A faculty development program integrating cross-cultural care into a gastrointestinal pathophysiology tutorial benefits students, tutors, and the course

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Submitted 1 August 2014; accepted in final form 20 February 2015

Disparity-reducing initiatives are growing in response to the national mandate to improve health care for all in the United States (3, 5, 7, 8, 10, 11, 13, 17, 18, 20, 22, 23, 25, 32), which was articulated in 2002 in Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care (31). One of the more frequent approaches by hospitals and medical schools has been to provide educational content for physicians and trainees in cross-cultural care and to evaluate whether this content is discussed (3). To accomplish this goal, in 2004, our medical school initiated a uniform evaluation of each course at the preclinical level for the discussion of cross-cultural care topics in the course overall and active teaching by the tutor in the tutorial. End-of-course anonymous student evaluations asked each student to rate whether the course as a whole and the tutor actively discussed cross-cultural care at “frequently,” “sometimes,” or “never” category level. In 2004, the Gastrointestinal (GI) Pathophysiology course was in the bottom third of all courses for the active discussion of cross-cultural care in the “frequently” category. Only 18% of second-year students noted that the GI Pathophysiology course was “frequently” actively discussing cross-cultural care compared with the mean of all courses (33.9%). Tutors were also not actively teaching cross-cultural care in the tutorial, with only 43% of tutors discussing cross-cultural care in the “frequently” category compared with the majority of tutors being in the “sometimes” category and a few tutors in the “never” category.

In 2005, the GI Pathophysiology course launched its efforts to become the first course at the medical school to integrate cross-cultural care into the tutorial. A 30-min faculty development program was created and used in the 2006 GI Pathophysiology course but failed to significantly change tutors actively teaching cross-cultural care (28). Based on this experience, the faculty development program was completely restructured with new materials, focus, and exercises in 2007. These changes were made in connection with “hands-on” help and advice from the Student Subcommittee on Cross-Cultural Care at Harvard Medical School. These changes increased the program to 60 min in length (28, 29).

Given the enthusiastic Student Subcommittee on Cross-Cultural Care’s response to our initial efforts to integrate cross-cultural care into the tutorial, we hypothesized that an enhanced cross-cultural care faculty development program that consistently encouraged tutors to acknowledge widespread racial and socioeconomic disparities in the management of patients with GI and hepatobiliary illnesses and to integrate cross-cultural care themes into the tutorial discussions would have a positive impact, not only on tutors’ willingness to
integrate cross-cultural care into the tutorial but also on students’ evaluation of the tutorial’s and course’s discussion of cross-cultural care. We recognized that the real importance of integrating cross-cultural care into the curriculum stems from its potential ability to better prepare students to provide equal care for diverse patient populations in their residency years and beyond (34).

METHODS

GI Pathophysiology Course Organization and Tutorials

The GI Pathophysiology course begins on a Thursday morning and ends on a Friday afternoon 2.5 wk later. The course was for second-year medical and dental students during March of each academic year from 2007 to 2012. The course consists of thirteen 1-h lectures, six 1-h small groups, three pathology laboratories that are 1.75 h long, and eight tutorials each 1.5 h in length. These educational activities are scheduled from 8:00 AM to 12:30 PM each day except Wednesdays, when students have Patient-Doctor II in medical school-affiliated hospitals. The only required activity is the tutorial from 8:00 to 9:30 AM each Tuesday, Thursday, and Friday. Seven to nine students and one tutor are in a tutorial. All eight tutorial sessions are with the same tutor. Each year from 2007 to 2012, between 22 and 24 tutors taught in the GI Pathophysiology course. In the standard online course survey, each student is asked to evaluate each preclinical course and/or tutor with the following two questions: “Issues of culture and ethnicity were addressed” (evaluated at “frequently,” “sometimes,” or “never” levels within the course) and “This tutor actively teaches culturally competent care” (evaluated as “frequently,” “sometimes,” or “never” levels within the course). Numbers of students who completed the online anonymous overall course evaluation each of the 6 yr studied were as follows: in 2006, 144 evaluations from 173 students; in 2007, 116 evaluations from 164 students; in 2008, 102 evaluations from 174 students; in 2009, 111 evaluations from 175 students; in 2010, 79 evaluations from 166 students; in 2011, 133 evaluations from 168 students; and in 2012, 158 evaluations from 174 students.

Specific Triggers Added to Existing Tutorial Cases (28, 29)

Triggers are any social, economic, racial, ethnic, or cultural issue that is desirable to discuss during tutorial. A trigger for discussion of the desired topic is inserted into a case to promote discussion of the issue. Triggers used in the tutorial cases included obesity, inability to pay for essential medications, use of alternative medications, culturally sensitive dietary options, resources for helping to stop alcohol abuse, and acceptable alternatives to a diet high in salt. Specific new case objectives were created to cover each of the triggers. Tutors wrote questions to target coverage of each of the objectives.

In 2006, triggers were added to each case without student evaluation or input from the Student Subcommittee on Cross-Cultural Care (21). In 2007, to improve tutors’ cross-cultural care teaching (28), we specifically sought student feedback and critical reviews of the case triggers before the course started from the Student Subcommittee and its second-year student leader, Vinod Nambudiri (28). We changed the cases according to the students’ comments (28, 29).

Design and Mechanics of the 1-h Faculty Development Session Intervention (28)

The mechanics have remained the same over the past 6 yr and are listed below:

1. Begin the session with an overview of the importance of cross-cultural care to a complete understanding of pathophysiology and clinical medicine by knowledgeable experts (A. S. Peters and R. Llerena-Quinn) (5 min).

2. Move on to a discussion by the course director (H. M. Shields) on disparities in healthcare that are relevant to GI, liver, and biliary organ systems and their diseases (10 min) (10, 18, 30).

3. Divide the teachers into several small groups to discuss the cases where cross-cultural care triggers are put in bold lettering. Ask tutors to develop questions to use in their own tutorial groups to promote the discussion of the case triggers and the integration of cross-cultural care and pathophysiology. These questions are shared with all tutors. The specific objectives to cover in each cross-cultural care case trigger are reviewed (15 min).

4. Discuss each case’s trigger’s relevance to the presentation, progress, prevention, and/or resolution of the disease as explained by pathophysiological mechanisms led by the course director. Focus on how to frame the trigger’s importance for the students (10 min) (1, 9, 12, 21).

5. View and then discuss a 5-min video clip made of a mock tutorial with a faculty member (D. A. Leffler) leading a focus group with real students and discussing the alcoholism trigger from the tutorial case of end-stage cirrhosis. Tutors watch the video and gain confidence from seeing one of their colleagues leading a complex and important discussion with ease (20 min).

6. Provide references for each of the trigger elements and handouts to help tutors understand cross-cultural care and its importance (1, 9, 12, 21).

7. Each Thursday morning from 7:00 to 7:55 AM, there is a tutors’ faculty development meeting to go over pathophysiological content for the coming week, cross-cultural care questions, and feedback on student responses to cross-cultural care discussions. An expert in cross-cultural care (A. S. Peters or R. Llerena-Quinn) acts an on-site resource fielding questions and making suggestions and recommendations. At this required tutor’s session, reinforcement of the importance of teaching cross-cultural care is emphasized by asking each tutor specifically about the discussion of cross-cultural care objectives. This question is answered by each of the 22–24 tutors, which takes ~10–15 min. The discussion of cross-cultural care is given equal importance to the teaching of pathophysiology content. Experienced tutors are asked to help new tutors by sharing their own anecdotes and tips from prior years on how to weave cross-cultural care seamlessly into the discussion of disease mechanisms.

Three Tutorial Cases for GI Pathophysiology Containing Triggers for Cross-Cultural Care Discussion

There are three tutorial cases for the course. The first case, Louis Garrison, is covered in two tutorials on a Thursday and Friday at the beginning of the first week of the course, whereas the other two cases, Laura Chen and Wally Zimansky, are each covered over the span of 1 wk and three tutorials in the middle and end of the course, respectively.

Approval for this research study was obtained from the Harvard Medical School Board of Human Subjects Review in 2006.

Summaries of Each of the Tutorial Cases

Tutorial case 1 (week 1 of the course): Louis Garrison. Louis Garrison is a 39-yr-old obese Caucasian custodian who complains of GI reflux symptoms and occasional difficulty swallowing. He is a smoker, drinks about 12 cans of caffeinated soda per day, and is experiencing job-related stress. He has gained 80 lb over the past 2 yr. He was a heavy drinker of alcohol but stopped 3 yr ago. He takes nonsteroidal anti-inflammatory drugs for headaches and has had the recent onset of early satiety. He had a perforated duodenal ulcer 9 yr ago that was oversewn in an emergency surgery and also has a brother with GI problems.

DAY 1: CLINICAL PROBLEMS OVERVIEW. Mr. Garrison has multiple symptoms of gastroesophageal reflux, including dysphagia for both solids and liquids, which may represent a secondary motility disorder brought on by the extensive reflux he is experiencing. The second
paragraph details the lifestyle habits that are leading him into greater problems with reflux: namely, smoking, drinking, excessive coffee, and a weight gain of 80 lb. His past medical history indicates severe problems with peptic ulcer disease (i.e., perforated duodenal ulcer with overswinging) and possible genetic factors contributing to the peptic ulcer disease. He takes nonsteroidal anti-inflammatory drugs despite a prior perforated ulcer. Recently, he has noted earlier satiety.

The second page of the first day details the relatively normal upper GI series, except for free reflux, but includes the distinctly abnormal erythematous gastric folds with a gastric pH of 1 and pyloric channel ulcer with a mechanical etiology for the delay in gastric emptying and a duodenal bulb ulcer. The presence of Barrett’s epithelium is noted as well as an abnormal impedance/pH probe and very low lower esophageal sphincter pressure.

DAY 2: CLINICAL PROBLEMS OVERVIEW. The second day introduces the problem of Helicobacter pylori gastritis, the use of proton pump inhibitors in patients with Barrett’s esophagus and peptic ulcers, the antibiotic treatment of Helicobacter gastritis, and the development of antibiotic-associated diarrhea. Lifestyle changes are discussed. Medication assistance is provided when Mr. Garrison cannot afford copayment for pantoprazole, which is more effective at reducing his ulcer with a mechanical etiology for the delay in gastric emptying and a duodenal bulb ulcer. The presence of Barrett’s epithelium is noted as well as an abnormal impedance/pH probe and very low lower esophageal sphincter pressure.

Objectives related to cross-cultural care. Objectives related to cross-cultural care are as follows:

1. Discuss your response to Mr. Garrison’s obesity, excess caloric and caffeine intake in the form of sodas, and heavy smoking. Try to imagine how these factors and the difficulty of doing an adequate physical examination of his abdomen might affect your ability to care for him as a patient.

2. What are the pathophysiological effects of obesity on lower esophageal sphincter pressure?

3. Understand the resources available to obtain free medication.

Tutorial case 2 (week 2 of the course): Laura Chen. Laura Chen, a 42-yr-old East Asian travel agent, becomes ill with cramping abdomen, nausea, and weakness and cramps in her legs 24–48 hr after attending a wedding with a catered buffet.

PART I. This case begins as if the patient has developed an enteric infection after eating at a wedding buffet. Although she turns out to have Crohn’s disease, the first day of the case should be devoted to the discussion of diarrhea, focusing on the definition of diarrhea, overall mechanisms of diarrhea, and the reasons that toxin-producing and invasive bacteria produce diarrheal illness. It will be necessary to briefly review the normal transport of salt and water in the small intestine and colon.

PART II. The patient has Crohn’s disease in her terminal ileum and ascending colon, as evidenced by biopsies showing granulomas in the ileum and crypt abscesses in the colon as well as a narrowed and ulcerated segment of ileum on the small bowel series. A lactose tolerance test is done and is positive for malabsorption of lactose. Her vitamin B12 level is low, indicating, in this case, extensive ileal damage and leading to decreased absorption of the intrinsic factor-B12 complex. The elevated stool α1-antitrypsin test demonstrates protein-losing enteropathy due to Crohn’s mucosal ulcerations. The negative anti-tissue transglutaminase antibody rules against celiac disease. The early satiety points to the partial bowel obstruction from the ileal-stricturing Crohn’s disease. Surgical resection is performed, but the patient develops postoperative diarrhea, eventually found to be due to senna in a Chinese herbal preparation.

PART III. Cholestyramine is tried for the diarrhea but leads to oily stools, and 24-h stool fat is elevated. Medium-chain triglycerides are prescribed along with a low-fat diet. Her stools become more normal, formed, and nonoily. One year later, she develops an oxalate kidney stone. Ca2+ supplementation is prescribed, and she is told to avoid high-oxalate foods that she enjoys eating, such as peapods, soy sauce, and green beans, and substitute culturally pertinent low-oxalate foods, such as mung bean sprouts, cabbage, and water chestnuts.

Objectives related to cross-cultural care. Objectives related to cross-cultural care are as follows:

1. Discuss the patient’s use of herbal pills and their significance in this case.

2. Explain the mechanisms for oxalate stone formation in a patient with Crohn’s disease. What therapy is helpful in preventing further stones and why?

Tutorial case 3 (week 3 of the course): Wally Zimansky. Wally Zimansky is a 65-yr-old Polish pipe fitter with jaundice and hematemesis. He has chronic hepatitis C with cirrhosis. He has been drinking alcohol each day with his buddies from the military at the local Veterans of Foreign Wars Post. The hepatitis C may have been acquired through blood transfusion or tattoos.

PART I: CLINICAL PROBLEMS OVERVIEW. Mr. Zimansky has symptoms and signs of a massive GI bleed. His liver function tests show moderate conjugated hyperbilirubinemia. The elevated blood urea nitrogen may be related to the blood in his gut. His tattoos and/or history of transfusions are likely the cause of his hepatitis C infection and posthepatitis B infection. He has had his disease probably for 20 yr or more and has quietly developed cirrhosis with portal hypertension. His alcohol intake has exacerbated his underlying liver disease.

PART II: CLINICAL PROBLEMS OVERVIEW. Mr. Zimansky’s endoscopy shows nonbleeding large esophageal varices. A paracentesis is unremarkable except for a markedly low protein. His ascites is managed conservatively with salt restriction and spironolactone. The ultrasound shows a fatty, inhomogeneous liver and an enlarged spleen but no gallstones and dilated ducts. A liver biopsy shows changes of both alcoholic hepatitis and cirrhosis. The patient is counseled about alcohol and does well for 1 yr. However, he begins to drink heavily when his only son is killed in a freak accident.

The patient is seen 9 mo later with fever, fatigue, and jaundice. His nodular liver is nodular and ballottable, and an ultrasound shows fatty infiltration. His laboratory data show a high white blood cell count and bilirubin. A paracentesis indicates infected ascites fluid. He is started on broad-spectrum antibiotics.

Mr. Zimansky improves from his spontaneous bacterial peritonitis. However, hepatorenal syndrome develops in the setting of the peritonitis, dehydration from diarrhea secondary to lactulose and antibiotics, and nephrotoxicity from gentamicin. Rifaximin is started.

PART III: CLINICAL PROBLEMS OVERVIEW. The ultrasound shows defects compatible with focal hepatocellular carcinoma. The very high α-fetoprotein also supports the diagnosis of hepatocellular carcinoma. The liver transplant team does accept him for transplant. He has been sober for 7 mo.

OBJECTIVES RELATED TO CROSS-CULTURAL CARE. Objectives related to cross-cultural care are as follows:

1. Discuss and/or diagram the pathophysiology of alcoholic liver injury and fatty liver. Understand the contribution of fatty liver and alcoholic hepatitis to the evolution of portal hypertension.

2. Recognize the importance of dietary salt and cultural influences on diet in the management of patients with cirrhosis, ascites, and portal hypertension.

3. Understand the resources available for aiding alcoholics to stop drinking and the utility of a substance abuse counselor.

4. Discuss the ethical and resource allocation issues that arise with liver transplantation, particularly focusing on the criteria for alcohol cessation.

Grading of Tutor Performance by Students

Each tutor was anonymously graded at the end of the course by his/her students using the online medical school evaluation form that is standard for each preclinical course. Tutors are graded for their overall effectiveness as a teacher on a Likert scale with a grade range from 1–5, where 1 is excellent and 5 is poor.
How We Teach: Classroom And Laboratory Research Projects

INTEGRATING CULTURAL CARE INTO PATHOPHYSIOLOGY TUTORIALS

Fig. 1. Students responded to the statement, “Issues of culture and ethnicity as they affect topics in the course were addressed.” Compared with the baseline year of 2004, the proportion of students noting “frequently” increased significantly for 2006 ($P < 0.001$), 2007 ($P < 0.001$), 2008 ($P < 0.001$), and 2012 ($P < 0.001$). Note that all years after 2004, when combined (e.g., 2005–2012), were significantly different from 2004 ($P < 0.05$).

Statistical Analyses

We performed statistical analyses on the anonymous student evaluations to the two questions in each online course evaluation about the overall course addressing issues of race and ethnicity and tutors actively teaching cross-cultural care using the two-tailed $Z$-tests for proportions. We made comparisons before and after the inception of the cross-cultural care faculty development program. To explore the correlation between frequently teaching culturally competent care and overall tutor rating, we calculated Pearson product-moment correlation coefficients.

RESULTS

Course Evaluation Question for Addressing Cross-Cultural Care

Every student was required to evaluate each preclinical course for the following question: “Issues of culture and ethnicity were addressed” (evaluated at “frequently,” “sometimes,” or “never” levels within the course). GI Pathophysiology course ratings improved significantly from 18% in 2004 to 51% in 2007 for the statement “Issues of culture and ethnicity were addressed” at a “frequently” level ($P < 0.001$) for a highly significant difference between 2004 (preintervention) and 2007 (postintervention). This significant improvement continued from 2008 and through 2012. In 2012, this percentage was 64%, significantly higher than 51% in 2007 ($P = 0.018$; Fig. 1).

Tutor Evaluation Question for Actively Teaching Cross-Cultural Care at the “Frequently” Level

In 2004, the mean frequency of students’ rating the tutor evaluation statement “This tutor actively teaches culturally competent care” with the rating “frequently” was 43%; in 2006 (after the 30-min program), it was 51%. These differences were not significant ($P = $ not significant). However, after the 1-h program was introduced, differences were significant from 2007 to 2012. In 2012, the percentage for “frequently” teaching culturally competent care was 76.4%. When 2012 was compared with 2004, the $P$ value was $<0.001$; compared with 2006, the $P$ value was $<0.001$; and compared with 2007, the $P$ value was 0.019 (Fig. 2).

Tutor Characteristics

No significant differences were found for tutor experience, sex, age, rank, or specialty in the tutors who taught cross-cultural care frequently and those who did not (Table 1). The majority of tutors during the 6-yr period were Caucasian. Few tutors were Hispanic or African-American over the 6-yr period of time. Because of the scarcity of underrepresented minority or Hispanic tutors, statistical significance could not be addressed for the question as to whether the race or ethnicity of the tutor could make a difference in teaching cross-cultural care.

Compared with the tutors, the medical students at our school are consistently one of the most diverse medical school classes in the nation. The range for the percentage of underrepresented minorities in the class over the 6-yr period of the faculty development program from 2007 to 2012 was 21.0–27.9%, with an average of 25.6% underrepresented minorities per year. In 2004, the percentage for medical school class diversity was the highest at 33%, whereas in 2006, it was 24% (23).

Tutor Overall Evaluations

A tutor was evaluated as an effective teacher by anonymous student ratings (using a Likert scale from 1 to 5, where 1 is excellent and 5 is poor). The tutor’s rating was moderately but significantly (0.385) correlated over the 6-yr period with his/her ranking as teaching cross-cultural care at the “frequently” level when the cumulative average of all years was analyzed ($P < 0.001$; Table 2).

Overall Course Ranking Compared With All Preclinical Courses

In 2004, before the faculty development program was developed, the GI Pathophysiology course’s overall course rank-
ing for excellence was second (1.27 overall course rating) compared with all other preclinical courses based on anonymous student responses to the required question “Please rate the course overall.” The course ratings are on a Likert scale of 1–5, with 1 being excellent and 5 being poor. In 2006, the year of the 30-min program, the overall course ranking was tied for fifth place, with a score of 1.65, with 144 evaluations from 173 students, on a Likert scale of 1–5 with 1 being excellent and 5 being poor. In 2007, the first year of the cross-cultural care faculty development program, the overall GI course ranking was 1.40, with 116 evaluations from 164 students, putting it in second place. Subsequently, the course oscillated from being second or third best in the preclinical courses at the medical school for the first time in more than 20 yr (Fig. 3).

Table 1. Characteristics of tutors rated as teaching culturally competent care “frequently” by >60% or <60% of anonymous student responses

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<tr>
<th></th>
<th>2004 (n = 22)</th>
<th>2006 (n = 23)</th>
<th>2007 (n = 22)</th>
<th>2008 (n = 23)</th>
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<th>2010 (n = 24)</th>
<th>2011 (n = 24)</th>
<th>2012 (n = 24)</th>
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<tr>
<td></td>
<td>&gt;60%</td>
<td>&lt;60%</td>
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<td>&lt;35 yr</td>
<td>5 (83)</td>
<td>10 (63)</td>
<td>8 (80)</td>
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<td>2 (33)</td>
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<td>2 (20)</td>
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<td>Residents</td>
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<td>17 (74)</td>
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<td>15 (62.5)</td>
<td>9 (37.5)</td>
<td>19 (79)</td>
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n, Number of tutors. No significant difference was noted for a tutor’s age, sex, years of teaching, specialty, or rank. GI, gastrointestinal. *Frequency of tutor ratings of >60% or <60% in 2004 compared with 2006–2008 combined (P = 0.003). †Frequency of tutor ratings of >60% were significantly higher than in 2004 in years of 2007, 2008, 2009, 2011, and 2012 (P < 0.05).

Teaching Cross-Cultural Care Compared With Other Second-Year Courses Teaching Pathophysiology

Over the 6-yr period, the GI Pathophysiology Course did better compared with all but one of the second-year pathophysiology courses for students’ anonymous answers to the required evaluation question “Issues related to culture and/or ethnicity as they affect topics in this course were addressed” at a “frequently,” “sometimes,” or “never” level (Fig. 4). The pathophysiology course that was slightly ahead of the GI Pathophysiology course used videos of a cross-section of patients who were diverse ethnically, racially, and socioeconomically. These videos were shown in tutorials as part of the tutorial case. The videos stimulated active discussion of relevant socioeconomic and cultural influences.

Outcomes for Students From the Association of American Medical Colleges Graduation Questionnaire Question

Graduating seniors at all medical schools are asked a series of questions about their medical school preparation by the Association of American Medical Colleges (AAMC). One question asks about their confidence in their ability to take care of patients from diverse backgrounds and is worded “I believe I am adequately prepared to care for patients from diverse backgrounds.” From 2007 to 2012, there was no major difference between Harvard Medical students and graduating medical students at all medical schools in their answer to this question, with 49.3% at Harvard Medical School answering in the affirmative for preparedness to take care of diverse populations compared with 50.3% answering in the affirmative at all medical schools.

Table 2. Tutors’ overall evaluation scores correlated with “frequently” actively teaching culturally competent care in the tutorial

<table>
<thead>
<tr>
<th>Year</th>
<th>Pearson’s r</th>
<th>P Value</th>
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<td>0.053</td>
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<td>2010</td>
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<td>2011</td>
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<td>2012</td>
<td>0.643</td>
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<tr>
<td>Cumulative</td>
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<td>&lt;0.001</td>
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</table>

Tutors’ overall evaluation scores, as measured on a Likert scale from 1 to 5, where 1 is poor and 5 is excellent, over the 6yr period were significantly correlated with their “frequently” actively teaching culturally competent care (P = 0.001).
This medical student group on Race in the Curriculum, which is supported by faculty members from the Office of Diversity and Multicultural Affairs and the Cross-Cultural Care Committee at the medical school, presented their report to the Dean of the Medical School at the Faculty Council Meeting in 2013, the Master/Associate Master Meeting in 2013, and Brigham and Women’s Hospital Medical Grand Rounds on May 23, 2014. In each PowerPoint presentation, students listed three items as “challenges” to the improvement of the integration of issues of race, ethnicity, and cross-cultural care in the curriculum. The first was “institutional memory,” the second was “faculty commitment,” and the third was “faculty development.” Under faculty development was listed “Helen Shields’s GI Pathophysiology course with mandatory tutorial leader training.” This results in “socio-cultural issues addressed in every tutorial case to increase exposure.” Students requested that other courses be encouraged to have a similar faculty development course to increase discussion of cross-cultural care issues.

**Qualitative Course Comments Regarding Discussions of Culture and Ethnicity**

All comments that students spontaneously wrote concerning cross-cultural care integration into the course or the tutorial and the year they were written, including both positive and negative comments, are listed below:

- **2007 course** “The cultural competency objectives were not addressed specifically enough.” “Cultural issues were overemphasized in a course where there was not even time for key concepts.”
- **2007 tutorial:** No specific comments.
- **2008 course:** “What I liked most about the GI tutorial cases was the extent to which they integrated basic science, clinical medicine AND psychosocial themes. I don’t know how to explain it, but the amount of integration that was in these cases was JUST right.”

**Fig. 3.** Annual reports of required course ratings from 2007 to 2012. Each student was required to complete the same anonymous student online evaluation for each preclinical course. The last question asks “Please rate the course overall.” The Gastrointestinal (GI) Pathophysiology course was first, second, or third each year from 2007 to 2012 in official course ratings at the medical school for all the preclinical year courses. The overall rating was 1.40 (116 of 164 responses) in 2007, 1.24 (102 of 174 responses) in 2008, 1.16 (111 of 175 responses) in 2009, 1.24 (79 of 166 responses) in 2010, 1.15 (133 of 168) 2011, and 1.17 (158 of 174 responses) 2012.

**Fig. 4.** Annual reports of students’ responses to the statement “Issues of culture and ethnicity as they affect topics in the course were addressed” by course from 2007 to 2012. Each student was required to complete the same anonymous student online evaluation for each preclinical course. One of the questions asks “Issues of culture and ethnicity as they affect topics in the course were addressed” (evaluated as “frequently,” “sometimes,” or “never”). The GI Pathophysiology course was second in ranking compared with all other second-year pathophysiology courses in addressing issues of culture and ethnicity over the period of 2007–2012. The ranking is based on the percentage of students who noted that the course was “frequently” addressing issues of culture and ethnicity in the anonymous student evaluations. The percentage for the GI Pathophysiology course was 51% in 2007, 65% in 2008, 62% in 2009, 57% in 2010, 65% in 2011, and 64% in 2012.
INTEGRATING CULTURAL CARE INTO PATHOPHYSIOLOGY TUTORIALS

How We Teach: Classroom And Laboratory Research Projects

- 2008 tutorial: “Lastly, he actually did an effective job of intermingling social, ethical/doctors patient relationship-related issues into tutorial discussions; I don’t think I ever had another tutor who did this as effectively. Often it has seemed forced/artificial in other settings.”
- 2009 course: “The course did a great job of addressing social and cultural issues as well. It was obvious that the course directors (and others?) put a lot of effort into acknowledging and addressing issues involving more than just the disease.”
- 2009 tutorial: “He was also very sensitive and thoughtful regarding the socio-cultural aspects of the case and is clearly a top-notch physician as well.”
- 2009 tutorial: “He did an excellent job discussing all of the basic science principles with us and was the first tutor I had who appropriately addressed the ‘culturally competent care component’ (with personal anecdotes and provocative questions).”
- 2010 course: No comments.
- 2010 tutorial: “He made it a point to always make sure that we keep in mind the social and cultural implications of care and often we became engaged in ethical issues arising from pathophysiologic processes were discussing.”
- 2011 course: No comments.
- 2011 tutorial: No comments.
- 2012 course: “Good focus on psychosocial issues in tutorial (which are often ignored), especially the last case.”
- 2012 tutorial: “I very much appreciated our discussions about wellness and social determinants of health as they were incorporated into tutorial.”
- 2012 tutorial: “His intricate knowledge of the basic cellular processes as well as ability to field discussions about ethics and cultural issues in a dynamic and informed way is unparalleled.”

DISCUSSION

In response to the government’s mandate that cross-cultural care be integrated into medical education, United States medical schools have created culturally competent care curricular offerings for the undergraduate curriculum as a means of trying to improve healthcare disparities, such as our medical school did in 2004 (15, 28, 29, 33, 35). Those who have attempted to create curricula and programs to improve the teaching of cross-cultural care in medical school and residency programs agree that it is challenging, complex, and not always clear how to include all stakeholders’ ideas and identify the outcome measures for measuring success (2, 3, 5–8, 13–17, 19, 20, 22, 24–28, 31–35). In 2008, the College of Human Medicine at Michigan State University published the successful implementation of a curriculum project designed to prepare medical students to care for populations who have Medicaid or a low socioeconomic status (33). They used outcome measures from the AAMC Graduation Questionnaire and residency program directors ratings of their graduates’ skills in applying cultural competence in working with patients who have Medicaid or a low socioeconomic status as evidence that the program had successfully changed the curriculum to increase graduates’ recognition of disparities in healthcare and their ability to do something positive about these inequities (33). The AAMC Graduation Questionnaire results at our school did not reflect an increase or decrease in student perceptions of their ability to care for diverse patients over the same 6-yr period, as measured by their response to the question “I believe I am adequately prepared to care for patients from diverse backgrounds.” Perhaps our 2.5-wk course is both too short and too remote from the fourth year to make an impact on the answer to this question. Our overall medical school percent responses were not significantly different from all other medical schools’ responses to that particular AAMC question combined over this time period.

In the present study, we provide evidence that a faculty development program with a longitudinal component to encourage and model the integration of discussions of cross-cultural care into pathophysiology tutorials benefitted students, tutors, and possibly the course over the 6-yr timeframe that it was mandated for all tutors in the GI Pathophysiology course. Students indicated their appreciation for the faculty development program with largely positive spontaneous comments in the course evaluation praising the discussion of cross-cultural care in tutorial cases and in specific tutor evaluations complimenting the tutor for including discussions of cross-cultural care during the tutorial.

In 2013, the student-run Race in Curriculum Group, which replaced the 2007 Student Subcommittee on Cross-Cultural Care, asked that medical school leaders mandate the same type of faculty development program in cross-cultural care for other preclinical courses at the medical school so that discussion of cross-cultural care topics could be similarly addressed in other courses’ tutorials. Our preclinical medical students’ eager and positive responses to the integration of cross-cultural care into a second-year pathophysiology course were not replicated at another United States’ medical school recently, where an anonymous survey of preclinical students revealed a “substantial proportion of participating first- and second-year medical students do not believe that self-reflection regarding one’s own cultural biases is important to one’s performance as a physician, do not view an understanding of diverse patient cultural beliefs as important or very important in the provision of effective patient care, and are uncomfortable with and unsure about care” (19).

When Loudon and colleagues (20) from Birmingham, England, surveyed the medical literature in the late 1990s for articles on culturally competent care education, they found only 17 programs that met their criteria. Of these programs, 10 of 17 programs were optional for students. Only one of the seven required programs noted that students were evaluated on their discussions in tutorials and case presentations (20). Few described more than 1 or 2 yr of a specific program. Family medicine, community medicine, and psychiatry were more likely to be sponsors of these programs (20). Most programs were located in the United States (20). Students in the earlier years of education may focus more on the sociocultural aspects of a case compared with students in the later clinical years, where the primary focus is the understanding of the disease process and its management (20).

A review of the more recent literature on faculty development programs for cross-cultural care at the preclinical level found no other United States medical school mandatory faculty development program that evaluated outcomes for students and faculty over a multiyear period. However, Kickett et al. (15), from Perth, WA, Australia, published in 2014 a model for large-scale healthcare professionals’ cross-cultural education.
focusing on “closing the gap” between whites and aboriginals for health outcomes and life expectancy. When they looked at their first-year student satisfaction survey data, it showed that the majority of students enjoyed the course and felt that it was valuable to them as health professionals (15). They particularly valued the use of videotapes of aboriginals telling their own stories (15). At our medical school, as noted in the RESULTS, medical students appreciated videotapes showing racially and ethnically diverse patients discussing their medical problems and socioeconomic issues during their tutorials. These videotapes were used in the pathophysiology course that had the highest percentage in the “frequently” category for the course evaluation question “Issues related to culture and/or ethnicity as they affect topics in this course were addressed.” In 2009, The Johns Hopkins University Medical School published its innovative “Genes to Society” curriculum where cultural competence is listed as one of the key “horizontal strands” throughout the curriculum of the first and second years focused on lessening healthcare disparities (35). No data have yet been published on whether healthcare disparities and healthcare access have been improved as a result of the new Genes to Society curriculum’s effect on graduating physicians’ clinical practice and patient management (35).

Over the 6 yr of our program, many faculty tutors resisted teaching cross-cultural care and pathophysiology in an integrated manner. Our teaching strategy to overcome this faculty resistance was to have experts in the area of cross-cultural care at each faculty development session and weekly followup sessions as well as have more experienced tutors discuss the positive aspects of being able to do both well. The expertise of A. S. Peters and R. Llerena-Quinn at answering questions and making suggestions to those tutors who were not actively teaching cross-cultural care was helpful to getting every tutor to work toward the acknowledged goal of active discussion. Tutors worried that discussing both relevant cross-cultural care issues such as alternative medications, alcoholism, obesity, culturally sensitive dietary changes, and the ability to pay for essential medications and pathophysiology would short change their pathophysiology teaching. In response to this concern, we helped tutors understand the relevance of the triggers to students’ understanding pathophysiological concepts and worked with them to fully integrate biomedical and cultural factors in tutorial discussions. It was reassuring when the data showed that tutors who actively and frequently discussed cross-cultural care had better overall ratings as tutors compared with tutors who did not discuss cross-cultural care. A tutor’s age, rank, specialty, or years of experience tutoring did not affect the frequency of actively discussing cross-cultural care.

Somewhat surprising and disturbing has been the difficulty in proving the effectiveness of the interventions in cross-cultural care in regards to improving patient healthcare outcomes (17, 25, 32). In 2005, Price et al. (25) found that studies assessing the effectiveness of cultural competence training on minority healthcare quality lacked rigorous methodology. In 2010, Lie and colleagues (17) noted that there were only a few studies “showing a positive relationship between cultural competency training and improved patient outcomes...” These authors indicated that few excellent studies had actually been done. They provided an algorithm for helping to design more rigorous educational research projects in this important area of patient outcomes. In 2011, Reitmanova (26) noted that there was no systematic approach to helping medical students learn to care for patients from diverse cultural backgrounds in medical schools. In 2012, a cautionary note was sounded by Sears (27), who, after reviewing cultural competency educational programs by medical schools and their impact on racial and ethnic minority health outcomes, noted that little impact had been shown. Thus, more work needs to be done with innovative but rigorously conducted studies of cross-cultural care faculty development and curricula to achieve the hoped for outcome of a decrease in the racial, ethnic, and socioeconomic disparities in healthcare.

We cannot specifically link the overall improved course rankings from 2007 to 2012 with the faculty development program for cross-cultural care because other improvements were being made to the course during the same time period. In 2008, the three pathology laboratories were changed to be more interactive (4). Student evaluations of the revised pathology laboratories indicated a significant improvement in Likert scale scores over the period from 2008 to 2011 after multimedia and team-based learning techniques were introduced into the three pathology laboratories to make them higher yield educationally (4).

There are four major differences between the 2-yr summary of the faculty development program we published in 2009 (28) and this 6-yr summary of our specific long-term results with the same faculty development program. First, in 2009, we had the helpful advice of the Student Subcommittee to create the triggers and cases for the tutorial and faculty development program. In comparison, after 6 consecutive years of the program, the student-run Race in the Curriculum Group publicly urged the leadership of our medical school at three different forums to make it mandatory for every course at the school to integrate cross-cultural care into its curriculum and create faculty development programs similar to the one described here to successfully accomplish this goal. Second, we specifically monitored whether the integration of cross-cultural care into the GI pathophysiology program significantly improved student self-assessment of their preparedness to care for diverse patient populations on the AAMC Graduation Questionnaire. Although our faculty development program and the integration of cross-cultural care into the tutorial did not change the AAMC Graduation Questionnaire results, it was useful to examine this outcome measure. Third, we compared our efforts to integrate cross-cultural care into a second-year pathophysiology course to all other second-year courses at our medical school. We examined why one course had better ratings than ours for cross-cultural care and determined that the use of videotapes of diverse patients during tutorial triggered discussion of cross-cultural care topics. Finally, we studied the ranking of the GI Pathophysiology course over the period from 2007 to 2012 to see if the integration of cross-cultural care had a negative impact on the ranking of the course’s ability to teach GI pathophysiology. It certainly did not have a negative effect in that the course improved its rating over the years after the faculty development program was introduced.

In summary, we created a faculty development program with a longitudinal followup for tutors in a preclinical pathophysiology course to help them accomplish the goal of teaching cross-cultural care in an integrated manner with pathophysiological concepts. Our 60-min faculty development program over the 6-yr period from 2007 to 2012 significantly improved overall...
course and tutor and percentages for “Addressing issues of culture and ethnicity in the overall course” and for “frequently” actively teaching cross-cultural care in tutorial.

Students have asked the medical school faculty and deans to mandate that all courses have a similar faculty development program. Tutors were recognized as better tutors when they taught both cross-cultural care and pathophysiology. We hope that our positive results over a 6-yr period will encourage other medical schools to create and sustain cross-cultural care faculty development programs promoting the discussion of cultural and socioeconomic issues among faculty members and students in parallel with teaching pathophysiological concepts. Such programs may eventually lead to changes in future physicians’ biases and ultimately to the highly desired outcome of a decrease in healthcare disparities.

ACKNOWLEDGMENTS

The authors are indebted to students from the Race in the Curriculum Working Group (2011–2012). The authors thank Nnorwah Ayogu (HMS III), Paula Chatterjee (HMS III), F. Garrett Conyers (HMS I), Camila Fabersunne (HMS III), Kai Huang (HMS I), Juliana Morris (HMS III), Aaron Quares (HMS III), and Nathan Scott (HMS III) for giving permission to use one of their proposals to the Harvard Medical School Faculty Council and Harvard Medical School Society Masters and Associate Masters in this article and to Dr. Fidencio Saldana (Assistant Dean of Multicultural Affairs at Harvard Medical School) for support of the Race in the Curriculum Working Group and its proposals for additional cross-cultural care teaching in tutorials.

The authors are also indebted to the 2007 Student Subcommittee on Cross-Cultural Care at Harvard Medical School, which helped revised the tutorial cases to make the cross-cultural care more real and relevant to medical and dental students. The names of these former students are Dr. Chitra Akileswaran, Dr. Edith R. Gurrola, Dr. Rachel Jimenez, Dr. Amy Saltzman, Dr. Peter A. Samuel, Dr. Kara Wong, and Dr. Vinod Nambudiri, who was the student leader of the Subcommittee.

The authors are grateful to Elisabeth Peet (Harvard Medical School’s Center for Evaluation) for providing the course testing data, Carla Fujimoto (Harvard Medical School’s Office of Student Affairs) for providing the AAMC Graduation Questionnaire data, Susan Zapatka (Associate Registrar at Harvard Medical School), and Angela Burke (Coordinator in the Registrar’s Office at Harvard School of Dental Medicine) for providing the numbers of medical and dental students in each class from 2004 to 2012. The authors are indebted to Dr. Alexander R. Green (Disparities Solutions Center at Massachusetts General Hospital) and Dr. Farouc Jaffer (Division of Cardiology of Massachusetts General Hospital) for the expert advice and suggestions.

H. M. Shields is grateful to her patient, Natalie Wolf, and the Natalie Wolf and Leo E. Wolf Foundation for philanthropic support of the Gastrointestinal Pathophysiology Course’s expenses for educational materials during the years of 2004–2012.

DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the author(s).

AUTHOR CONTRIBUTIONS


REFERENCES


