

Acute Intervention To Foster Reflection On Reciprocity In Relationships Increased Participants' Patient- Or Student-Centered Orientation Scores In Association With A Medical Biochemistry Course

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Citation

L Van Winkle, S Dobie, V Ross, U Sharma, J Green, S Lynch. *Acute Intervention To Foster Reflection On Reciprocity In Relationships Increased Participants' Patient- Or Student-Centered Orientation Scores In Association With A Medical Biochemistry Course*. The Internet Journal of Medical Education. 2009 Volume 1 Number 2.

Abstract

Purpose Using an intervention to foster student and faculty awareness of the reciprocal influence of relationships, the authors measured whether participants' patient- or student-centered orientation scores improved following the intervention. **Method** One hundred seventy three first-year medical students and 64 faculty members participated in one of seven nearly identical, two-hour seminars on relationship-centeredness including reflective writing, reading and small group discussion of the reflections. We conducted student sessions near the end of the second academic quarter of student training in February 2008. Students' patient-centered orientation scores, obtained on two occasions prior to the intervention, were compared to those completed immediately following the intervention and near the ends of the first and second years of medical training. The authors collected faculty student-centered orientation scores immediately prior to and following the intervention. **Results** While students' patient-centered orientation scores decreased somewhat during their first quarter of medical school, their scores improved significantly immediately after the intervention near the end of the second quarter of school. Faculty members' student-centered orientation scores also improved after the intervention. The improvement in students' scores eroded completely by the end of the first year and continued to deteriorate during the second year of medical school.

Conclusions Although encouraging, the effects of our intervention proved temporary, possibly in the context of a non-supportive hidden curriculum. It remains to be determined whether regular use of interventions, like the one in this study, or other changes in the cultures and curricula of medical education might sustain higher relationship-centered orientations in students, faculty and staff.

INTRODUCTION

A major challenge in medical education remains to foster empathy in students during training.¹ Such empathy appears to fall into at least two important although overlapping categories. Vicarious or emotional empathy is "an individual's vicarious emotional response to perceived emotional experiences of others".^{1,2,3,4,5} In contrast, imaginative or cognitive empathy is "an individual's ability to imaginatively take the role of another so as to understand and accurately predict the person's thoughts, feelings and actions".^{1,2,3,4,5} In our view, the combination of emotional and cognitive empathy forms the desirable characteristic of compassion⁶ in people including health care professionals. Unfortunately, both emotional and cognitive empathy have been shown to decrease in students during medical training.

For example, in the context of medical education and patient care, cognitive empathy has been observed to decrease in medical students.² Similarly, in another study, emotional empathy decreased in medical students during both the first and third years of training.³ While such findings have been criticized as greatly exaggerated,⁷ empathy still changes in the wrong direction. For example, in one study cited here, the emotional empathy of the average medical student fell from the 52nd to the 33rd percentile of the population during the first three years of medical training.³

Emotional empathy is an independent determinant of relationship success.⁸ Good relationships with patients and health care team members promote patient satisfaction, foster adherence with treatment plans and minimize

malpractice claims.^{1,6} For these reasons, many medical educators put patients at the center of learning.⁹ New learners may, however, often believe that we want them to attend only to the needs of patients when we introduce them to patient-centered care.¹⁰

To expand this view of patient-centered care, we designed an acute intervention to enhance students' self awareness and focus on the reciprocity inherent in all human relationships including that of the doctor and patient.¹¹ We hypothesized that such intervention, to foster students' relationship-centered orientations, would improve students' patient-centered orientation scores. We also wondered how soon after orientation to medical school students might begin to change their patient-centered views. We report students' patient-centered orientation scores obtained at orientation to medical school and compared to those collected at the end of the first academic quarter, after the intervention near the end of the second quarter, at the end of the first year, and at the end of the second year of medical training. To further test the intervention's influence, we measured its effect on the faculty's student-centered orientation scores.

METHODS

PARTICIPANTS

We used the intervention below for a total of 173 first-year osteopathic medical students and 64 faculty members on the Downers Grove campus of Midwestern University. Students in the class of 2011 received the intervention near the end of their second academic quarter in February, 2008. The curriculum is otherwise a traditional one with a typical two-year sequence of basic sciences courses followed by two years of clinical training.^{12,13} Students' ages ranged from 19 to 40 years (mean 24 years), and 46% were female. About 80 faculty members were invited to attend one of two intervention sessions as part of faculty development in February, 2008, and 37 faculty members elected to attend. Sixty two percent of those attending were female and 51% were basic scientists. A second group of faculty members (n=27) were expected to attend the intervention for the first time at a retreat in June, 2008. The retreat was for course directors and department chairs of the Chicago College of Osteopathic Medicine.

INTERVENTION

We began to formulate our intervention when one of us (LJV) contacted another (SD) in regard to her publication concerning mindful practice.¹⁰ Our hope was to help our

faculty and first-year medical students further live up to our vision "to provide relationship-centered teaching and care". The resultant, two-hour workshops included a brief lecture about relationship-centered care (student participants) or relationship-centered education (faculty participants), time for a prompted reflective writing, small group reading and sharing of the writings (with instruction on reflective listening), and a large group summation. These sessions were similar to those used previously for medical students at the University of Washington.

First-year student participants at Midwestern University did not yet have patient care experience. Therefore, in their didactic session, they were asked, as a group, to generate a list of activities where they were typically seen as the "giver." These included activities such as babysitter, caregiver for a grandparent, waitress, etc. In both student and faculty sessions the writing assignment was to think about such a relationship and write about what they received and learned about themselves in the relationship. Students were directed to those relationships where they were "givers" and faculty members were directed to teacher-student relationships. Writing time was about 20 minutes and small group reading and discussion lasted about 60 minutes.

We held four workshops for students and two for faculty during a three day period in February, 2008. A third workshop for course directors and department chairs was held at a retreat in June, 2008. Three of us (SD, VRR, US) facilitated the student workshops and the first two faculty workshops. Another author (LJV) facilitated the third faculty workshop.

EVALUATION AND STATISTICAL ASSESSMENT

All students completed both the 18-item patient-practitioner orientation scale (PPOS)¹⁴ and eight-item Tasks of Medicine Scale (TOMS)¹⁵ at two points in time; during orientation before starting first-year classes and at the end of the first quarter of study. PPOS is a well-validated instrument that measures students' attitudes toward patient-centered care.^{14, 16, 17, 18} While TOMS has been used less frequently than PPOS, TOMS scores improve in the same manner as do PPOS scores in response to modifications in medical^{14, 15, 19} and other health sciences²⁰ curricula. Modifications in the curriculum leading to improved TOMS scores also led medical students to feel better prepared to truly care for patients, involve patients in decision making, and understand how the social context affects their patients.¹⁵ Because

TOMS is shorter than PPOS, we administered TOMS more frequently than PPOS in order to encourage higher student voluntary response rates (see below). To determine whether faculty members responded to the intervention in a manner similar to students, we modified TOMS to produce the Tasks of Education Scale (TOES) as discussed below.

PPOS measures students' beliefs about the importance of getting to know patients and sharing information and power with them.¹⁴ Students used a six-point Likert scale to indicate the strength of their agreement/disagreement with 18 beliefs people might have about doctors, patients and medical care. (e.g., Item 2: Although health care is less personal these days, this is a small price to pay for medical advances. See reference 21, available on line, for the full list of items.) Higher PPOS scores indicate greater patient-centered orientations. In contrast, TOMS (Appendix survey form A) asks students to rank eight physician tasks (four biomedical and four psychosocial) from most to least important.¹⁵ TOES is simply TOMS modified to correspond to students and education rather than to patients and medicine (Appendix survey form B).

The complete TOMS and TOES survey forms are shown in the Appendix. Participants ranked the eight items starting with the most important. The psychosocial (PS) score for both TOMS and TOES is defined as the mean rating of 4 goals (2, 3, 5 and 8). Lower PS scores indicate greater patient- or student-centered orientations on TOMS or TOES, respectively. The lowest possible TOMS and TOES PS scores are 2.5 and the maximum scores are 6.5. Students ranked goals of treatment on TOMS while faculty ranked goals of education on TOES (Appendix).

To encourage higher voluntary response rates, we elected to administer only the shorter of the two student surveys (i.e., TOMS) to measure changes in students' patient-centered orientation scores following the intervention described above near the end of the second academic quarter. Similarly, we administered TOMS at the ends of the first and second years of medical school. To determine whether the faculty's student-centered orientation scores changed in association with the intervention, we measured their TOES PS scores minutes before vs. minutes after the intervention.

Data were analyzed statistically using GraphPad Prism 5 software. Because the data were restricted from forming a normal distribution, we used only nonparametric statistical tests. Student responses to individual PPOS items, obtained

at orientation or at the end of the first academic quarter, were compared statistically using the Mann-Whitney test.

Students' TOMS PS scores, obtained prior to or after the intervention, were compared statistically using the Kruskal-Wallis test with Dunn's comparison for individual groups (or the Mann-Whitney test when only two groups were compared). Changes in students' responses to individual TOMS goals were assessed statistically using the Mann-Whitney test. Faculty's TOES PS scores, obtained just prior to or immediately after the intervention, were compared statistically using the Mann-Whitney test.

It would have been more powerful statistically to follow changes in patient- or student-centered orientation scores by identifying and following individual student or faculty member TOMS or TOES score values, respectively. (Such would have also been the case in regard to following changes in students' PPOS scores.) We wanted, however, to protect student and faculty member anonymity as completely as possible by not requiring them to identify themselves in any way on survey forms. Hence, we needed to treat each sample of scores independently. Nevertheless, we found important and statistically significant changes to occur in patient- and student-centered orientation scores after vs. prior to the intervention sessions. Partly because responses were anonymous, this study was considered exempt by the Midwestern University IRB.

RESULTS

STUDENTS' PATIENT-CENTERED VIEWS BEGAN TO DECLINE DURING THE FIRST ACADEMIC QUARTER

Compared with scores at entry, students exhibited lower patient-centered orientation scores at the end of their first quarter of medical school according to their PPOS scores. This decline was attributable to small but statistically significant decreases in the patient-centeredness of students' responses to the following four PPOS items.

Item 2. Although health care is less personal these days, this is a small price to pay for medical advances. ($p=0.0002$ for an increase in agreement with this statement)

Item 5. Patients should rely on their doctors' knowledge and not try to find out about their conditions on their own. ($p=0.04$ for an increase in agreement with this statement)

Item 7. If doctors are truly good at diagnosis and treatment, the way they relate to patients is not that important. ($p=0.02$)

for an increase in agreement with this statement)

Item 16. It is not that important to know a patient's culture and background in order to treat the person's illness. ($p=0.01$ for an increase in agreement with this statement)

In contrast, we detected no significant change ($p=0.85$) in students' patient-centered orientation scores during their first quarter in medical school using their TOMS psychosocial (PS) scores (data not shown). The only statistically significant changes detected in students' TOMS responses over the first quarter were a change in the average student's selection of the most important goal of treatment from one PS goal (2 in Appendix survey form A, $p=0.0002$ for a decrease in importance) to another (goal 3 in Appendix survey form A, $p=0.01$ for an increase in importance).

ACUTE INTERVENTION TEMPORARILY MADE STUDENTS' TOMS SCORES MORE PATIENT-CENTERED

According to their TOMS PS scores, the median student patient-centered orientation increased significantly ($p=0.005$) by 40% of the maximum possible improvement (i.e., from 3.75 to 3.25 of the minimum 2.5 possible in Figure 1) following the intervention described above. This change occurred primarily because a biomedical goal (1 in Appendix survey form A, $p=0.0003$ for a decrease in importance) was replaced by a psychosocial goal (5 Appendix survey form A, $p=0.0006$ for an increase in importance) as the third most important to students of the eight TOMS goals they ranked. The movement of TOMS PS scores toward more patient-centered was reversed, however, within one quarter following the intervention (Figure 1). Furthermore, the students' patient-centered orientation scores continued to erode over the following second year of medical school from a median of 3.75 to 4.00 (Figure 2). The latter further loss occurred not only in regard to reversal of goals 1 and 5 (Appendix survey form A), but also from higher ranks given to goals 6 ($p=0.007$) and 7 ($p=0.02$) in Appendix survey form A. Goals 6 and 7 are relatively more doctor- or disease-centered (and less patient-centered). In addition, goal 8 in Appendix survey form A became less important to students between the ends of the first and second years of medical school ($p=0.04$), and goal 8 is a more patient-centered goal. Goals 2, 3 and 4 showed no significant changes in relative priority for students between the ends of the first and second years of medical school.

Figure 1

Figure 1 Students' tasks of medicine scale (TOMS) psychosocial (PS) scores immediately after the intervention (2-08) vs. one academic quarter before (11-07) or after (5-08) it. TOMS PS scores became more patient-centered immediately following the acute intervention in February of 2008 ($p=0.005$, Kruskal-Wallis test), but the improvement was lost one quarter later. The minimum possible TOMS PS score is 2.5 and the maximum is 6.5. Lower TOMS PS scores indicate greater patient-centered orientations. $n=153$ (88%), November 2007; $n=152$ (88%), February 2008; $n=160$ (92%), May 2008.

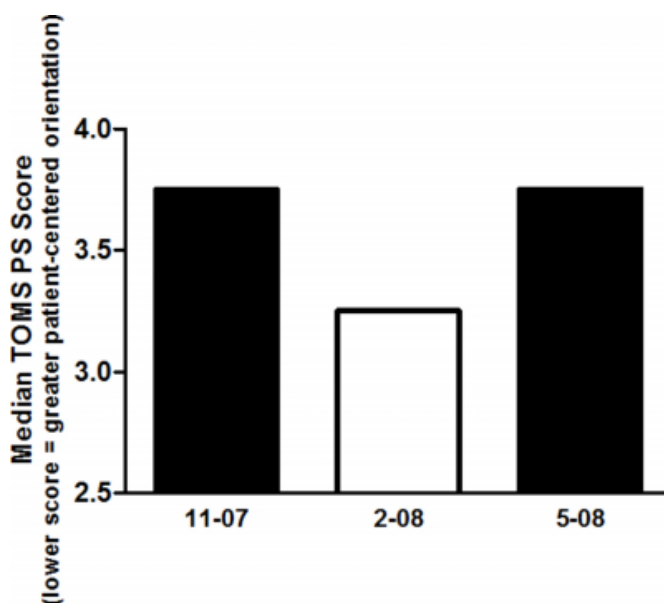
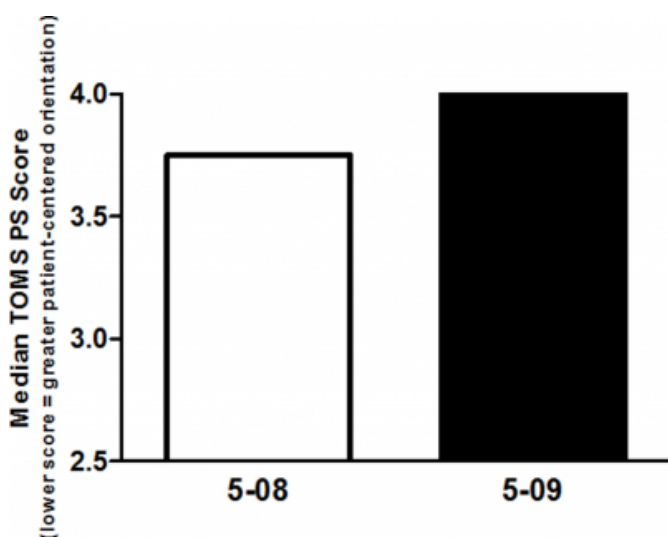


Figure 2

Figure 2 Students' tasks of medicine scale (TOMS) psychosocial (PS) scores at the ends of the first (5-08) and second (5-09) years of medical school. TOMS PS scores became significantly less patient-centered between the ends of the first (5-08) and second (5-09) years ($p=0.009$, Mann-Whitney test). Lower TOMS PS scores indicate greater patient-centered orientations. $n=160$ (92%), May 2008; $n=170$ (98%), May 2009.



ACUTE INTERVENTION ALSO MADE THE FACULTY'S TOES SCORES MORE STUDENT-CENTERED

The faculty's TOES PS scores became significantly more student-centered following the acute intervention described above (Figure 3). Results were similar at each faculty intervention, so data from the three intervention sessions were combined. Faculty TOES scores changed significantly in responses to all eight TOES goals relative to each other and could not be attributed primarily to changes in any individual items.

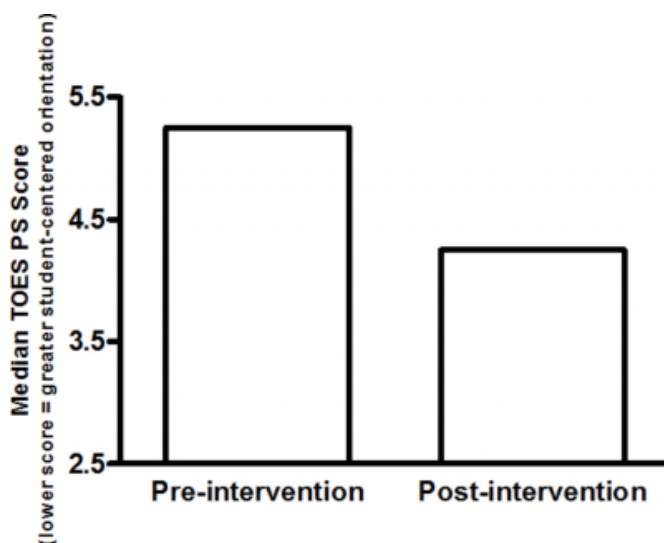
DISCUSSION

This study was designed to measure whether a particular intervention would enhance medical students' or faculty members' patient- or student-centered orientation scores, respectively. We hypothesized, within the context of serving others as a primary goal, that appreciating more fully what is received in these relationships would reinforce concepts of empathy and connection and through this patient-centeredness. Immediately after the intervention, student and faculty TOMS and TOES PS scores became more patient- and student-centered, respectively. In the case of students, it could be argued that an aspect of the curriculum other than the described intervention produced the observed move in

TOMS scores toward more patient-centered. TOES surveys were completed, however, just prior to and after the intervention for faculty.

Figure 3

Figure 3 Faculty Tasks of Education Scale (TOES) psychosocial (PS) scores minutes before vs. minutes after the acute intervention. The Faculty's TOES PS scores became significantly more student-centered immediately after completing the intervention ($p=0.006$, Mann-Whitney test). The minimum possible TOES PS score is 2.5 and the maximum is 6.5. Lower TOES PS scores indicate greater student-centered orientations. $n=43$ (67%), pre-intervention; $n=40$ (62%), post-intervention.



Faculty members in the first two intervention sessions were self-selected, and they were course directors and chairs in the third session. Consequently, their responses may not represent the faculty as a whole in either the Chicago College of Osteopathic Medicine or Midwestern University. Nevertheless, their responses showed the desired effect of the intervention. Taken together with results from the student intervention, these data suggest that our simple and short (two-hour) intervention fostered a measurable change in professionals' priorities in relationships with others for whom they care or teach.

The temporary nature of the change in TOMS PS scores is, however, discouraging. The movement of students' TOMS scores to less patient-centered over the 15 months that followed the intervention raises the question of what does form the views of our students? Of concern is the existence of the "hidden medical curriculum", and its role in the loss of empathy^{1-3, 6, 8} and relationship-centered orientations in students during training.^{14, 15} Moreover, erosion of patient-

centered views appears to begin almost as soon as students matriculate into medical school (first section of Results). This study raises the question of whether medical education and its learners would benefit from longitudinal efforts to develop and sustain the values of relationship centeredness.²² Such longitudinal efforts appear easier to sustain when the institutional culture supports the efforts.¹⁴

This study has clear limitations. It is based on a single intervention with faculty and first-year medical students at only one institution. In addition, more in-depth qualitative assessment of students' patient-centered orientations could be made over time. Third, we do not know if some other factor led to the improvement in scores after the intervention for students, nor what led to the decline over the ensuing two years. For example, we may not have known of modifications by other instructors in courses in our curriculum. Such other modifications could conceivably have produced the changes we observed in Students' patient-centered orientation scores. We also do not know how the rankings in our surveys translate into behavior while providing care or teaching a course.

In future studies, we need to determine whether regular interventions, such as the one used here, help to produce and maintain greater relationship-centered orientations in faculty and students. It would also be interesting to learn whether, as a result of these interventions, students' rankings on a survey translate to behaviors believed to be more patient and relationship oriented and if they exhibit more empathy.^{1-3,6} More broadly, we need to learn whether such interventions could conceivably help students and faculty to find "their own authentic way to an undivided life where meaning and purpose are tightly interwoven with intellect and action, where compassion and care are infused with insight and knowledge."²³ Nevertheless, in contrast to prior reports of deterioration of medical students' empathy^{1-3,6} and patient-centered orientation scores,^{14,15} in traditional curricula, we show here that students' patient-centered orientation scores can improve at least briefly through one classroom experience.

CONCLUSIONS

Prior studies have shown that major changes in a medical curriculum can prevent the erosion of students' patient-centered orientation scores.^{14,15} Here, we show that major renovations are not necessarily needed in order to improve such scores. Rather, the score of the median student

improved by 40% of the maximum possible after a brief intervention to foster medical students' reflection on the reciprocal nature of all relationships including those between physicians and patients. Unfortunately, the improved patient-centered orientation scores were temporary in our first-year medical students. Perhaps regular interventions to foster students' critical reflection in future studies will prevent such erosion of the scores and behavior.

APPENDIX

SURVEY FORM A

TASKS OF MEDICINE

Below is a list of eight tasks or goals that physicians often have in treating their patients. The value placed on each might vary from patient to patient, and you may find it difficult to rank some higher or lower than others. However, please read over the list imagining yourself as the physician during a typical acute care visit. Then do your best to rank each one as to the importance you would place on each.

Place a 1 before the individual item you feel is the most important, a 2 beside the next most important, and so on until you complete all 8. Although you may feel two items are of equal importance, please do NOT use ties.

- (1)____to conduct a thorough physical exam*
- (2)____to make a human connection with the patient as a person
- (3)____to identify the patient's goals for the visit
- (4)____to collect data from the patient as efficiently as possible
- (5)____to understand the patient's perspective about the problem
- (6)____to develop a solid treatment plan
- (7)____to determine whether further tests are necessary
- (8)____to understand how the patient's life circumstances relate to the problem

SURVEY FORM B

TASKS OF EDUCATION

Below is a list of eight tasks or goals that instructors may have for student education. The value placed on each might vary from student to student and course to course, and you may find it difficult to rank some higher or lower than

others. However, please read over the list imagining yourself as the instructor during a typical educational encounter. Then do your best to rank each one as to the importance you would place on each.

Place a 1 before the individual item you feel is the most important, a 2 beside the next most important, and so on until you complete all 8. Although you may feel two items are of equal importance, please do NOT use ties.

- (1)_____to teach students basic concepts*
- (2)_____to make a human connection with each student as a person
- (3)_____to identify the students' goals for the course
- (4)_____to assess student learning as efficiently as possible
- (5)_____to understand students' perspectives about learning
- (6)_____to develop a solid learning plan
- (7)_____to determine whether further study by students is necessary
- (8)_____to understand how students' life circumstances relate to their learning

*Items are numbered for the purpose of referring to them in the text. They are not numbered in the versions of the scales administered to students and faculty.

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