanding of the emotional status of their patients, as well as that of their families is one important component of the health care provider-patient relationship.
10. Patients feel better when their health care providers understand their feelings.
11. I believe that empathy is an important factor in patients' treatment.
12. Health care providers should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language.
13. I believe that emotion has no place in the treatment of medical illness.
14. Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints.

15. Understanding body language is as important as verbal communication in health care provider-patient relationships.
16. Health care providers should try to stand in their patients' shoes when providing care to them.
17. Health care providers should try to think like their patients in order to render better care.
18. Health care providers' understanding of their patients' feelings and the feelings of their patients' families does not influence treatment outcomes.
19. Attentiveness of patients' personal experiences does not influence treatment outcomes.
20. Attention to patients' emotions is not important in patient interview.
21. Patients' illnesses can be cured only by targeted treatment; therefore, health care providers' emotional ties with their patients do not have a significant influence in treatment outcomes.
22. A health care provider's sense of humor contributes to a better clinical outcome.
23. Health care providers should not allow themselves to be influenced by strong personal bonds between patients and their family members.
24. I do not enjoy reading non-medical literature or the arts.
25. Because people are different, it is difficult to see things from patients' perspectives.
26. It is difficult for a health care provider to view things from patients' perspectives.

APPENDIX 2 – Literary Fiction Excerpt Example

Taken from “A Doctor’s Visit” by Anton Chekhov:

THE Professor received a telegram from the Lyalikovs' factory; he was asked to come as quickly as possible. The daughter of some Madame Lyalikov, apparently the owner of the factory, was ill, and that was all that one could make out of the long, incoherent telegram. And the Professor did not go himself, but sent instead his assistant, Korolyov.

It was two stations from Moscow, and there was a drive of three miles from the station. A carriage with three horses had been sent to the station to meet Korolyov; the coachman wore a hat with a peacock's feather on it, and answered every question in a loud voice like a soldier: "No, sir!" "Certainly, sir!"

It was Saturday evening; the sun was setting, the workpeople were coming in crowds from the factory to the station, and they bowed to the carriage in which Korolyov was driving. And he was charmed with the evening, the farmhouses and villas on the road, and the birch-trees, and the quiet atmosphere all around, when the fields and woods and the sun seemed preparing, like the workpeople now on the eve of the holiday, to rest, and perhaps to pray. . . .

He was born and had grown up in Moscow; he did not know the country, and he had never taken any interest in factories, or been inside one, but he had happened to read about factories, and had been in the houses of manufacturers and had talked to them; and whenever he saw a factory far or near, he always thought how quiet and peaceable it was outside, but within there was always sure to be impenetrable ignorance and dull egoism on the side of the owners, wearisome, unhealthy toil on the side of the workpeople, squabbling, vermin, vodka. And now when the workpeople timidly and respectfully made way for the carriage, in their faces, their caps, their walk, he read physical impurity, drunkenness, nervous exhaustion, bewilderment.

They drove in at the factory gates. On each side he caught glimpses of the little houses of workpeople, of the faces of women, of quilts and linen on the railings. "Look out!" shouted the coachman, not pulling up the horses. It was a wide courtyard without grass, with five immense blocks of buildings with tall chimneys a little distance one from another, warehouses and barracks, and over everything a sort of grey powder as though from dust. Here and there, like oases in the desert, there were pitiful gardens, and the green and red roofs of the houses in which the managers and clerks lived. The coachman suddenly pulled up the horses, and the carriage stopped at the house, which had been newly painted grey; here was a flower garden, with a lilac bush covered with dust, and on the yellow steps at the front door there was a strong smell of paint.

"Please come in, doctor," said women's voices in the passage and the entry, and at the same time he heard sighs and whisperings. "Pray walk in. . . . We've been expecting you so long. . . we're in real trouble. Here, this way."

