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Empowering Students With Cultural Competence Knowledge: Randomized Controlled Trial of a Cultural Competence Curriculum for Third-Year Medical Students

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Abstract

Background—Formal training in cultural competence for health care providers has become vital as the US population continues to become increasingly culturally diverse. However, a low percentage of medical schools offer formal training in this area, and there is a lack of curriculum evaluation reported in the literature.

Purpose—To determine the impact of formal cultural competence teaching on third-year medical students' knowledge of cultural competence.

Method—Data from 109 third-year medical students during the period of November 2001 to February 2004 were analyzed in the study. The intervention was a comprehensive cultural competence curriculum, and the primary outcome measure was the change score in cultural competence knowledge demonstrated by the medical students after completing a precourse and postcourse 40-item multiple-choice questionnaire.

Results—Forty-seven medical students in the control group and 62 medical students in the intervention group completed both the pretest and posttest. The overall knowledge scores in the intervention group increased by 19%, compared to a 4% increase in the controls ($p < .01$).

Conclusions—Third-year medical students in the intervention group were significantly empowered with cultural competence knowledge when compared to the control group.

Keywords

cultural competence; education; culture

INTRODUCTION

Demographers have long predicted increased diversity of the US population as a result of increased birth rates and the global migration patterns.^{1,2} Unfortunately the number of minority health care providers has not kept pace with the growth of minority populations, giving rise to a high likelihood of racial and ethnic discordance between physician and

patient. This does not determine nor define cultural competence, but it is a disadvantage based on studies showing that race concordance leads to improved doctor-patient relationship, communication, and patient satisfaction.³⁻⁵ Data demonstrate that minority medical school graduates have increased by about 30% over the last 50 years.⁶ Nevertheless, blacks, Hispanics/Latinos, and Native Americans remain underrepresented, accounting for less than 15% of medical school graduates and less than 6% of practicing physicians.^{6,7} Given the potential for cultural and ethnic discordance of health care providers and patients, along with the evidence of increased patient satisfaction in culturally competent patient-physician relationships, cultural competence training is becoming a vital component of medical education.⁸⁻¹² National guidelines require medical schools and residency training programs to integrate cultural competence training into their curricula.¹³⁻¹⁵ Eighty-seven percent of medical schools had instituted 3 or fewer cultural competence lectures as of the year 2000, but only 8% offered courses focused on this area.¹⁶

Although the call for greater awareness of cultural competence and implementation of focused training dates back to the 1960s, the pedagogy of cultural competence in medicine is still in its infancy.¹⁷⁻¹⁹ The development, implementation, and evaluation of cultural competence training have been limited in medical education. There is no standard curriculum to teach cultural competence, and of the curricula implemented only a few have been assessed for effectiveness.²⁰⁻²² Furthermore, there is limited guidance on appropriate evaluation strategies for cross-cultural medical education.²³

This article describes the development and implementation of a novel curriculum to teach cultural competence during a required third-year general medicine clerkship. We used the rubric that acquisition of knowledge is the first step in attitude change and skill acquisition, and thus focused on change in knowledge of cultural issues in medicine. We report the results of a randomized controlled-trial assessing the impact of this curriculum on the students' cultural competence knowledge.

METHODS

Intervention

The intervention was a cultural competence curriculum developed for third-year medical students. The curriculum highlights 7 core elements of cultural competence which were also highlighted in other reports.^{18,19,24,25}

- Health disparities—involves a discussion of current health disparity trends and possible causes, including physician bias. A class exercise in the identification of self-bias is incorporated.
- Disease incidence and prevalence—provides students with specific information regarding differential patterns of disease and pharmacologic response among distinctive ethnic groups. It also includes a discussion of the influence of patterns of migration.
- Stereotyping—discusses our own tendency to stereotype and the danger of cultural competence teaching leading to stereotyping when not taught correctly. The difference between stereotyping and generalizing is also established.
- Exploring culture—explores how an individual's background is associated with his or her potential reaction to an illness. Culture and its attributes are defined with examples of culture-bound syndromes given.

- Perception of health and illness—teaches the difference between disease and illness, explores explanatory models from both the patient's and physician's viewpoints, and reviews negotiation skills.
- Communication and language—emphasizes both verbal and body language and demonstrates how to effectively use an interpreter.
- Gender issues—explores the differing roles of gender, family dynamics and sexual orientation.

The study protocol was approved by the institutional review board. The intervention was incorporated into the required third-year clerkship in general medicine, and the teaching was conducted in 5 consecutive weekly sessions. The first lecture lasted 2 hours, with successive sessions for 1 hour each, and total instruction time was 6 hours per group.

Instructional strategies included written and/or videotaped vignettes, open discussion, and a question-and-answer period. The cultural competence teaching was done by 2 of the authors (I.G., J.B.J.) with expertise in development and evaluation of educational programs, health disparities, and cultural competence. Table 1 shows a detailed time line and list of session topics. Prior to the intervention, there was no formal cultural competence training in the medical curriculum.

Evaluation Design

The sample for this study comprised the entire cohort of third-year medical students in their clerkship in general medicine at the same institution for each year of the study (2001–2004). Each third-year medical student is required to do a 2-month clerkship elective, and the clerkship director randomly assigned the students to the internal medicine clerkship at the beginning of each academic year. The clerkships were then randomly assigned as a cluster to attend either educational control sessions or the educational intervention.

In the control group, the cultural competence lectures were replaced with lectures on clinical preventive medicine, alternative medicine, and domestic violence, and taught by faculty with expertise in those areas. All students were assessed using an identical, validated evaluation tool at the beginning and at the end of the curriculum. More specific information on this evaluation tool is provided in the literature.²⁶ The data analyst (D.M.S.G.) was blinded to group assignments and kept others blinded to results until conclusion of the study.

Measures

We hypothesized that a cultural competence educational intervention would improve third-year medical students' level of knowledge in cross-cultural issues in medicine. Both pretest and posttest instruments consisted of the same 40 questions differing only in the ordering of questions. The scores ranged from a minimum of 0 to a maximum of 40 points.

Administration

Students were clearly informed that their voluntary completion of the questionnaire was intended to assess their knowledge of cultural competence, and no incentives were provided. All students who were in attendance during administration of the questionnaires consented to complete them; there were no refusals. All students completed the questionnaire in approximately 15 minutes. Because of class absences during session 5, when posttest questionnaires were administered, there were fewer posttest questionnaires than pretest questionnaires available for analysis.

Analysis

Using an intention-to-treat analysis, pretest to posttest changes in knowledge scores by knowledge domain and overall were calculated for each study participant. To assess the potential for confounding by race/ethnicity, age, gender, and previous cultural competence training, mean change scores were compared by each of those 4 student characteristics. Because students were assigned to treatment or control group by class, we used a mixed-model analysis to account for clustering within clerkship. The model evaluated the overall significance of the pre-test to posttest change in total knowledge score and domain specific score. Data were managed and analyzed using SAS (SAS Institute Inc, Cary North Carolina).

RESULTS

A total of 256 students attended the class sessions in which pretest questionnaires were distributed, and 116 attended the class sessions in which posttest questionnaires were distributed. Any student who completed a pretest but missed class on the posttest class session day was contacted and given 1 week to complete the posttest questionnaire. Those contacts resulted in 8 additional questionnaires being completed. There were 109 medical students (47 in the control group and 62 in the intervention group) who completed both the pretest and post-test questionnaires and this intention-to-treat analysis is restricted to those 109 students.

Table 2 lists the demographic characteristics of the 109 students in this analysis: 55% were male and 45% were female; 42% were aged less than 25 years old and 58% were aged 25 years and older; 72 (66%) were white; 36 (33%) were students of color, and 1 student declined to report race/ethnicity. Nearly half of the students ($n = 49$; 45%) reported having had some prior formal training in cultural competence, while 55% ($n = 60$) reported having had none. Groups were comparable at baseline with regards to gender, age, race/ethnicity, and previous cultural competence training ($p > .05$) using χ^2 test of association.

To evaluate the potential for confounding, we evaluated differences in change scores by gender, age, race/ethnicity, and previous training. With the exception of race/ethnicity among the control group, there were no other statistically significant differences in knowledge change scores by student characteristics (Table 3). Table 4 lists the pretest and posttest scores. The overall knowledge scores in the intervention group increased by 19%, compared to a 4% increase in the controls ($p < .01$). The intervention group also performed significantly better than controls on the communication and health and illness subscores.

DISCUSSION

In spite of increased awareness of the need to incorporate cultural competence training in medical education, this training has had limited acceptance and implementation into medical schools and residency programs. A 1997 telephone survey of deans of students and/or course directors in the United States and Canada found that 85% of the 122 responding US schools incorporated from 1 to 3 discrete curricular components on multicultural issues into larger courses or electives. However, only 5% taught cultural competence as a separate course for medical students, 7% had no focused program on cultural competence, and virtually all (96%) of the courses were only taught during the first 2 years of medical school.²⁷ Reports on current efforts to teach cultural competence reveal that there are no widely accepted standards for medical student training in cultural competence and that education in this area varies widely in terms of time commitment, target audience, medical student curriculum content, and method of evaluation.^{28,29}

We have developed a cultural competence curriculum for medical students, and its evaluation has demonstrated an association with improved scores of overall knowledge when compared to a control group. We interpret this result as evidence that a curriculum specifically designed to emphasize aspects of cultural competence empowers third-year medical students by increasing their knowledge in this area. Our study had several notable strengths. The curricular content was based on elements reported in the literature as essential to successful transmission of knowledge in cultural competence.^{14,15,18,27} Because existing curricula vary considerably, we incorporated key domains widely cited in cultural competence literature. It was a randomized controlled study and used the before-after with preintervention and postintervention assessment. Another strength of our study was the use of a validated evaluation tool for cultural competence.²⁶

Our study also had several limitations. These include data from a single educational institution with the consequent ramifications for generalizability. The data for the 3 years of the study were pooled for statistical analysis because the numbers for individual years were too small to analyze. There may have been some contamination between study arms, which would actually reduce the effect associated with our intervention. In addition, not everyone who completed the pretest completed the post-test and vice versa. However, only subjects who completed both pretest and posttest were included in the analysis. Finally, it is unclear the impact, if any, on long-term knowledge retention and the ultimate effect of this knowledge on clinical care.

The main implication of our study is the demonstration of how one curriculum specifically focused on cultural competence has demonstrated a significant association with increased knowledge. Our study also demonstrates that previous training in cultural competence did not impact the overall score in our study. This underscores the need for the implementation of formal cultural competence curricula in medical schools. In addition, factors such as race/ethnicity did not have an impact on acquisition of cultural competence knowledge. This is important when considering assumptions that a particular subgroup would be more likely to better acquire knowledge in cultural competence.

Further work is needed to assess improvements in attitudes and skills of participants. We believe this evaluation of our curriculum demonstrates the feasibility of raising awareness as well as knowledge of cultural competence among third-year medical students. Given the need for longitudinal curricular experiences and implementation of a standard curriculum, we hope this study provides a successful example of how to evaluate knowledge-based training in cultural competence. Future studies are needed to evaluate the impact of cultural competence knowledge on clinical outcomes, health disparities, and patient-provider satisfaction.

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Table 1

Cultural Competence Educational Intervention and Course Design

Session	Control	Intervention
Session 1 (2 hours)	Pretest	Pretest
	Clinical preventive medicine overview	Introduction
		Establish the importance of cultural competence
		Review data on racial and ethnic disparities
		Review key clinical studies and literature
Session 2 (1 hour)	Health maintenance and screening tests	Understanding the meaning of illness Basic concepts: what is culture? Illness vs disease Evaluating a patient's explanatory model
Session 3 (1 hour)	Domestic violence	Examining our own biases
Session 4 (1 hour)	Complementary and alternative medicine	Determining the patients' social context
Session 5 (1 hour)	Adult immunizations	Negotiating across cultural lines
	Posttest	Posttest

Table 2Baseline Characteristics of Study Participants by Education Group^a

	Control (n = 47)	Intervention (n = 62)
Gender		
Male	25 (53%)	35 (56%)
Female	22 (47%)	27 (44%)
Age group, y		
<25	24 (51%)	22 (35%)
≥25	23 (49%)	40 (65%)
Race/ethnicity		
White	31 (66%)	41 (67%)
Person of color	16 (34%)	20 (33%)
Previous cultural competence training		
No	27 (57%)	33 (53%)
Yes	20 (43%)	29 (47%)

^a All *p* values not significant (*p* > .05) using χ^2 test of association.

Table 3

Change in Knowledge Scores by Baseline Characteristics Among Control and Intervention Groups

Control Group	% Change in Score	P Value
Gender		.68
Male	5.1%	
Female	2.8%	
Age group, y		.88
<25	4.5%	
≥25	3.6%	
Race/ethnicity		.01
White	-2.4%	
Person of color	16.4%	
Previous cultural competence training		.42
No	6.0%	
Yes	1.4%	
Intervention Group	% change in Score	P Value
Gender		.18
Male	21.9%	
Female	15.7%	
Age group, y		.48
<25	17.0%	
≥25	20.4%	
Race/ethnicity		.32
White	16.9%	
Person of color	22.6%	
Previous cultural competence training		.71
No	18.4%	
Yes	20.1%	

Table 4

Change in Overall and Domain Knowledge Scores by Education Group

Knowledge Domain	No. of Questions	Control			Intervention			P Value ^a
		Pretest	Posttest	% Change	Pretest	Posttest	% Change	
Exploring culture	9	6.7 (0.9)	6.7 (1.1)	1.5%	6.7 (1.1)	7.0 (1.0)	7.7%	.12
Health and illness	14	7.1 (2.2)	7.5 (2.4)	14.4%	7.4 (2.4)	9.8 (2.4)	40.1%	<.01
Stereotyping	4	1.0 (0.9)	1.1 (1.0)	7.1%	1.1 (0.8)	1.3 (0.9)	20.6%	.90
Disparities	4	2.5 (0.9)	2.7 (0.9)	14.7%	2.7 (0.7)	2.8 (0.7)	11.5%	.94
Communication	7	4.5 (1.3)	4.3 (1.4)	0.3%	4.6 (1.0)	5.5 (1.3)	22.2%	<.01
Overall score	40	21.8 (3.4)	22.3 (3.2)	4.0%	22.6 (3.4)	26.5 (3.2)	19.2%	<.01

^a p value for significance of change in score by treatment group.