Medical Science

Review

Moving the needle forward in health disparities: An education initiative

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Abstract: **Objective**: This paper sought to evaluate the impact of a year-long Health Equity Curriculum (HEC) on the knowledge of health disparities, cross-cultural humility, and empathy among physicians, trainees, and research staff. **Background**: There has been an increase in the inclusion of equity, cultural humility, and the social determinants of health into medical education at various levels. However, the frequency of this education is low and not well quantified or defined. The authors report the results of an education program, namely the HEC, on the knowledge of health disparities, cross-cultural humility, and empathy. **Materials and methods**: The HEC was delivered between March 2020 and May 2021. It included the following four modules: the social determinants of health, cultural humility, health literacy, and unconscious bias. The participants attended lectures and reviewed articles/videos using online modules and reflection assignments. The Jefferson Scale of Empathy (JSE) and the Cross-Cultural Competence Instrument for Health Care Professionals (CCCHP) were administered pre- and post-HEC. The results were statistically analyzed. **Results**: Of the 102 enrolled participants, 46 completed the entire course. The JSE showed a statistically significant improvement in the empathy scores from pre-HEC to post-HEC ($p < 0.01$). The CCCHP showed a significant improvement from pre-HEC to post-HEC total scores and in subcomponent scores of Motivation/Curiosity, Attitude, and Knowledge ($p < 0.05$). There were no significant differences in scores for the Skills and Emotions/Empathy subcomponents. **Conclusions**: Enrollment and completion in the HEC were associated with statistically significant improvements in the validated measures of cultural competence and empathy. Scaling this type of content and curriculum can educate professionals on equity and serving diverse communities. A further study is warranted.

Abbreviations: CCCHP: Cross-Cultural Competence instrument for Healthcare Professionals; HEC: Health Equity Curriculum; JSE: Jefferson Scale of Empathy

1. Introduction

Unfortunately, racial and ethnic disparities persist in health outcomes. These disparities are often the cause of social, economic, and systemic inequities in the American health care delivery system [1,2]. Health disparities have been well established among various dimensions including racial or ethnic groups, sexual orientation, socioeconomic status, gender, age, or people with disabilities [3]. These disparities persist despite numerous and diverse scientific and technological advances that have improved the overall health of the US population, indicating that not all groups are equally benefiting from these advances. Several other factors, known as social determinants of health, also contribute to an individual's ability and opportunity to achieve optimal health including education level, housing status, employment status, food insecurity, environmental factors, discrimination, and access to affordable health insurance and services [4,5]. Several studies have shown that, compared with their white counterparts, racial and ethnic minorities experience a lower quality of healthcare, are less likely to receive routine medical care, and have worse health outcomes for certain medical conditions [6–10].

A Diversifying Patient Population: According to recent US Census Data, approximately 4 out of 10 Americans identify with a race other than white [11]. Based on the current demographic trajectories, the United States is projected to be a "minority majority" nation by 2040–2050. Specifically, the majority of the nation will self-identify as belonging to a race and ethnicity that is currently in the minority. People who identify as Hispanic, Asian, and those that identify as two or more races are the fastest growing racial and ethnic populations [12]. Some states such as California, Arizona, and Texas are predicted to shift to minority majority populations by 2030, up to two decades ahead of the rest of the nation. Additionally, the net international migration is projected to overtake natural increase by 2030, which is a demographic first for the United States [13].

The Role of Social Determinants: Health care disparities result from a complex interplay of factors that stem from social, economic, cultural, and systemic inequities that impact various opportunities for good health, many of which occur outside of the clinical walls, but have a profound impact on disease presentation, interpersonal interactions, and health outcomes within the clinical walls [1]. Understanding the role of social determinants in the lived experiences of patients and communities is a critical first step in recognizing factors that contribute to inequities and critically considering solutions to address. Considering rapidly changing demographics and persistent disparities, health systems, health care professionals, and researchers must be able to better recognize and understand the impact these social determinants have on health opportunities and outcomes in an effort to reduce disparities and to improve equity in the communities they serve [3].

As stakeholders in health care and the overall health of the communities they serve, health care professionals should be prepared to better understand and meet the needs of the patients and their lived experiences outside of the clinical walls. Moreover, 16 studies have shown that health care professional empathy and cultural competency directly correlated with improved patient outcomes [14,15]. As such, some educational interventions have been introduced to support empathy and cultural competency and

to reduce health care disparities. One example of this is the American Medical Association's (AMA) Reimagining Residency Initiative, which includes grants at training institutions to focus on social determinants of health and reducing health disparities [16], and the AMA's development of a National Health Equity Grand Rounds series, which recognizes a gap in trainee and physician competencies [17].

Beginning to Address an Unmet Need: As several institutions have increased education in health care disparities, equity, cultural humility, and the social determinants of health, the study institution noticed a gap in these topics in their Graduate Medical Education (GME) and Continuing Medical Education (CME) level, while being provided at the undergraduate medical educational level (UME) [18]. Additionally, it was noted that this gap contrasted with offerings at the UME level, whereby students had formalized and required coursework and experiential opportunities woven into their education that covered these topics in detail. A lack or inconsistency in this space has been identified as an institutional gap in training and exposure, especially in improving the knowledge and understanding of challenges faced by diverse patient populations. This lack of a vital portion of education and clinical development was recognized as a need and was a major driver in the establishment of this program.

Considering the above well described gaps, the investigators created a pilot educational program through a collaboration between a research university and an academic healthcare system. The Health Equity Curriculum (HEC) consisted of didactic lectures and online modules which aimed to educate healthcare professionals on various aspects of health equity. The hypothesis was that participating in the HEC would improve the participants' understanding and empathy of health equity related topics, with the goal of better preparing them to meet the needs of a diversifying patient population.

2. Materials and methods

2.1. Health Equity Curriculum

The HEC consisted of a multi-platform, case-based curriculum as a collaboration between a research university and an academic healthcare system. The curriculum was delivered over the course of 1 academic year and included 4 quarterly, didactic, one-hour virtual lectures, between March 2020 and May 2021. Opportunities for interactive discussions with clinical vignettes and questions were dispersed throughout the lectures and an active chat feature was maintained and moderated throughout the hour. The online modules complimented the didactic material and consisted of multimedia tools including videos, lectures, reflective exercises, discussion boards, and assessments. Graded, thoughtful, real-time feedback was provided to the students on their interactive modules, and the discussion board was also active and monitored throughout the course. This pilot curriculum was built upon similar successful programs in medical education at a national level, as well as within the college of medicine's curriculum within the academic healthcare system.

Participants of the program were required to enroll as students in the Blackboard course (Blackboard Learn 9.1 v3900.2.0), and a consent form was electronically signed prior to proceeding with the course content. Instruments were anonymous and each participant was assigned an identification number. The target participants for this pilot study included faculty physicians, resident physicians, operations administrators and managers, clinical research coordinators, and other research staff from the academic healthcare system's divisions, which included the departments of gastroenterology, hepatology, and the comprehensive cancer center. The attendees could participate in the course at whatever capacity they were able to; however, a full completion of the course was only

achieved if the participants attended all lectures, completed all modules and exercises, and completed the pre- and post-assessment instruments. The participants who completed the course received a Certificate in Health Equity from the research university.

Didactic Presentations: Four didactic presentations were given at the Cancer Center Grand Rounds over the course of one year and delivered over a Zoom webinar platform. The first was on the topic of Social Determinants of Health and provided a foundation to understand the ways in which social factors such as racism, wealth, and education impacted health outcomes. The second session was on Cultural Competency and Humility and discussed the importance of respecting and understanding a patients' beliefs and cultural perspectives. The third session on Health Literacy highlighted the challenges patients have in understanding health information and navigating the health care system, and emphasized that everyone should be able to find, understand, and use health information and services. The fourth session on Unconscious Bias in Health Care provided a platform to recognize how a health care provider's bias negatively impacts patients and considered actions to mitigate this damage.

All didactic presentations were one-hour long moderated lectures and included cancer-based case studies that highlighted the presentation topics. The participants were able to interact using the chat function at any point during the lecture to ask questions, discuss clinical and personal experiences, and discuss strategies for improvement. Additionally, there were prompts throughout the lectures during which the participants submitted their reflections to a moderator, who then discussed the participant reflections with the presenter in real time. The prompts asked the participants to reflect on their own experience and discuss strategies for improvement. The presentations were recorded and available for viewing later if the participants were unable to attend the live session.

Online Modules: Four online modules were administered to build on the didactic presentations. The module topics were the same as their corresponding didactic presentation—Social Determinants of Health, Cultural Competency and Humility, Health Literacy, and Unconscious Bias in Health Care. Each module was structured such that the participants were expected to do the following: view the live or recorded hour-long presentation; complete the related materials, including articles, videos, and Implicit Association Tests (IATs) in Blackboard; and finish by submitting a written reflection of at least 400 words in length that combined the participants' understanding of course content with their own experiences and thoughts. The Harvard IATs are a series of online assessments designed to measure implicit bias and attitudes towards different social groups, such as race, gender, sexuality, and age [19]. The IATs have been used in a variety of studies, and the results have been used to identify implicit biases in health care, education, employment, criminal justice, and other sectors. The participants were expected to complete at least one IAT per module. For the first two modules, the participant reflections were directly submitted to the teaching team. To encourage the sharing of ideas between the participants, the third and fourth modules used a discussion board format for reflections to enable the participants to see and respond to others' thoughts. In addition to their original post, the participants were required to post substantive responses of at least 200 words to their peers. Reflections for all modules received individualized feedback from the teaching team, which consisted of three individuals (SR, MS, JT). Completion credit was awarded to the participants for each module, in which they fully addressed either the reflection prompt (Modules 1 and 2) or discussion board prompt (Modules 3 and 4).

2.2. Evaluation

The program's impact was measured by having the participants complete two validated instruments in the pre-HEC and post-HEC testing: The Jefferson Scale of Empathy (JSE) and the Cross-Cultural Competence Instrument for Healthcare Professionals (CCCHP), both before the first lecture and after the last lecture. Pre-HEC submissions were collected between March 10 and October 5, 2020. Post-HEC submissions were collected between May 20 and June 3, 2021. Virtual versions of the assessments were delivered to the participants before the first lecture and after the last lecture.

Jefferson Scale of Empathy: The JSE is a 20-item instrument measured on a 7-point Likert scale designed to measure empathy in the context of a health professional's education and patient care. The empirical evidence demonstrated strong associations between the JSE scores and the relevant variables, including patient outcomes, clinical competence, and measures of personality (e.g., compassion, sympathy, and empathy). This tool was chosen because it is specifically designed to measure empathy in a health professional's education and has been used in medical education research [20].

Cross-Cultural Competence Instrument for Healthcare Professionals: The CCCHP is a 32-item self-reported scale which delivers a comprehensive assessment of a health professionals' cultural competence. The CCCHP is subdivided into five scales: Motivation/Curiosity, Attitudes, Skills, Emotions/Empathy, and Knowledge/Awareness. This tool was selected because of its construct validity to examine a health care professionals' cultural competence, as well as its ability to distinguish between groups that would be expected to differ in their cultural competence (e.g., across health professions' disciplines) [21].

2.3. Statistical analysis

The pre-HEC and post-HEC JSE and CCCHP were compared using a paired *t*-test using SPSS (IBM SPSS v 28.0.1.1). The overall score (for JSE and CCCHP) and the subset scores (for CCCHP) were individually compared.

3. Results

A total of 102 participants enrolled, of which 46 completed the course, along with completing a pre-HEC and post-HEC assessment. The participant demographics are shown in Table 1.

Table 1. Demographics table.

Variables	Groups	Number (%)
Age	21–30	6 (13.0%)
	31–40	24 (52.2%)
	41–50	9 (19.6%)
	51–60	5 (10.9%)
	61–70	1 (2.2%)
	Unanswered	1 (2.2%)
Gender	Female	38 (82.6%)
	Male	7 (15.2%)
	Unanswered	1 (2.17%)
Physician vs. non-physician	Physician	14 (30%)
	Non-physician	32 (70%)
Race/ethnicity	Black or African American	1 (2.2%)
	Asian	8 (17.4%)
	Hispanic or Latinx	6 (13.0%)
	White, Non-Hispanic	27 (58.7%)
	Unanswered or Other	4 (8.7%)

3.1. Impact of the program

3.1.1.   Jefferson Scale of Empathy

For the JSE, a two-tailed paired *t*-test was used to compare the pre-HEC and post-HEC. There was a total of 46 responses with a pre-HEC and post-HEC score (n = 46).

The pre-HEC JSE mean score was 115.6 (scores can range from 20 to 140). The post-HEC score was 119.8. There was a statistically significant increase in the JSE from the pre-HEC to the post-HEC, from 115.6 to 119.8 ($p < 0.01$). See Table 2.

Table 2. Comparison of Jefferson Scale of Empathy scores (n = 46), pre-HEC and post-HEC, using two tailed paired *t*-test.

	pre-HEC	post-HEC	p value
Mean	115.6	119.8	<0.01
Median	118	120	
Range	85–138	96–140	
Standard deviation	11.2	11.9	

3.1.2.   Cross-Cultural Competence Instrument for Healthcare Professionals

For the CCCHP, a two tailed paired *t*-test was used to compare the pre-HEC and post-HEC. There was a total of 46 responses with a pre-HEC and post-HEC score (n = 46).

The pre-HEC CCCHP mean overall score was 133.4 (maximum possible score 160) and the average score per question was 4.17 (maximum possible score 5). For the pre-HEC, the participants scored an average of 4.53 per question in the Motivation/Curiosity component, an average of 4.02 per question in the Attitudes component, an average of 4.30 per question in the Skills component, an average of 4.11 per question in the Emotions/Empathy component, and an average of 4.39 per question in the Knowledge/Awareness component.

The post-HEC CCCHP mean overall score was 136.9 and the average score per question was 4.28. For the post-HEC, the participants scored an average of 4.66 per question in the Motivation/Curiosity component, an average of 4.21 per question in the Attitudes component, an average of 4.32 per question in the Skills component, an average of 4.15 per question in the Emotions/Empathy component, and an average of 4.56 per question in the Knowledge/Awareness component.

There was a statistically significant increase in the CCCHP total score, from 133.4 to 136.9 (p = 0.03), along with statistically significant changes in the components motivation/curiosity, from 4.54 to 4.67 (p < 0.01), an increase from 4.02 to 4.19 (p = 0.03) for the attitudes component, and an increase from 4.39 to 4.55 (p = 0.01) for the knowledge/awareness component. There were no statistically significant changes in the skills and emotions/empathy components. See Table 3.

Table 3. Comparison of Cross-Cultural Competence Instrument for Healthcare Professionals scores (n = 46), pre-HEC and post-HEC, using two tailed paired *t*-test.

	pre-HEC	post-HEC	p value
Total score	133.4	136.9	0.03
Component mean score			
Motivation/Curiosity	4.54	4.67	<0.01
Attitudes	4.02	4.19	0.04
Skills	4.28	4.33	0.33
Emotions/Empathy	4.11	4.15	0.57
Knowledge/Awareness	4.39	4.55	0.02

4. Discussion

The HEC appears to have statistically and significantly increased the participants' empathy, as measured by the JSE, and cultural competence and empathy, as measured by the CCCHP. While the full impact of health equity education for a health care workforce is not yet well studied, our findings suggest that healthcare workers who complete the HEC might have an improved cultural competency and empathy [22,23], which are qualities reported to be of value to diverse patient populations [24]; this can possibly improve trust relationships and ultimately improve the health outcomes [25].

Empathy has been described in the literature as having a direct relationship with health care outcomes: increased provider empathy leads to improved outcomes [14]. Existing literature consistently supports the idea that increasing empathy in health care improves treatment compliance, patient satisfaction, and clinical patient outcomes [26]. When health professionals demonstrate empathy, there is a higher likelihood for patients to follow and complete treatment plans. Additionally, patients report feeling heard and understood when health professionals demonstrate empathy towards

their challenges and social determinants [27]. Empathy in a clinical setting has also been shown to be therapeutic in reducing the anxiety levels of patients and increasing the likelihood of patients confiding in their providers [28,29]. Furthermore, empathy training or programs intended to improve empathy in health professionals have been shown to improve individual performances and contribute to a culture of empathy in a health care setting [27]. These factors are all particularly important in better meeting the health needs of diverse and hard to reach populations.

Similarly, cultural competency is also a metric that has a direct relationship on health care outcomes. Existing studies have supported the concept that a culturally competent health care system can improve health outcomes, patient relationships, and contribute to reducing racial and ethnic health disparities [15]. Through improved communication and a deeper understanding of cultural factors in patient decision making, improving cultural competence for health professionals and organizations has been evidenced to reduce inequities while also reducing costs for health systems [30]. While it is difficult to make individuals or systems wholly competent of a particular culture, well-programmed and evidence-based cultural competency curricula and its extension to cultural humility have a positive effect on improving patient and community relationships. The importance of increasing cultural competency has been recognized by health education and federal civil rights entities. This is exemplified by the fact that the national accreditation body for American and Canadian medical schools, the Liaison Committee on Medical Education (LCME), has mandated higher standards for cultural competence content and curricula for learners. Additionally, the Department of Health and Human Services' Office of Minority Health has issued fourteen national standards on culturally and linguistically appropriate services (CLAS), with the intention of making health care systems more inclusive and response to diverse patient populations [31–33].

Limitations: An analysis of the program's success was limited by the number of participants who completed post-HEC measures. Of the 102 participants who completed the pre-HEC measures, 46 completed the post-HEC measures and fulfilled the expectations of attendance and participation in all lectures and modules. Therefore, the interpretation of the curriculum's effect is limited to those who completed both measures, which can lead to a selection bias of participants who wished to learn the material. For unknown reasons, the 46 who completed the HEC were predominantly female (82.6%).

Additionally, the administration of the course was limited by the COVID-19 pandemic. The original course design consisted of in-person presentations combined with small group break-out sessions and direct interactions between the course participants and the presenter. Due to the pandemic, the lectures were given virtually instead without small groups, and a moderator was used during communication between the participants and the presenter. Moreover, the course start date was changed from March 2020 to September 2020, which resulted in a lengthened time period for collection of the pre-HEC instruments. However, there was only one cohort, and the curriculum did not officially launch for any participants until September 2020. Additionally, the study team was told anecdotally that the pandemic restricted the participants' ability to complete the course materials and to attend live sessions given the quickly changing and escalating clinical and health system responsibilities during the program and study period.

5. Conclusions

An innovative Health Equity Curriculum (HEC) was developed and administered at an academic healthcare system in collaboration with a research university. Enrollment and completion of this HEC

were associated with statistically significant improvements in the validated measures of cultural competence and empathy. Scaling this type of content and curriculum to other health care entities could serve as an important tool in better educating health professionals and researchers on issues related to health equity and serving diverse communities. Additional studies based on targeted education interventions by professional discipline and/or clinical specialties along with longitudinal studies to see the downstream results of the education on the population are warranted.

Author contributions

All authors contributed equally to this work. All authors have read and approved the final version of the manuscript for publication.

Use of AI tools declaration

The authors declare that they have not used Artificial Intelligence (AI) tools in the creation of this article.

Ethics approval of research

The Institutional Review Boards at the research university and the academic healthcare system determined that the protocol for this study was considered exempt pursuant to Federal Regulations 45CFR46 on March 8, 2020.

Conflict of interests

The authors declare that they have no conflict of interests.

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