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Making a difference in medical trainees' attitudes toward Latino patients: A pilot study of an intervention to modify implicit and explicit attitudes



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ABSTRACT

Negative attitudes and discrimination against Latinos exist in the dominant U.S. culture and in healthcare systems, contributing to ongoing health disparities.

This article provides findings of a pilot test of *Yo Veo Salud* (I See Health), an intervention designed to positively modify attitudes toward Latinos among medical trainees. The research question was: Compared to the comparison group, did the intervention group show lower levels of implicit bias against Latinos versus Whites, and higher levels of ethnocultural empathy, healthcare empathy, and patient-centeredness?

We used a sequential cohort, post-test design to evaluate *Yo Veo Salud* with a sample of 69 medical trainees. The intervention setting was an academic medical institution in a Southeastern U.S. state with a fast-growing Latino population. The intervention was delivered, and data were collected online, between July and December of 2014.

Participants in the intervention group showed greater ethnocultural empathy, healthcare empathy, and patient-centeredness, compared to the comparison group. The implicit measure assessed four attitudinal dimensions (pleasantness, responsibility, compliance, and safety). Comparisons between our intervention and comparison groups did not find any average differences in implicit anti-Latino bias between the groups. However, in a subset analysis of White participants, White participants in the intervention group demonstrated a significantly decreased level of implicit bias in terms of pleasantness. A dose response was also founded indicating that participants involved in more parts of the intervention showed more change on all measures.

Our findings, while modest in size, provide proof of concept for *Yo Veo Salud* as a means for increasing ethno-cultural and physician empathy, and patient-centeredness among medical residents and decreasing implicit provider bias toward Latinos.

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In the United States, Latino individuals face persistent inequities in accessing quality healthcare ([Centers for Disease Control and](http://www.cdc.gov)

[Prevention \[CDC\], 2013; Fiscella et al., 2000](http://www.cdc.gov)). Compared with Whites, Latinos have worse access to healthcare on most access measures, including lower likelihood of having a usual source of care but higher rates of encountering barriers when seeking care ([Agency for Healthcare Research and Quality \[AHRQ\], 2014](http://www.aahrq.gov)). Compared with White adults, Latino adults are more likely to suffer

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from asthma, diabetes, HIV, obesity, and tuberculosis (CDC, 2013). Disparities also exist among children and adolescents, with Latino youth showing disproportionately high rates of alcohol use, anxiety disorders, asthma, depression, overweight/obesity, poor dental health, teenage pregnancy and child-bearing, and suicidal ideation (AHRQ, 2014; Bloom et al., 2013; CDC, 2014; Colby and Ortman, 2015; Kann et al., 2014; Lau et al., 2012; Merikangas et al., 2010; Ogden et al., 2014). Latinos of all ages were more likely to rate their health as *fair* or *poor* than Whites or African Americans (CDC, 2013).

The growing U.S. Latino population comprises 17% of the population or 55 million people (Krogstad and Lopez, 2014). Half of U.S. Latino adults are foreign-born (Fry and Passel, 2009) and more than half of Latino children have at least one parent who is an immigrant (Arbona et al., 2010). Thus, Latino immigrant and mixed-status families make up a significant portion of U.S. families, making immigration issues central life experiences for many members of the U.S. Latino population. Given these experiences, these families face stressors that can compromise health (Flores et al., 2008; Pumariega et al., 2005; Vega et al., 2009; Viruell-Fuentes, 2007).

1. Discrimination

Discrimination is a common experience among Latinos, heightened by political rhetoric equating Latino heritage with unauthorized immigration, creating an environment in which all Latinos face the “illegal” stereotype regardless of their actual status (Viruell-Fuentes et al., 2012). Physicians' explicit attitudes (i.e., thoughts in conscious awareness) influence their perceptions of Latinos as unlikely to accept responsibility for their care and more likely to be non-compliant with treatment (Mayo et al., 2007). A recent systematic review found nearly 70% of healthcare professionals had, on average, moderate levels of implicit bias (i.e., evaluations that occur automatically, without conscious awareness) against Latinos (Hall et al., 2015), similar to the rate among the general population (Nosek et al., 2007). Such bias takes root early; nursing and medical students were more likely to associate the words *noncompliance* and *risk* with Latino patients than White patients (Bean et al., 2013). Attitudes find expression in behavior, and negative attitudes toward Latinos among U.S. healthcare professionals are likely contributors to both discriminatory interactions with Latino patients and Latinos' receipt of substandard care. Patient self-reports and health record data showed Latinos received worse care than Whites on 43% of healthcare service quality indicators, including preventive services, acute treatment, and chronic disease management (AHRQ, 2014). Examples of providers' biased or discriminatory behavior toward Latinos included the following:

- dismissing or minimizing Latino patients health complaints (Cabassa et al., 2014);
- more frequently attending to the needs of White patients than Latino patients (Davies et al., 2011);
- ignoring non-English speaking Latino patients (Sanchez-Birkhead et al., 2011);
- failing to listen carefully, explain clearly, or show respect for Latino patients' input (AHRQ, 2014);
- giving priority space in the hospital to White patients even if a Latino patient appeared sicker (Davies et al., 2011); and
- allowing after-hours visiting to White families but limiting Latino families' visiting hours (Davies et al., 2011).

These types of interactions not only tarnish Latinos' relationships with providers and healthcare systems but also have

detrimental effects on patient health through mistrust of providers, care interruptions, care avoidance and delays, lower treatment adherence, and poorer health status (Shavers et al., 2012). For adolescents beginning to engage with healthcare providers without their parents, these relationships are important as they set the stage for adult patient-provider relationships.

Typically labeled *diversity training*, current methods for addressing provider bias lack theoretical grounding and rigorous evaluation (Paluck and Green, 2009). Moreover, although some training programs, particularly health disciplines other than medicine (Leininger, 2002), incorporate modules aimed at increasing providers' “cultural competency,” evaluations of these efforts are not found widely in the literature or lack the rigorous systematic evaluation needed to know if the modules actually change attitudes or behavior (Anderson et al., 2003). In reality, few medical schools require students to take significant course work to prepare for multi-cultural practice (Flores et al., 2000).

This article describes findings from an initial trial of an intervention, *Yo Veo Salud* (I See Health), which aimed to positively modify medical trainees' ethnocultural empathy, healthcare empathy, patient-centeredness, and implicit attitudes toward Latino patients. The intervention took place at an academic medical institution in a Southeastern U.S. state with a fast-growing Latino population.

2. Method

2.1. Sample

This study used a sequential cohort, post-test design to evaluate the intervention with a sample of 69 medical trainees at a university hospital. The comparison group ($n = 41$) consisted of pediatric medicine (Peds) residents (entering first-year and exiting third-year) and internal medicine and pediatrics (Med-Peds) residents (entering first-year and exiting fourth-year). The intervention group ($n = 28$) consisted of Peds (entering second- and third-year), Med-Peds (entering third-year) residents, and third- and fourth-year medical students. Participants' average age was 28.2 years ($SD = 2.3$), and most were female (71%). The sample was 70% White, 12% Black, 7% Asian, 7% Latino, and 4% multiracial. Most participants were U.S.-born (88%). T-tests and chi-square tests showed the intervention and comparison groups did not significantly differ in terms of age, gender, proportion of Whites, or proportion of immigrants.

All procedures were approved by the host university's Institutional Review Board and data were collected in the summer and fall of 2014. Study information was provided by the residency director and the research team. Email recruitment into the voluntary data collection followed. Participation in the intervention was strongly encouraged. Written consent was obtained from all participants, and all participants in the data collection received a gift card for their time. All participants completed an online survey and a visual sequential priming procedure. Intervention group participants had various levels of exposure to a two-part intervention. Part 1 of the intervention was a photo documentary, *Look to Reflect*, offered in two formats: four 50-min sessions that replaced morning grand rounds over 4 consecutive weeks or a one-time 2-h evening session. Part 2 was a forum in which Latino adolescents presented photographs and themes generated from a Photovoice project to medical trainees. Participants then completed an online survey. Survey data were compared on four outcomes: ethnocultural empathy, healthcare empathy, patient-centeredness, and implicit attitudes about Latinos compared to Whites.

2.2. Intervention description

Narrative photography was chosen as a critical dimension of the intervention. Like real events, photography can evoke implicit attitudes, negating the emotional distancing that can occur when didactic information is presented (Neidich, 2003). *Yo Veo Salud* is a two-part facilitated group intervention that uses images to prompt reflection and increase understanding. In the Part 1 photo documentary, participants responded to a series of professional photographs that chronicle the migration journey of a young girl and her family over 18 years from Mexico to their life in the United States (Jarman, 2007); the images are used to elicit intuitive or implicit responses. Participants' responses were shared within the group, discussed, and revisited, incorporating other participants' perspectives and additional data and information provided by two facilitators, an art historian and a Ph.D. researcher with a practice background in medical social work. Through this process, participants were able to voice their opinions, notice others' perspectives, and expand their understanding as new information about the photographs was presented.

In Part 2 of the intervention, participants attended a Photovoice forum (Wang and Burris, 1997) in which they viewed photographs created by Latino adolescents in response to the prompt, "What I wish my doctor knew about my life" (Lightfoot et al., 2017). The forum included dinner and a discussion of the photos. The adolescents and the project team co-facilitated discussions focused on youth-selected trigger photos that highlighted how the immigrant experience affects their lives, health, and interactions with providers and the healthcare system.

2.3. Measures

We used three self-report measures to understand how trainees perceived themselves on dimensions with potential to influence their relationships with patients, especially Latino patients. A fourth outcome, implicit attitudes towards Latinos, was measured using a sequential priming procedure.

2.3.1. Ethnocultural empathy

The Ethnocultural Empathy Scale is a 31-item self-report measure that assesses empathy toward people of color (Wang et al., 2003). Participants' agreement with each item is rated on a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*), with higher scores indicating higher levels of empathy. The internal consistency reliability of this scale was strong ($\alpha = 0.87$).

2.3.2. Healthcare empathy

The Jefferson Physician Empathy Scale is a 20-item measure assessing the extent to which healthcare providers' have an empathic approach with patients (Hojat et al., 2001). Participants rated their agreement with each item on a 7-point Likert-type scale (*strongly disagree* to *strongly agree*), with higher scores indicating higher levels of empathy. Internal consistency reliability was strong ($\alpha = 0.83$).

2.3.3. Patient-centeredness

The Patient-Practitioner Orientation Scale is a 20-item self-report measure used to assess practitioners' patient-centeredness (Krupat et al., 1999). Participants rated their agreement with each item on a 7-point Likert-type scale (*strongly disagree* to *strongly agree*), with higher scores indicating higher patient-centeredness. The internal consistency reliability the present study was strong ($\alpha = 0.82$).

2.3.4. Implicit attitudes

We measured implicit attitudes using the Affect Misattribution Procedure (AMP; Payne et al., 2005). The AMP measures implicit attitudes by presenting a prime stimulus such as a photo, followed quickly by a target item that is ambiguous for the judgment in question (e.g., Chinese pictographs). Participants are instructed to make a judgment about the target item (e.g., is it pleasant or unpleasant) while not being influenced by the prime image. Despite such instructions, results consistently show that participants rate the target more as pleasant when the prime image presented is pleasant rather than unpleasant, indicating that affective reactions to the prime images are being mistakenly attributed to the target image. Prime and target images are paired randomly, so when aggregated across multiple trials, the proportion of pleasant responses for each type of prime can be used to estimate participants' implicit response to the primes. The AMP has been well tested and validated as a measure of general affective responses and racial attitudes toward Blacks and Whites (Payne and Lundberg, 2014). However, the current study developed a version of the AMP focused on Latino versus White individuals. We first selected comparable images of Latino and White persons and then matched the images similarity. The research team identified 14 image pairs to be pilot tested (see Fig. 1 for examples). Our selected images included individuals in contexts that might be associated with undocumented immigration or other stereotypes about Latinos.

Next, the research team generated and selected a set of six word pairs that reflected positive and negative attitudes relevant to healthcare settings, which were cognitively tested with six, local, public health pediatricians. The cognitive testing used verbal probing and think-aloud techniques. Participants discussed what each word meant to them, how frequently they used the words to describe patients, and the importance of the words in healthcare. Based on this testing, four word pairs were retained and two new pairs were included for AMP pilot testing with adults from the general population.

We used Amazon Mechanical Turk to recruit 100 online participants from the general population to test a version the AMP using the selected images and word pairs. Participants completed 84 trials across six dimensions: unpleasant/pleasant, non-compliant/compliant, irresponsible/responsible, risky/safe, criminal/law-abiding, and dishonest/honest. On each trial, participants were presented with a prime image of Latino or White persons for 300 ms, followed by a blank screen for 100 ms, a Chinese pictograph for 200 ms, and finally a black and white "visual mask," which remained on screen until participants responded (see Fig. 2). Based on pilot-test data, we selected 10 final image pairs, and dropped two dimensions that had low internal consistency (i.e., criminal/law-abiding; dishonest/honest).

A final version of the adapted AMP was delivered to the participants in our intervention and comparison groups. The final version included 40 trials using the same timing intervals previously described and the 10 best-performing image pairs as primes. Participants were asked to choose between two words to describe the pictograph. Four word pairs were used: *pleasant/unpleasant*, *compliant/non-compliant*, *responsible/irresponsible*, and *safe/risky*.

2.3.5. Intervention dose

Comparison group members had no exposure to the intervention components. Intervention group participants varied in their exposure level to the intervention components because of real-world scheduling constraints common to medical education. Within the intervention group, some participants were exposed to both intervention components (i.e., photo documentary and the Photovoice forum) whereas others were exposed to only one



Fig. 1. Examples of prime image pairs for the Affect Misattribution Procedure (AMP).

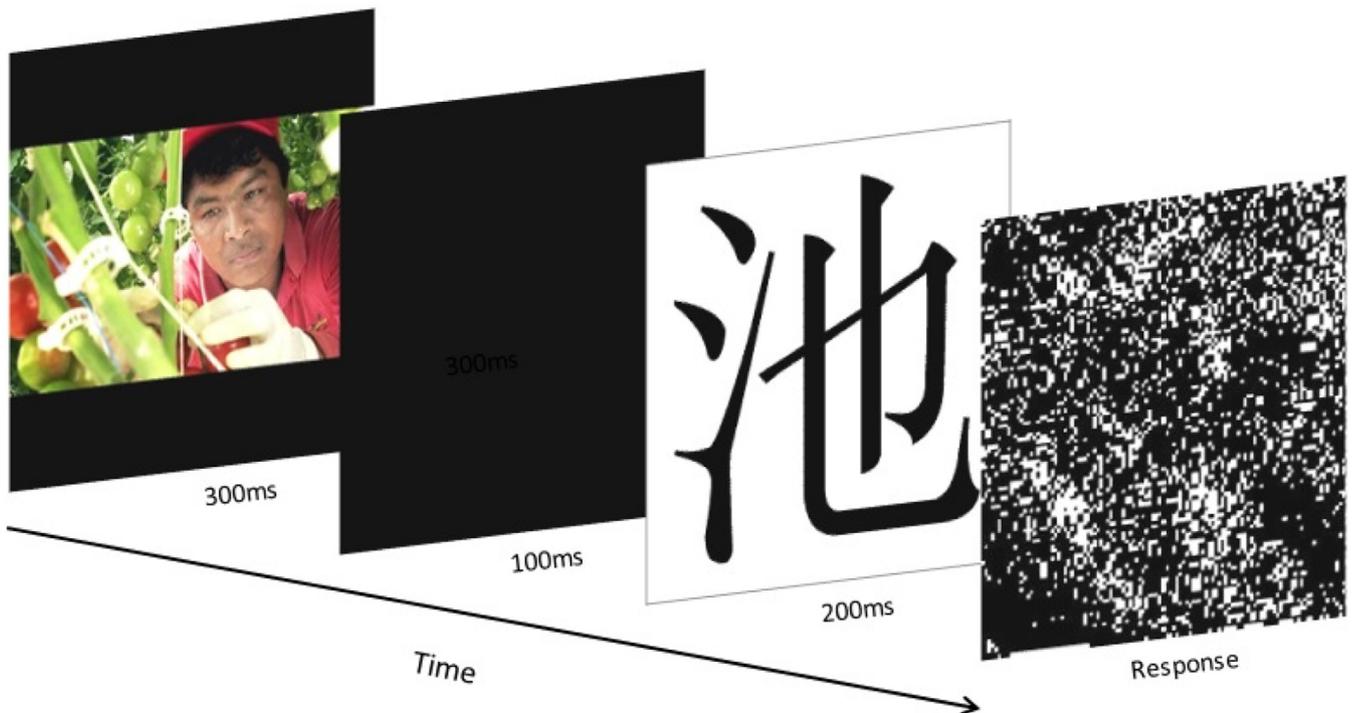


Fig. 2. Sample trial from the Affect Misattribution Procedure (AMP).

component. Further, some participants attended one photo documentary session and others attended multiple sessions. Sign-in sheets were used to capture participants' intervention exposure dose.

3. Results

We computed scores for each explicit outcome (i.e., ethno-cultural empathy, healthcare empathy, and patient-centeredness)

by taking the mean of the items from each scale. To compute summary scores reflecting implicit bias, we calculated the proportion of positive judgments (i.e., pleasant, compliant, responsible, safe) on the AMP following White and Latino primes on each dimension. We then subtracted the proportion of positive judgments following Latino primes from the proportion of positive judgments following White primes for each dimension. Thus, higher scores reflected greater pro-White/anti-Latino bias on each of the four dimensions. In our analyses, we examined (a) whether the intervention reduced anti-Latino biases, as indexed by our explicit and implicit measures (see Table 1), (b) whether the intervention effects differed by participant race/ethnicity, and (c) whether the intervention effects depended the intervention dose.

3.1. Intervention effectiveness

To test whether the intervention influenced medical trainees' perceptions of their patient relationships and their implicit bias, we conducted a multivariate analysis of variance (MANOVA) to evaluate between-group differences post-intervention on ethnocultural empathy, healthcare empathy, patient-centeredness, and AMP scores for each of the four dimensions. One participant who did not complete all outcome measures was dropped from analyses. The results revealed a significant omnibus effect of the intervention on our outcome variables, $F(7, 60) = 5.47, p < 0.001$, Wilks' $\Lambda = 0.61$.

Univariate and multivariate analyses are displayed in Table 1. Intervention participants showed significantly greater ethnocultural empathy, healthcare empathy, and patient-centeredness. We did not find any average differences in implicit anti-Latino bias between the intervention and comparison groups. Although intervention group participants demonstrated more positive self-reported attitudes, as a group they did not differ in their levels of implicit anti-Latino bias.

3.1.1. Subset analysis

Given the prevalence of implicit racial/ethnic bias among Whites (Nosek et al., 2007) and that the majority of U.S. physicians are White (Boukus, Cassil and O'Malley, 2009), implicit bias in healthcare might be primarily driven by White providers. Therefore, we performed a subset analysis to examine intervention effects using only the White participants; other racial/ethnic subsets were too small for analysis. Using a MANOVA, we found a significant omnibus effect of our intervention, $F(7, 39) = 5.70, p < 0.001$, Wilks' $\Lambda = 0.49$. Univariate analyses indicated that White participants in the intervention group showed significantly greater ethnocultural empathy, healthcare empathy, and patient-centeredness, compared with Whites in the comparison group (see Table 2). In addition, implicit bias on the pleasantness

Table 1
Differences in outcomes between intervention and comparison groups (N = 68).

Outcome	Intervention Group (n = 28) M (SD)	Comparison Group (n = 40) M (SD)	F(671,66)
Explicit Attitudes			
Ethnocultural empathy	5.34 (0.54)	4.57 (0.70)	24.18*
Healthcare empathy	5.60 (0.53)	4.61 (0.79)	33.62*
Patient-centeredness	5.51 (0.50)	4.91 (0.57)	20.05*
Implicit Attitudes: Latino vs. White			
Pleasant	0.00 (0.18)	0.04 (0.18)	0.88
Compliant	0.01 (0.18)	-0.03 (0.19)	0.57
Responsible	0.06 (0.21)	0.01 (0.20)	1.21
Safe	-0.02 (0.20)	0.03 (0.21)	0.89

* $p < 0.05$.

Table 2
Between-group differences of whites in intervention and comparison groups (N = 47).

Outcome	Intervention Group (n = 20) M (SD)	Comparison Group (n = 27) M (SD)	F(1, 45)
Explicit Attitudes			
Ethnocultural empathy	5.19 (0.36)	4.44 (0.64)	22.15*
Healthcare empathy	5.61 (0.44)	4.60 (0.78)	22.07*
Patient-centeredness	5.54 (0.46)	4.84 (0.49)	24.24*
Implicit Attitudes: Latino vs. White			
Pleasant	-0.02 (0.17)	0.09 (0.15)	5.48*
Compliant	-0.01 (0.19)	-0.04 (0.17)	0.27
Responsible	0.07 (0.23)	0.00 (0.21)	1.14
Safe	0.00 (0.22)	-0.01 (0.20)	0.81

$p < .05$.

dimension was significantly lower among White participants in the intervention condition than the control condition. However, no significant differences were found for the other dimensions.

3.2. Dose effect

Because intervention group participants varied in their exposure to intervention components, we examined whether the intervention effects were dose dependent. Of the 28 intervention participants, 43% (12) attended only the photo documentary component, 29% (8) attended only the Photovoice forum, and 29% (8) attended both the photo documentary and Photovoice components. Participants could attend four photo documentary sessions; 7% (2) attended one session, 18% (5) attended two, 39% (11) attended three, and 7% (2) attended four sessions. Table 3 compares the dosage of the intervention and comparison groups, and shows a positive correlation between greater participation in the intervention and all three self-report measures, with moderate effect sizes. Results also show marginally significant correlations between exposure to the intervention and the implicit bias dimensions of pleasantness and safety.

4. Discussion

Our findings provide proof of concept for a visual approach toward increasing ethno-cultural empathy, physician empathy, and patient-centeredness among medical residents and decreasing implicit provider bias toward Latino patients and provide a framework for more rigorous evaluation than is typically done for trainings related to multi-cultural practice. The intervention group showed higher scores than the comparison group on all three self-report outcomes. Further, as shown in Table 3, our dose-response analyses showed a marginal impact on pleasantness and safety.

Lack of significant differences between intervention and comparison conditions on the implicit outcomes might be due to participants of color being sensitized to Latino patients through their own experiences of discrimination. This hypothesis is in keeping with the general population literature that indicates Whites had the highest scores on implicit and explicit bias regarding race and skin tone (Nosek et al., 2007). Another possibility is that the number of AMP trials was insufficient. Payne and Lundberg (2014) showed AMP reliability was linearly related to the number of trials. More trials enable more measurements, and perhaps, more precise and reliable assessments of bias. We used 84 trials in our pilot of the AMP, and found significant implicit bias levels on all dimensions; however, to lessen respondent burden, only 40 trials were used in the study. Future studies should increase this number to reliably ascertain whether change can be detected.

Table 3

Means, Standard Deviations, and Intercorrelations Between Outcomes and Intervention Dose Received (N = 69).

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Attended at any part of intervention ^a	0.41	0.50	–										
2. Attended ≥1 photo documentary session ^a	0.29	0.46	0.77*	–									
3. # photo documentary sessions attended ^b	0.77	1.29	0.73*	0.94*	–								
4. Attended Photovoice forum ^a	0.23	0.43	0.67*	0.25*	0.26*	–							
5. Attended photo documentary sessions and Photovoice forum ^a	0.12	0.32	0.44*	0.57*	0.56*	0.66*	–						
6. Ethnocultural empathy	4.88	0.74	0.52*	0.35*	0.35*	0.42*	0.26*	–					
7. Healthcare empathy	5.01	0.84	0.58*	0.44*	0.42*	0.44*	0.32*	0.70*	–				
8. Patient-centeredness	5.15	0.62	0.49*	0.36*	0.34*	0.27*	0.11	0.62*	0.74*	–			
9. Implicit bias: Pleasantness	0.02	0.18	-0.12	-0.22†	-0.23†	-0.07	-0.22†	-0.20†	-0.16	-0.14	–		
10. Implicit bias: Compliance	0.03	0.21	0.13	0.15	0.17	0.03	0.04	0.10	-0.02	0.02	0.09	–	
11. Implicit bias: Responsibility	-0.01	0.19	0.09	0.10	0.18	0.06	0.08	0.05	0.11	0.15	-0.01	-0.31*	–
12. Implicit bias: Safety	0.01	0.21	-0.12	-0.18	-0.21†	-0.10	-0.20†	0.07	-0.12	-0.05	0.02	0.07	-0.22†

* $p < 0.05$.† $p \leq 0.1$.^a coded 0 = no attendance, 1 = attendance.^b range 0–4.

Another possibility is the pleasant versus unpleasant dimension, which elicited an implicit response among Whites, taps into gut-level, pre-conscious feelings in a way the other pairs did not. Because the selected words are used frequently in healthcare environments, they might have triggered participants to slow down their automatic thinking enough to limit implicit responses. A systematic review on implicit racial/ethnic bias in healthcare found assessments of general good/bad bias was more often related to healthcare outcomes than nuanced assessments of bias (e.g., compliant/non-compliant; Payne and Lundberg, 2014). Using word pairs aligned with visceral responses might better detect implicit biases.

The dosage findings are encouraging. Any level of exposure to either intervention component was associated with higher levels of ethno-cultural empathy, physician empathy, and patient-centeredness. When participants attended more photo documentary sessions or attended both components, bias levels changed in the hoped-for direction with marginal significance. Although preliminary, the dosage findings should prompt researchers to focus on multi-part interventions versus one-shot training experiences. Likewise, if strengthened in future work, such findings would indicate institutions could mix-and-match the components to fit trainees' demanding schedules.

4.1. Limitations

This work has limitations that prevent generalization. The sample size was small. The cross-sectional design did not allow examination of intervention effects over time. Our study focused on medical trainees in specialties that may have lower bias levels and more positive attitudes toward patients than other specialties. Future studies should incorporate baseline data collection and consider many medical specialties to understand who needs and benefits most from interventions of this type. Our pilot findings, though encouraging, do not indicate whether patients will experience better care, higher satisfaction, or better health outcomes. The findings do indicate that attitude change is possible and that such interventions are worth pursuing. Our work also highlights the need for rigorous evaluation of the efforts aimed at decreasing health disparities through enhancing provider sensitivity. Although the intervention requires additional refining and testing, this study provides a foundation for development and confidence in the feasibility of this work.

5. Conclusion

Yo Veo Salud shows promise at the pilot-test level. As provider bias becomes a focus for addressing health disparities, educators must rigorously test interventions designed to address all forms of discriminatory treatment in healthcare settings. Yet, doing intervention testing requires substantial investment by physician participants and medical school faculty. Further, researchers must recognize the day-to-day challenges presented in research in medical environments. These obstacles must be overcome to create healthcare environments that provide quality care to all patients. To that end, *Yo Veo Salud* represents a promising tool in the on-going work of health equity.

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