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An Acceptance and Commitment Training (ACT) Framework for Teaching Cultural Humility: A Guide for Translating ACT from a Therapeutic Context into a Medical Education Curriculum

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Abstract
The objective of this project was to train future physicians to work effectively and thoughtfully with diverse populations by teaching them to employ Acceptance and Commitment Training (ACT) skills to increase cultural humility, with the goal of improving attitudes, knowledge, and beliefs about working with diverse patients. We developed ACT for cultural humility online interactive modules as part of an elective course to teach Medical Spanish to 4th-year medical students. Pre- and post-pilot data pertaining to the cultural humility training modules on the Work-Related Acceptance and Action questionnaire, Multidimensional Cultural Humility Scale, knowledge, attitudes, and beliefs were analyzed using paired samples *t*-tests and Wilcoxon signed-rank tests. We also included descriptive data pertaining to overall satisfaction with the cultural humility modules and intent to apply the material learned to patient care. Our data showed a significant increase in the cultural humility of our participants as well as an increase in psychological flexibility, a higher favorability rating toward various ethnicities, improvements in attitude, and positive changes in beliefs and knowledge following completion of the modules. The modules were well received by the medical students, with high social validity ratings. The ACT for cultural humility curriculum has great potential to enhance medical education in diversity, equity, and inclusion by increasing both the understanding and the cultural humility of medical students and future professionals to work with diverse populations. The current paper provides a framework that can be used by other programs to shape the education of the future medical workforce to help promote culturally humble care.

Keywords ACT · Cultural humility training · Online training modules · ACT in medical education

Introduction

The US population is becoming increasingly diverse as factors such as climate change and political warfare continue to contribute to an increase in forced migration for many across the world (Abel et al., 2019). It is therefore critical that healthcare providers learn the necessary clinical skills that will enable them to communicate with their patients effectively and with cultural humility as the cultural environment they work within continues to change (Smedley et al., 2002). Teaching cultural humility is a relatively new skill for US medical educators. Cultural factors in healthcare were first proposed in the early 2000s in a response to the Institute of Medicine's (2002) report entitled Unequal Treatment (Smedley et al., 2002). Medical schools are now encouraged to teach students cultural humility skills as part of diversity, equity, and inclusion competencies [AAMC DEI Competencies: Uncorrected and Incomplete Proof DEI Cross Continuum Competencies and Glossary Uncorrected & Incomplete Proof-1636141090.pdf (www.mededportal.org)]. While this likely represents a crucial step toward helping to eliminate health disparities, to our knowledge, little empirical guidance exists for medical educators on how to teach cultural

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humility confidently and effectively in the context of a medical education curriculum.

Healthcare disparities represent a prevalent human rights concern (National Academies of Sciences, Engineering, and Medicine, 2016). For example, the maternal mortality rate for Black patients is three to four times higher than it is for White patients (Howell & Zeitlin, 2017), and there is evidence of false beliefs among medical students regarding biological differences between Black and White people (Hoffman et al., 2016). These beliefs are related to racial bias and may contribute to healthcare disparities in the assessment and treatment of pain (Hoffman et al., 2016). The history of prejudice in the health care system is longstanding (see Esquierdo-Leal et al. Prejudice in the Health Care System: Remediation Strategies, 2020, for a review of the literature on this prejudice as well as the authors' summaries regarding interventions designed to help remediate this very damaging issue). There is strong support in the literature to suggest that racial and ethnic minorities receive lower quality of care leading to worse medical outcomes (Smedley et al., 2002) with Black males being at highest risk for negative health outcomes, including higher rates of cancer, stroke, cardiovascular disease, and obesity (Xu et al., 2016). The literature suggests that physicians hold explicit and implicit biases that can contribute to health disparities by negatively affecting doctor–patient communication and clinical decision-making (Sabin et al., 2008; Burgess, 2010). For example, doctor–patient communication can be affected by a racial bias based on a wrong belief between biological differences between Whites and Blacks (that Black patients are less sensitive to pain), making the doctor less likely to listen and believe patient self-reports and prescribing inadequate pain treatment. Indeed, there is evidence showing that biased thinking of a decreased likelihood of recommending thrombolysis for Black patients (Green et al., 2007) and in the accuracy of recommendations for pain treatment (Hoffman et al., 2016).

Promising efforts to address prejudice in healthcare include treatment packages aimed at improved patient communication emphasizing skills training, mindfulness, perspective-taking and values, and using ACT (Esquierdo-Leal et al., 2020). Given the role of doctor–patient communication in contributing to health disparities, researchers and health providers have strongly advocated for using cultural humility in an effort to address racial health care disparities (Bahadur, 2020) and "improve health care as a whole" (Schuster, 2021). In the above example of racial bias affecting doctor–patient communication and pain prescription practices, cultural humility may have helped by allowing the doctor to recognize the bias and act in ways that are consistent with improved better doctor–patient communication and that may lead to fairer, more equitable outcomes.

The Construct of Cultural Humility

The concept of cultural humility, introduced in medicine and public health over 30 years ago, rejects the idea that healthcare providers can attain absolute competency in working with different cultures (Tervalon & Murray-Garcia, 1998). Instead, cultural humility has been defined as "a lifelong commitment to self-evaluation and critique, to redressing the power imbalances in the physician–patient dynamic, and to developing mutually beneficial and non-paternalistic partnerships with communities on behalf of individuals and defined populations" (Tervalon & Murray-Garcia, 1998, p. 123). The term "cultural humility" has become widely used in healthcare settings and in training; however, this is a concept that can be difficult to understand fully, and there is even less guidance on the intricacies of teaching this concept in healthcare settings. There have been a few published works focusing on the teaching of cultural humility in healthcare, most of them from a theoretical rather than an empirical standpoint. Table 1 presents some examples of the existing literature on the topic of teaching cultural humility in healthcare.

A helpful and practical theory of cultural humility, the Rainbow Model of Cultural Humility, developed in 2019 by Foronda, provides valuable guidance regarding the process of managing a cultural conflict, defined as a difference in perspective that is "misunderstood or not adequately addressed." This model posits that a cultural conflict typically arises because of the emergence of a power imbalance related to a combination of relevant factors (depicted as a rainbow), including political climate, personal beliefs, historical precedent physical environment, and situational context. The cultural conflict can interfere with the attainment of goals or with the process of building or maintaining the relationship(s) involved (see Table 2).

The author states that there are three major "distinctions and actions" that may be taken when encountering a challenging cultural situation: (1) to make use of cultural humility; (2) to be culturally ambivalent; or (3) to be culturally destructive. According to this model, only the first approach leads to positive outcomes; the second and third approaches lead to negative results. The author depicts this model as a somewhat complex figure containing a rainbow (representing the multiple overarching factors involved in cultural conflicts), a cloud (representing cultural humility) the sun (representing positive outcomes), and raindrops (representing negative outcomes). The cloud in the model was used to represent cultural humility, as the authors posit that cultural humility requires flexibility. "Flexibility" in this context, refers to "being open minded with consideration of the impact of the cultural conflict on self and others."

Table 1 Articles referencing training in cultural humility in healthcare

Citation	Setting/population	Definition/emphasis	Recommendations
Chang et al. (2012)	General healthcare and community	QIAN (Question, Immersion, Active Listening, Negotiation). A curriculum derived from Chinese philosophy: "the importance of self-Questioning and critique, bi-directional cultural Immersion, mutually Active listening, and the flexibility of Negotiation	Implementing the QIAN curriculum at the Community and Academic Levels
Juarez et al. (2006)	Family medicine residents	A curriculum based on cultural humility, with participatory didactic and structured learning activities	Implementing participatory learning activities in residency training that focus on cultural humility *Note* Resident ratings were indicative of high satisfaction with learning activities, but there were no changes in residents' perception of their abilities to work with particular populations
Tervalon and Murray-Garcia (1998)	General healthcare and medical education	Theoretical paper describing cultural humility as a lifelong commitment	The authors emphasize demonstrating *process* in cultural humility training while making use of mixed methodologies to measure training outcomes. Key components of training include "self-reflection and the lifelong learner model," "patient-focused interviewing and care," "community-based care and advocacy," and "institutional consistency."
Prasad et al. (2016)	Medical students and residents	Letter to the editor emphasizing the importance of teaching cultural humility and making use of literature, art, poetry, and different methods of assessment (i.e., reflective writing, communication skills tutoring and peer group discussions)	The authors highlight the need to integrate cultural humility in medicine and encourage research to assess "the strength of the impact of cultural humility on patient encounters and the long-term effects on a student's professionalism in a culturally diverse patient setting

Table 2 Conceptual congruence between ACT and cultural humility

ACT Hayes et al. (2006)	Cultural humility elements Tervalon and Murray-Garcia (1998), Chang et al. (2010), Foronda (2020)
Present moment contact	
Shifting attention to HERE-NOW; Ongoing contact with psychological and environmental events as they occur; coming into contact with direct-acting contingencies (as opposed to rigidly following rules) in order to increase flexibility	• Active listening • Understanding the self and others; recognizing one's prejudices
Defusion	
Creating non-literal contexts in which language can be perceived as an ongoing process that has a conditioning history and is present in the current moment	• Developing a perspective of not knowing and openness to learn from the patient
Acceptance	
The active embracement of psychological experiences without attempting to change their frequency or form	• Openly approaching contexts which include aversive stimuli (e.g., challenging power differentials)
Perspective-taking	
Flexible social extension of the self (I-HERE-NOW) to enable observation from a point of view	• Understanding the self and others; recognizing one's prejudices
Value clarification	
Identifying valued patterns of living	• Cultural humility values: fairness, respectfulness, supportiveness
Committed action	
Developing patterns of behavior in the service of chosen values; generating value-consistent goals	• Goals derived from values (a lifelong commitment to learning and to self-reflection to achieve positive outcomes for all involved)

The definition of cultural humility described in the Rainbow Model of Cultural Humility, encompasses important ideas from key cultural humility experts, including Tervalon and Murray-Garcia (1998), Yeager and Bauer-Wu (2013), and Foronda et al. (2016). Cultural humility, in this integrated conceptualization, entails acknowledging the power imbalances and diversity among individuals, groups, and communities, with specific actions and attitudes, including openness, self-awareness, egolessness, flexibility, respectfulness, and support in interactions, focusing on both 'self' and 'other' to devise a response that is tailored appropriately. Cultural humility is further conceptualized as a process that entails a lifelong commitment to learning and to self-reflection to achieve outcomes that are positive for the involved parties (Foronda, 2020).

Acceptance and Commitment Training and Cultural Humility: A Synergistic Approach

Acceptance and Commitment Training, or ACT (pronounced "act" as in "action") is a well-established third wave therapeutic approach with substantial empirical support that is based on the premise that psychological inflexibility is at the root of human suffering (Kashdan & Rottenberg, 2010). Psychological inflexibility is defined by engagement in experiential avoidance, attachment to a conceptualized self, rigid attachment to one's thoughts and emotions as literal truths of an event (i.e., cognitive and/or emotional fusion), lack of clarity regarding values, dominance of thoughts related to the past and future, and inaction or action misaligned with one's values, which can take the form of impulsivity or passivity. ACT-based interventions are therefore aimed at increasing psychological flexibility by teaching individuals how to focus on their present moment experience, accept discomfort in service of one's values, defuse or detach literal meaning to thoughts and feelings (i.e., cognitive and/or emotional defusion), consistently engage in flexible perspective-taking toward the self and others, clarify one's values, and take action in service of one's values (i.e., committed action). This framework is complimentary with the cultural humility framework in several ways, as proposed by Assemi et al. and in (2021), and explained below. Indeed, as stated by the Rainbow Model of Cultural Humility, the key to cultural humility is flexibility, and the aim of ACT is to increase psychological flexibility.

To illustrate the synergy between ACT and cultural humility, we can look at the fact that cultural humility requires understanding of one's self and others, which can be accessed through the ACT processes of present moment contact and perspective-taking. The component of cultural humility that embraces developing a perspective of not knowing and openness to learn from the patient has salient connections with the ACT process of defusion. A practitioner who recognizes that the thoughts they have are not literal depictions of reality is engaging in defusion. This posture is conducive to embracing, with humility, a perspective

of not knowing, which fosters an openness to learn and flexibility to promote acceptance when one may be wrong or lacking in understanding. As an example, a practitioner may value the longevity of life, and disagree with a patient's decision regarding treatment, but can maintain the understanding that their values are not inherently better or more valid than anyone else's and demonstrate respect for the patient's view.

The ACT process of acceptance is related to the cultural humility component of challenging power differentials. This is because challenging power differentials tends to be considered aversive. The natural human tendency is to avoid aversive stimuli and approach appetitive stimuli without considering one's values. Practicing acceptance (i.e., embracing psychological experience without attempting to change their frequency or form) allows one to be more likely to engage in value-consistent behaviors such as challenging power differentials in the face of aversive stimulation. A physician practicing acceptance may be more likely to admit to herself/himself that a power difference exists, which may improve communication and lessen conflict. The active listening component of cultural humility (described in the QIAN model, Chang et al., 2012) has a direct connection with the ACT process of present moment contact (i.e., shifting attention to HERE-NOW), this would allow the provider to focus on both 'self' and 'other' to devise a response that is culturally appropriate. With respect to the value-related ACT process (i.e., value clarification and committed action), a cultural humility perspective seems to embrace the values of fairness (equity), respectfulness (recognition of power differential, perspective of not knowing), and supportiveness (individualized health plans). These are clear values in culturally humility that the provider can continue to identify and then make a commitment, consistent with ACT, to learning and self-reflection in the service of achieving the goals that are consistent with these values (i.e., to attempt to achieve outcomes that may contribute to equity by embracing fairness and respectfulness).

Considering Context: Burnout as a Setting Factor for Culturally Insensitivity

An important reason for using ACT for cultural humility is that racial biases seem to increase in the context of high stress and burnout. For example, in a sample of 3392 residents, burnout symptoms were associated with greater implicit and explicit bias against Black people and recovery from burnout was associated with a decrease in explicit bias (Dyrbye et al., 2014). Given that ACT has been shown to reduce burnout and bias in other healthcare provider contexts (Hayes et al., 2004), using ACT may be a particularly effective approach as it appears to address burnout and to lead to reduced bias. In fact, studies using ACT have shown successful outcomes in decreasing provider stigma (Masuda et al., 2007) and reducing microaggressions in interactions between patients and providers (Kanter et al., 2020), suggesting ACT could be a valuable tool in the education of future health care providers.

The University of Nevada, Reno School of Medicine (UNR Med) collaborates with the Performance Systems Technology (PST) Lab[1] in the Psychology Department at UNR to longitudinally assess students' implicit biases and wellness, as well as complete ACT for wellness modules in the first year and ACT for patient care modules prior to commencing clerkships. This decade long collaboration with PST Lab resulted in a number of publications pertaining to measurement of implicit bias (Baker et al., 2015, 2016; Smith et al., 2022) and impact of ACT training on psychological flexibility as pertaining to management of burnout in medical education (Szarko et al., 2022).

Medical education is a pivotal time for preventing maladaptive strategies and building resilience that will benefit both physicians and patient populations. Indeed, medical training is extremely demanding of student's resources, including time, energy, financial, and psychological strength. This is reflected by the higher levels of depression and emotional exhaustion found in medical students compared to age-matched peers in nonmedical industries (Peckham, 2018). The current project expanded the ACT curriculum by providing ACT for cultural humility modules for students enrolled in the Medical Spanish elective in their fourth year.

Acceptance and Commitment Training for Cultural Humility

The objective of this project was to train future physicians to work effectively and thoughtfully with diverse populations by teaching them suitable ways to employ ACT skills to increase psychological flexibility and increase cultural humility. This process was also designed to promote management of implicit bias with the goal of helping reduce the portion of the health disparity gaps that is occasioned by patient–provider interactions.

Methods

Participants and Setting

The intervention was conducted online using Qualtrics. Participants completed the online interactive cultural humility

[1] The interdisciplinary team includes leaders in medical education, members of the Performance Systems and Technology Lab in the Behavior Analysis program (Ramona A. Houmanfar, Ph.D., and doctoral students), faculty from the School of Journalism (Laura Crosswell, Ph.D.), and medical students.

modules and surveys independently. Participants consisted of students enrolled in a Medical Spanish elective during the 2021 fall semester at UNR Med. A total of 35 students enrolled in the class. Two of the students assisted in piloting the cultural humility training modules and were excluded from the subsequent study. The remaining 33 students were assigned to complete online cultural humility training modules as a required component for the class. Thirty-two of the 33 students completed the assignment on time. Before starting the modules, each student read the informed consent which asked if they were willing to share their data for research purposes. Thirty-one out of the 32 students who completed the assignment agreed to share their data. All procedures were approved by the university's IRB.

It should be noted that all medical students enrolled at UNR Med receive regular ACT trainings throughout their education, including ACT aimed at preventing burnout during preclinical years and ACT for mitigating bias toward patients during clinical years. As such, all participants had some previous exposure to ACT concepts. The process for this included modules and in-person training. During their first year of medical school, students completed roughly three hours of acceptance and commitment online training modules, which introduced the six interrelated core processes (i.e., present moment contact, values clarification, committed action, defusion, perspective-taking, and acceptance). Following the completion of the modules, they were guided through a 2-h in-person acceptance and commitment training session led by a medical student who had been trained by the acceptance and commitment training facilitators. Toward the end of their second year of medical school, they completed an additional 3 h of online training modules which were followed by another 2-h experiential training. In order to provide covid-19 accommodations, the second experiential training, was offered virtually (i.e., via zoom) to half of the students. The remaining group of students had the in-person exposure to this training. As mentioned earlier, our incorporation of cultural humility training in the ACT curriculum at UNR Med was designed with careful consideration of their complimentary interaction.

Procedure

After completing the informed consent process, participants filled out a series of self-report surveys as a baseline assessment. The surveys included the Multidimensional Cultural Humility Scale (MCHS) (Gonzalez et al., 2021), Work-Related Acceptance and Action Questionnaire (Bond et al., 2013), a Feelings Thermometer concerning various ethnicities and a series of questions pertaining to attitude, beliefs, and knowledge. Subsequently, participants completed the cultural humility training, which consisted of a series of videos, exercises, and multiple choice and open-ended questions. Finally, participants were finished after filling out the same surveys from the baseline assessment, in addition to some questions pertaining to satisfaction and intentions. The modules consisted of approximately three and a half-hours of content.

Cultural Humility Modules

The cultural humility modules consisted of a series of videos involving scripted presentations accompanied by animations given by medical students and faculty members, real world stories relevant to ACT and cultural humility told by a medical doctor, and scripted medical patient interactions, which were acted out by standardized patient and medical students. Between these videos, questions pertaining to the content of the videos were asked in order to ensure mastery of the material. Additionally, students were given opportunities to participate in a series of exercises related to the content of the videos to allow for self-reflection and application of the content.

The modules were divided into four sections. In the first section, the concept of cultural humility was introduced. In the second section, cultural humility's relevance to healthcare was discussed. In this section, the impact of racism and culturally insensitive practices were examined. Topics such as social determinants of health, structural racism, and statistics pertaining to healthcare disparities were discussed. In the third section, methods to practice cultural humility were explained, and their relevance to ACT principles and exercises was highlighted. Additionally, discrepancies between common Western and Eastern norms were considered, and several models pertaining to positive patient interactions were described. These included training on the LEARN model to guide culturally sensitive patient encounters (Listen, Explain, Acknowledge, Recommend and Negotiate; Berlin & Fowkes, 1983), Kleinman's Explanatory model to elicit the patient's illness story (Kleinman et al., 1978), necessary steps for apologizing to patients when appropriate, and cultivating good rapport with patients. The final section consisted of a series of videos pertaining to a patient interaction with a patient who doesn't speak English. During the interaction, the film was sometimes stopped, and the participant was invited to engage in perspective-taking exercises before viewing the next portion. This portion ended with an ideal version of the patient interaction that demonstrated some of the ACT skills taught throughout the module.

Measurement

The baseline assessment included the Multidimensional Cultural Humility Scale (Gonzalez et al., 2021), Work-Related Acceptance and Action Questionnaire (Bond et al., 2013), a Feelings Thermometer explicitly rating preferences among different races, and a series of questions pertaining to attitude, beliefs, and knowledge. These surveys, except for the questions pertaining to knowledge, were completed again during the post-assessment.

The Multidimensional Cultural Humility Scale is a 15-question self-report survey utilizing a Likert scale with promising validity for the measurement of cultural humility (see Gonzalez et al., 2021 for an in-depth analysis of reliability and validity). It accounts for the cultural humility components outlined by Foronda et al. (2016), including Openness to learning about diverse patients, Self-awareness of the provider's knowledge and skills, the provider's ability to show less ego (Ego-less) and eliminate power differentials, the ability to self-reflect and critique, and the provider's ability to provide Supportive interactions. The measure demonstrates acceptable reliability, with a Chronbach's alpha of .78 for the entire scale and acceptable reliability for the five factors, with Chronbach's alpha values ranging from .53 to .76.

The Work-Related Acceptance and Action Questionnaire is a modified version of the Acceptance and Action Questionnaire that is adapted for work settings. The items represent ways in which psychological flexibility can be present in the workplace (i.e., being able to work effectively in spite of worries, being able to admit mistakes, etc.) The measure demonstrates good reliability, with mean alpha coefficients of .83 across the five samples tested in the study (see Bond et al., 2013 for an in-depth analysis of reliability and validity). The 12-item Likert scale questionnaire measures psychological flexibility, a construct accounting for all the ACT processes.

Feelings Thermometers (as used by Kanter et al., 2020) are explicit reports of preference for different groups. Participants are asked to rate the different groups on a scale from zero to 100. Selecting zero would indicate extreme unfavorability and 100 would indicate extreme favorability. The groups used in the current study were Black/African American, White/European, Native American/Indigenous, Middle Eastern, Latinx/Hispanic, and Asian. Scores on this thermometer can be understood as indicators of explicit prejudice (Greenwald et al., 1998), with higher scores indicating more prejudice. Scores on this scale have been associated with a person's propensity to commit subtle acts of racism (Kanter et al., 2017) and with objective behavioral displays of discrimination (Talaska et al., 2008).

Several other questions pertaining to knowledge, self-efficacy, attitude, and intentions to apply the material during patient interactions were developed using Kirkpatrick's model, which has been shown to be appropriate for assessing education programs (Bates, 2004). Beliefs, knowledge, and attitude questions were asked during the baseline assessment and subsequently during the post-assessment. Knowledge questions were graded as correct or incorrect based on whether they matched the predetermined criteria (e.g., Q: Humility might be thought of as _____. A: Holding a modest view of one's importance). Some questions were multiple choice, and some were fill-in the blanks. Intentions regarding application and social validity were assessed during the post-assessment (see Table 3 for the survey questions).

Data Analysis

Paired samples t-tests were conducted to compare aggregated group results from the Multidimensional Cultural Humility Scale, attitude survey, and Work-Related Acceptance and Action Questionnaire, before and after the training. The Multidimensional Cultural Humility Scale and Work-Related Acceptance and Action Questionnaire responses were aggregated by converting the Likert scale responses to their numeric equivalents and calculating their sum across all items of each instrument [see Gonzalez et al. (2021) and Bond et al.(2013) for more information on calculating cultural humility and psychological flexibility scores, respectively]. Responses for all other surveys were aggregated by converting Likert responses to their numeric equivalents and calculating their sum across all items of each instrument before being divided by the total number of instruments to get average scores. Because the aggregated group results from the beliefs survey, Feelings Thermometer, and knowledge survey were not normally distributed, Wilcoxon signed-rank tests were conducted to compare differences before and after the training. Finally, a Pearson correlation coefficient was computed to assess the relationship between psychological flexibility as measured by the Work-Related Acceptance and Action Questionnaire and cultural humility as measured by the Multidimensional Cultural Humility Scale (see Table 4).

Results

Multidimensional Cultural Humility Scale

Our data showed a significant increase in cultural humility scores from before ($M = 50.61$, $SD = 7.62$) to after training ($M = 56.87$, $SD = 6.87$); $t(30) = 5.54$, $p < 0.001$.

Table 3 Attitude, self-efficacy, knowledge, and intent questions

Attitude Please indicate how strongly you agree or disagree with the following statements:
Scale: strongly disagree, disagree, slightly disagree, slightly agree, agree, strongly agree
(1) I believe that a health care provider's implicit biases may contribute toward health disparities
(2) I believe that structural racism may impact a patient's treatment adherence
(3) I believe differences seen in the prevalence of diseases between white and minority populations are due to biological differences between races. (Reverse coded)
(4) I believe the cultural groups with which I identify may affect my clinical interactions with my patients
(5) I believe it is important to spend a little extra time establishing rapport with patients who have experienced a history of medical racism
(6) I believe it is important to apologize to a patient after unintentionally making a culturally offensive comment or engaging in a culturally offensive behavior
Beliefs Please indicate how strongly you agree or disagree with the following statements:
Scale: strongly disagree, disagree, slightly disagree, slightly agree, agree, strongly agree
(1) I believe it is important to establish good rapport with patients from diverse backgrounds
(2) I believe it is important to have conversations about a patient's culture when it is unfamiliar to me
(3) I believe it is important to implement the LEARN (Listen, Explain, Acknowledge, Recognize, Negotiate) model when working with patients from diverse cultural backgrounds
(4) I believe it is important to implement Kleinman's explanatory model when taking a history on patients from diverse cultural backgrounds
Knowledge Open ended questions
Scale: Incorrect/correct
(1) Give two examples of the differences between Western and Non-Western values as they relate to medicine
(2) Why is cultural humility preferable to cultural competence?
(3) Describe the difference between equity and equality
(4) What are some important steps to consider when apologizing to a patient after making a culturally insensitive remark?
Intent Please indicate how strongly you agree or disagree with the following statements:
Scale: strongly disagree, disagree, slightly disagree, slightly agree, agree, strongly agree
(1) I will implement what I learned from this training in my future interactions with patients from diverse backgrounds
(2) I am committed to a lifelong practice of working with patients in culturally humble fashion

Table 4 Pre- and post-changes for all outcomes

Measure	Pre-*M*	Pre-*SD*	Post-*M*	Post-*SD*	*t*/*z*	*p*
MCHS	51.28	7.38	57.05	7.05	t = − 5.12	< .001
WAAQ	38.69	4.92	40.62	4.69	t = − 2.68	.012
FT	83.75	18.65	85.20	19.16	z = 0.43	.056
Attitude	5.09	0.52	5.18	0.48	t = − 0.98	.333
SE	6.29	0.71	6.85	0.32	z = 0.85	< .001
Knowledge	56.90%	1.16	90.52%	0.62	z = 0.93	< .001

Work-Related Acceptance and Action Questionnaire

We found a significant improvement in the psychological flexibility scores from before (M = 38.13, SD = 5.23) to after training (M = 39.84, SD = 5.53); t(30) = 2.44, $p = 0.021$.

Feelings Thermometer

Wilcoxon signed-rank test indicated that results from the Feelings Thermometer showed significantly higher favorability after training (M = 85.42, SD = 18.76) than before training (M = 83.77, SD = 18.48); z = 0.48, $p = 0.030$.

Attitude

We found a significant improvement attitude scores from before (M = 4.11, SD = 0.63) to after training (M = 4.40, SD = 0.47); t(30) = 2.92, $p = 0.007$. It should be noted that because one of the items on the survey was reverse-coded, the highest possible score for the attitude survey was 4.83.

Beliefs

A Wilcoxon signed-rank test indicated that beliefs were statistically significantly more positive after training (M = 6.90, SD = 0.31) than before training (M = 6.30, SD = 0.69); z = 0.89, $p < 0.001$.

Knowledge

A Wilcoxon signed-rank test indicated that knowledge was statistically significantly higher after training (M = 91.13%, SD = 0.61) than before training (M = 58.06%, SD = 1.14); z = 0.98, $p < 0.001$.

Intent

The intentions regarding application and social validity survey was completed only after completing the training and was therefore not compared to any other conditions. After training, the mean score was 5.84 out of a possible total of six and the standard deviation was 0.33.

Relationship Between the Work-related Acceptance and Action Questionnaire and the Multidimensional Cultural Humility Scale

There was a moderate, positive correlation between the Work-Related Acceptance and Action Questionnaire and the Multidimensional Cultural Humility Scale results, $r(60) = 0.46$, and the relationship was significant ($p < 0.001$).

Discussion

Healthcare professionals work with diverse individuals from unique cultures, which may influence patient–provider interactions and ultimately health outcomes. A provider's implicit biases may also influence interactions with patients from different cultures, which could result in varying quality of care. As part of the fourth year Medical Spanish course, we employed ACT, an evidence-based approach that is well aligned with principles of cultural humility, to help students work with patients from different cultures with greater cultural humility. The training was designed as a series of interactive modules to help students manage their implicit biases, increase their cultural humility, and ultimately provide care to patients from a variety of cultures to help alleviate health disparities that are present among culturally diverse populations. Completion of the cultural humility modules was associated with significant improvement in all measures, and the modules were well received by the medical students.

As evidenced by the statistically significant increase in both the Multidimensional Cultural Humility Scale and the Work-Related Acceptance and Action Questionnaire, our cultural humility modules in the context of a Medical Spanish course have the potential to play an important role in helping future healthcare providers increase cultural humility and psychological flexibility. Upon completion of the modules, there was also a statistically significant improvement in the attitude survey and the Feeling Thermometer, an explicit report of preferences to Black/African American, White/European, Native American/Indigenous, Middle Eastern, Latinx/Hispanic, and Asian. These preferences likely arose due to their longitudinal experiences with the aforementioned groups and represent the sum of both positive and negative experiences. The attitude survey explores questions that discuss racism and health disparities in the context of the healthcare system. Both measures are strongly influenced by individual longitudinal experiences, and the cultural humility modules provided individuals with the necessary tools to increase cultural humility and psychological flexibility. Our modules allowed students to gain knowledge about working with patients facing prominent language barriers in healthcare settings that have the potential to decrease the quality of healthcare they receive. By gaining this experience and learning about the challenges faced by culturally diverse patients in the context of a healthcare setting, we hope that students will also gain the tools necessary to be empathetic clinicians, which is associated with improved health outcomes, decreased rates of burnout, and increase ratings of well-being (Koblar et al., 2018).

While we found promising results based on our testing of the cultural humility modules, we would like to address some limitations of our study. The measures were self-reported, which can result in answers that are not entirely accurate. For example, although the responses were anonymous, students may elect to pick more socially desirable answers even if it contradicts their actual thoughts. This means that our results must be interpreted with caution. Our sample consisted of a total of 31 students and may not represent the general population of medical students. Further, these individuals self-selected by volunteering to take this medical Spanish elective, which means they were interested in learning or improving their Spanish language skills, and in turn may indicate a possible sample of culturally humble students. Additional studies should employ larger samples with a wider range of medical students and medical schools. Some of the outcomes measured in this study were measured

using one item. Future studies may elect to develop or use existing scales that can provide stronger evidence for these preliminary results. Additionally, our sample may not be representative of students beyond UNR Med, an institution that introduces the concept of ACT in the context of wellness and patient care during earlier years. Thus, the results displayed by this institution may be different compared to other schools that are not introduced to ACT throughout the curriculum. Lastly, our study lacked behavioral measures, such as interactions with standardized patients, to assess the impact of the modules on patient care. Considering these limitations, our study provides important preliminary evidence for the potential benefit of using ACT to enhance cultural humility among medical students. This was a first step in moving toward a conceptualized framework for cultural humility that can be modified and delivered, with the help of psychologists to help improve the experiences of racial minorities accessing healthcare. For example, a brief introduction to ACT module can be delivered prior to the ACT for cultural humility training modules for testing and dissemination at other medical schools.

With numerous complex elements involved in cultural humility, it is imperative to utilize measures that encapsulate all these concepts and that are psychometrically sound. Our study did this by utilizing the Multidimensional Cultural Humility Scale, a standardized measure, which includes questions that highlight openness, self-awareness, egolessness, supportive interaction, self-reflection, and critique. Our training modules incorporated these concepts via interactive activities where participants were asked to reflect and apply the content to the discussed materials. Another strength of our study is that our modules were designed to be easily adoptable by other institutions and can also be relevant to other health professional programs. Psychologists working in medical schools have unique tools to help change the culture of medicine to provide more equitable care. A psychologist with some familiarity with ACT, for example, would be able to facilitate a training in ACT for cultural humility. Our ACT for preventing burnout training, for example, is facilitated by medical students trained by a graduate student in psychology. Our team is composed of Clinical Psychology faculty working for a medical school, outside of the Psychology Department, as well as Behavioral Analysis faculty. Although we have knowledge of ACT, we are not directly involved with its creator, Dr. Steven Hayes, in the work that we do. We highlight this to state that other psychologists would be able to similarly employ ACT without having to be ACT experts.

As fourth year medical students approach residency, they will increasingly be exposed to a diverse group of patients. Each patient carries his/her own beliefs and challenges that influence how they navigate the healthcare system. These challenges are greater for some minoritized cultures compared to others and contribute to health disparities that disproportionately affect those that endure an uphill battle while attempting to get their healthcare needs met. This is compounded by the implicit biases held by providers that may prevent individuals from receiving high quality care. The results of this study demonstrate promising evidence for the efficacy and social validity of the use of ACT to teach cultural humility in our modules, in the context of our Medical Spanish course. Future research directions include the addition of follow-up measures to assess whether students incorporate the ideas they learned from these modules later in their careers. Additionally, we plan to integrate feedback from participants to improve the course and modules. This feedback will pave the way to improved modules that will better allow future healthcare providers to be more culturally sensitive providers. Similar to Kanter et al. (2020), behavioral measures will be assessed objectively in future studies. Specifically, upon completion of these modules, we plan to have medical students engage in clinical interactions with culturally diverse standardized patients in order to examine cultural humility and emotional rapport building by making use of Kanter's racially charged SP interactions and we plan to expand on the coding system (Kanter et al., 2020). By using other observer-based coding systems, we will be able to objectively analyze the types of statements providers use in response to cultural or racial challenges (Ardila Sánchez et al., 2020; Johnson et al., 2010; Kanter et al., 2020; Smith et al., 2012). Lastly, we plan to move the timing of administration of the modules from the fourth year of medical education to the second year, prior to entering clerkships, since for many of our medical students, this will be the first time entering a culturally diverse clinical environment. We believe this training is important given that most physicians working in the United States will likely work with diverse patients. Thus, early exposure to the principles taught in these modules will better equip them to work in a diverse environment during medical school and beyond.

Conclusion

Medical practitioners work with patients from a wide variety of cultural backgrounds in highly stressful environments. It is important for medical education to provide future practitioners with the tools to manage their own biases and acquire the skills to establish healthy rapport with patients from different backgrounds. In that regard, our results showed promising evidence of the feasibility and utility of using ACT for cultural humility training in medical education. Specifically, we found the following: (1) Our modules increased students' knowledge, indicating that this format is an effective way to teach the content. (2) The modules increased cultural humility as measured

by the Multidimensional Cultural Humility Scale, demonstrating that upon completion of the modules students felt in increase in openness, self-awareness, egolessness, supportive interaction, self-reflection, and critique. (3) Our modules helped to increase students' psychological flexibility, indicating an improvement in the ACT processes, such as present moment contact, acceptance, defusion, and self as context. (4) Our modules helped to improve students' attitudes about how racism and bias can impact health care disparities, (5) These modules positively changed students' beliefs about effectively caring for patients from different cultures, and (6) The modules helped to change students' Feelings Thermometer scores, indicating a change in explicit feelings toward people from different backgrounds. In addition, social validity scores showed that the modules were well received by the students in our study. In sum, the result of this study demonstrated promising evidence of using ACT synergistically with culturally humility training in order to improve patient–provider interactions and possibly help close the health disparities gap. Given our background in evidence-based behavioral change interventions such as ACT and our training in culturally responsive care, psychologists are uniquely positioned to help develop and train the future healthcare workforce to provide culturally sensitive, patient-centered care.

Author Contributions AL led the study, carried out some of the study procedures, and wrote the first draft of the introduction section. KSA developed the modules, along with NNJ, carried on some study procedures, and wrote the first draft of the methods section. NNJ co-developed the modules, advised all authors in her expert role as Associate Dean for Diversity and Inclusion, and contributed to the writing and editing of several sections of the manuscript. RAH carried out some of the study procedures, advised all authors throughout the study, and contributed to the writing and editing of several sections of the manuscript. STJ wrote the first draft of the discussion section and contributed to the study procedures. AJS contributed to the writing of the introduction section and assisted substantially in editing the manuscript.

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Declarations

Conflict of interest Anayansi Lombardero, Kian S. Assemi, Negar N. Jacobs, Ramona A. Houmanfar, Sergio Trejo Jr., Alison J. Szarko have no conflict of interest to disclose.

Ethical Approval The study was approved by the University of Nevada, Reno's, Institutional Review Board, and participants consented to the study procedures.

Informed Consent Before starting the modules, each participant read the informed consent, which asked if they were willing to share their data for research purposes. 31 out of the 32 students who completed the assignment agreed to share their data.

Consent for Publication N/A.

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