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Original Article

Let's Talk about Bias in Healthcare: Experiences from an Interactive Interprofessional Student Seminar

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Abstract

Background: Education to increase awareness of the impact of bias in healthcare should be included in all health professions training programs. This report describes the implementation and outcomes of an interactive, interprofessional pilot seminar on racial bias in healthcare for health professions students. **Methods:** Forty students across the University of Nebraska Medical Center's six health profession colleges participated in a 3-part, 1-hour seminar, including a video vignette depicting examples of bias in the hospital, facilitated interprofessional small group discussions, and interaction with a health equity expert panel. We analyzed the results of participants' Ethnic Perspective-Taking (EP) and Implicit Bias Knowledge scale (IBKS) scores before and after the seminar. **Results:** There was a statistically significant increase ($p<0.001$) in the average post-seminar EP scores (30.6 post-seminar vs 27.8 pre-seminar). For the adapted IBKS, there were significant improvements in participant knowledge, skills to identify, and ability to explain the impact of implicit biases ($p<0.05$). Participants highlighted the importance of including education about bias in healthcare training, and some suggested mandatory education. All facilitators agreed that learners gained a deeper appreciation for the effect of bias and racism on health outcomes and participants understood how bias and racism affect patient care and clinician experience after the seminar. **Conclusion:** Health professions training often lacks integrated interprofessional and health equity education. This seminar addresses both, engaging community voices without heavy resources. Despite low participation, results show the benefits of interactive sessions on health equity, helping students grasp their role in equitable care and influencing future practice.

Introduction

Unconscious or implicit biases may manifest as either a prejudice (negative evaluation) or stereotype (attribute) that one associates with people who share a particular characteristic.[1,2] Implicit biases exist in healthcare workers, placing minoritized communities at a greater risk for poor health outcomes due to inequities in healthcare access and delivery.[3–8] The Liaison Committee on Medical Education (LCME) has identified standards addressing health inequities and structural/cultural competency in medical schools with a requirement that "medical curriculum provides opportunities for medical students to learn to recognize and appropriately address biases in themselves, in others, and in the health care delivery process."[9] Healthcare training programs have included components of bias training to address structural racism and bias in their curriculum, but these efforts primarily have been siloed in individual professions such as medicine, nursing, or dentistry.[10–14] Quality healthcare delivery, however, is not insulated between professions in this manner. Therefore, a curriculum designed and delivered in an interprofessional setting to interdisciplinary students is essential to creating a structural competency curriculum, and addressing the social determinants of health that lead to health inequities in clinical settings.[15,16]

Our institution's Interprofessional Education (IPE) Curriculum Committee designs activities engaging students and faculty from its different colleges to incorporate interprofessional education into their programs. While a structural competency curriculum exists in the College of Medicine at our institution,[12] there is no similar education incorporated into the existing IPE curriculum. This report aims to describe the implementation and outcomes of an interactive seminar designed to educate interprofessional health professions students to recognize the effect of racial bias on patient care and discuss strategies for mitigating bias in clinical settings. We propose a framework that transcends conversation between academic health disciplines, to include community partners that our health system serves. A review of IPE within colleges suggests that there is a limited commitment

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to community and patient partner involvement in health profession education; this report highlights the transformative influence in health profession students' appreciation of health inequities among those we serve.[17]

Methods

Setting and Participants

The event was held in March 2022. We recruited students via email, electronic newsletters, social media announcements, and word of mouth. Participation was limited to enrolled students from one of the six health professions colleges across our institution. We incentivized voluntary, in-person attendance with complimentary lunch, and Zoom conferencing allowed participation from remote campuses. In 2021, 2.8% and 4.9% of our institution's students self-identified as Black or Hispanic, respectively. These two racial/ethnic groups represent 12.1% and 11.3% of residents where most of our institution's colleges are based

Seminar Development and Implementation

This interprofessional seminar aimed to help students apply strategies to increase awareness and mitigate racial bias in clinical cases. Box 1A outlines the learning objectives reflecting the Values/Ethics and Teams/Teamwork domains of the core competencies for the Interprofessional Education Collaborative (IPEC).[21] As with prior curricular innovations in our institution, community stakeholders were included as an integral part of the team to assist with seminar planning, implementation, and follow up.[12] Other team members included students, faculty, and staff representing various health professions colleges from our institution. The 60-minute seminar included a pre-recorded video vignette (11 minutes), facilitated small group discussions (25 minutes), and a 15-minute discussion panel ***(Box 1B)***.

Video Vignette Creation

We utilized the five-stage framework originally described by Hillen et al.[18] to create our video vignette, which has been used in several other studies.[19-20] This process involves (1) deciding if video vignette is appropriate; (2) developing a script; (3) developing valid manipulations; (4) converting the script to video; (5) administering the videos. Video vignettes are often used in health communications studies and was chosen for this seminar to portray true-to-life examples of bias in healthcare (incorporating non-verbal and verbal communication) for those with minimal experience in clinical setting, and to facilitate better participant engagement.[17]

The scenario depicted racial bias in an interaction between a nurse and a patient with sickle cell disease (SCD) experiencing a pain crisis.[22] Volunteer actors were recruited from our institution and another local college. It would be unethical to intentionally subject real patients to hurtful language and actions; therefore, a vignette was an appropriate choice for our chosen topic and audience. The script was created based on real interactions and experiences, and was edited by subject experts, real prior patients, and a professional filmmaker. We utilized both real healthcare professionals from our institution and actors recruited from a local college to create the scenes, which were filmed in simulated patient rooms. The third person camera view (rather than first person) captured the full range of verbal and nonverbal interactions between the characters. A professional film director edited the film, which was reviewed by our multidisciplinary advisory team for feedback. The video was viewed in a group setting but with cinematic viewing conditions (a large screen and in darkness), as this was more practical than individual viewing but still allowed for better immersion into the scenarios.

Facilitator Training

Seminar facilitators included faculty members recruited from several colleges and across multiple campuses, representing both clinical and academic expertise; community leaders also served as facilitators and expert panelists. Facilitators participated in a one-hour training session two days prior to the event, which included viewing the video scenario followed by walking through the Facilitator Guide ***(Supplemental Figure 1)***, Small Group Discussion Guide ***(Supplemental Figure 2),*** and the open-ended discussion prompts (Box 1B). Small groups consisted of 4-6 students from various health programs per facilitator, with 12 facilitators total.

Program Evaluation

Our institution's Institutional Review Board deemed this a program evaluation and not human subjects research. To gauge the effectiveness of the program, the Kirkpatrick Evaluation Model's framework was used, incorporating scales to measure knowledge of unconscious bias and evaluating learning. Open ended questions with qualitative results provided insight into participants' reactions. Facilitator observations of students helped to further assess behavior and results. Voluntary, anonymized, web-based surveys were disseminated to participants in the three days before and after the seminar ***(Supplemental Figure 3).*** Each participant was assigned a unique code to link pre-and post-seminar survey responses. The surveys assessed (1) participant demographics, (2) perceptions and interest in learning more about bias through examples of bias in healthcare, (3) knowledge and awareness of bias using adapted scales, and (4) seminar strengths and opportunities for improvement. An additional post-evaluation survey assessed facilitator perceptions of learner knowledge, skills, and attitudes following the training ***(Supplemental Figure 4)***.

Scales to measure knowledge of unconscious bias

To align with the seminar objectives, the effectiveness of the program was characterized based on improvement in ethnic perspective-taking scores and implicit bias knowledge of participants pre- and post-seminar. Ethnic perspective-taking is the process of individuals seeking and actively considering the thoughts, experiences, and feelings of racial/ethnic outgroups.[23,24] Studies have demonstrated the interrelation between perspective-taking as an antecedent to racial bias.[25–27] The Ethnic Perspective-Taking (EP) subscale of the Scale of Ethnocultural Empathy (SEE) assessed participants' "effort to

understand the experiences and emotions of people from different racial and ethnic backgrounds."[2] This is a 7-item subscale with 6-point Likert-type responses ranging from '1' being 'strongly disagree' to '6' being 'strongly agree' ***(Figure 1)***. A total score was computed and compared for each participant pre- and post-seminar. A higher score corresponds to greater ethnic perspective-taking. The original instrument's internal consistency was 0.90.

Participant implicit bias knowledge was assessed with an adapted Implicit Bias Knowledge Scale (IBKS)[29]. The original scale included 18 items. To shorten the survey and increase completion rates, our adaptation removed 8 items and revised two items to replace juvenile justice text with healthcare text (e.g., "Youth of all races and ethnicities are treated the same in local schools" was reworded to "People of all races and ethnicities are treated the same in healthcare") for a total of 10-items administered in our survey. The adapted set of questions was reviewed by subject matter experts (content validation). The participants responded to the statements as either 'True' or 'False.' The internal consistency of the original scale was 0.74. Given our small sample size and the nature of the questions themselves, we did not analyze the results as a scale and calculate Cronbach's alpha, but rather, looked at answer changes to individual questions.

Analyses

We conducted the Kolmogorov-Smirnov test for normality, and because data were normally distributed, we conducted a paired-samples *t*-test to compare EP scores for matched pre- and post-surveys using a significance level of 0.05 as reference. For the adapted IBKS, we used descriptive statistics and the Chi-squared test to describe the differences in participant response to each question at pre- and post-seminar. We conducted an inductive thematic analysis of open-ended survey responses.[30] Two researchers (MR and NT) independently analyzed the responses by identifying codes and corresponding themes, with subsequent revision and agreement by two senior researchers (KK and TG). The researchers met to discuss their individual codes and themes until they reached consensus

Results

Student evaluation

Of the 45 registered student participants, 40 attended including 10 (25.0%) attending virtually. Eighty percent (n=32) self-identified as women and 57.5% (n=23) aged 25 to 30 years ***(Table 1)***. Sixty-five percent of the students self-identified as White, 10.0% as Asian, 7.5% as Black/African American, 7.5% as Hispanic/Latino, and 7.5% as Multiracial. Almost half (47.5%) were third- or fourth-year students, and most participants came from the College of Medicine (35.0%). Half (n=20, 50.0%) of the participants completed the pre- and post-seminar surveys; these results were compared for the EP and adapted IBKS.

For the EP scale, there was a statistically significant increase in the mean post-seminar score (M = 30.6, SD = 5.6, p<0.001, 95% CI [4.33, 1.27], d=.86; range 22-42), compared with the pre-seminar score (M = 27.8, SD = 6.8; range 17-39), demonstrating learning ***(Figure 1)***. Furthermore, post-seminar scores skewed higher than pre-seminar scores, with a majority of the post-seminar responses higher than the pre-seminar score median. For the adapted IBKS, there was a significant improvement in knowledge and ability to address implicit biases ***(Table 2, Figure 2)***. At the end of the seminar, 19/20 participants vs. 10/20 pre-seminar felt they had the skills to identify solutions to their implicit biases (p<0.001); 20/20 vs 15/20 felt knowledgeable about implicit bias (p<0.05); and 16/20 vs 6/20 felt qualified to explain the impact of implicit bias to others (p<0.001).

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Table 4 shows the joint display integrating qualitative and quantitative results, drawing from participants' responses to open-ended survey questions. Participants agreed that implicit bias was present in most people and that training to enable students to understand it and its negative effects on healthcare delivery is essential.

Facilitator Evaluation

All 12 facilitators responded to the evaluation questionnaire, and 100.0% agreed or strongly agreed that learners gained a deeper appreciation for the effect of bias and racism on health outcomes. Most facilitators also noted that students' knowledge (58.0% of facilitators, n=7) and skills indicating behavioral change and desired results (75.0% of facilitators, n=9) improved due to the seminar. They all strongly or very strongly agreed that participants understood how bias and racism affect patient care and clinician experience. Fifty-eight percent (n=7) thought that using a video vignette and guided discussion prompts for facilitators effectively promoted student engagement and thoughtfulness in the small group discussions. They highlighted the mix of panel discussion and small group discussions as unique, saying "Small group structure allowed for open discussion of bias. Students were open and willing to discuss. It was evident from discussion [that] students identified salient points on recognizing and dealing with bias."

Discussion

It is important to address bias in healthcare given its negative impacts on patient outcomes and the potential for perpetuation

among healthcare professionals. Sun et al. reported that Black patients had 2.54 times the odds of having a negative descriptor in their medical record compared with White patients.[31] Exposure to stigmatizing language through the medical record was associated with more negative attitudes towards patients[32-33] and less aggressive pain management in patients with sickle cell disease.[34] Whether bias manifests through written records or verbal handoffs, these studies highlight the need for further anti-bias training in interprofessional settings to mitigate these behaviors and avoid inequitable treatment.

Table 1. Bias in Healthcare Seminar Participant Characteristics (N=40).

	N (%)
Age	
18-24	14 (35.0)
25-30	23 (57.5)
31-40	3 (7.5)
Gender	
Woman	32 (80.0)
Man	8 (20.0)
Nonbinary/other	0
Racial/ethnic identity	
Asian	4 (10.0)
Black/African American	3 (7.5)
Hispanic/Latino	3 (7.5)
White	26 (65.0)
Multiracial/Biracial	3 (7.5)
No disability	39 (97.5)
Member of the LGBTQ+ community	8 (20.0)
Year in school	
1	9 (22.5)
2	10 (25.0)
3	12 (30.0)
4	7 (17.5)
College affiliation	
CAHP	8 (20.0)
COD	3 (7.5)
COM	14 (35.0)
CON	1 (2.5)
COP	3 (7.5)
COPH	2 (5.0)
Graduate Studies	6 (15.0)
Others*	4 (9.6)

*Others include MD-PhD scholars
College of Allied Health Professions (CAHP), College of Dentistry (COD), College of Graduate Studies (CGS), College of Medicine (COM), College of Nursing (CON), College of Pharmacy (COP), and College of Public Health (COPH)

As a university with several health professions programs, IPE has been an important initiative for several years at our institution.[35] Although structural competency education is now required of many health professions degrees, this was not previously incorporated into the IPE curriculum, rather, addressed by individual colleges within their specific curricula. This student-developed "Bias in Healthcare" Seminar successfully introduced interdisciplinary health professions students to a realistic clinical scenario and provided a framework to navigate racial bias in healthcare. As a pilot study, one of the main goals was to trial this structure (video, discussion, panel) as an effective way to learn about this topic. Based on responses to the surveys, students agreed that it was, and encouraged interdisciplinary bias training to be included into the mandatory curriculum. The seminar addressed gaps in structural competency curricula in an engaging way while building interprofessional relationships.

The seminar evaluation indicated a significant increase in participant empathy towards people of racial/ethnic backgrounds different from their own, as well as increased knowledge of and ability to address the impact of implicit bias. The varied learning modalities promoted increased participant engagement. The video vignette provided specific examples for those with limited clinical experience and provided a foundation for further discussion. Interprofessional small groups provided a safe environment to reflect with peers in a setting similar to the interdisciplinary clinical team. The expert panel permitted students to learn about others' experiences with bias directly and through several lenses, including community concerns and institutional challenges. The sum of these experiences allowed students personal and professional growth by providing knowledge and opportunities for reflection and interaction with peers and community members.

Box 1. Seminar Learning Objectives and Schedule/Implementation.

1A. Learning Objectives (LOs) addressed with the Interprofessional Bias in Healthcare Webinar

(LO1) Describe the effect of bias and race-based healthcare on patient care.

(LO2) Create an environment of inclusive excellence by listening actively and encouraging the ideas and opinions of other team members.

(LO3) Discuss how to recognize and react to bias in yourself and others.

(LO4) Recognize appropriate language for having discussions about bias in health care.

1B. Seminar Schedule/Implementation

12:00 – 12:10 pm: Welcome remarks/ Session overview/ Lunch distribution
12:10 – 12:20 pm: Viewing of video vignette (large group)
12:20 – 12:45 pm: Facilitated small group discussions (eight groups in person [one of these at a satellite campus]; five virtual group meetings via Zoom conferencing). Below are some of the discussion questions used to guide conversation:

- Can you identify examples of bias in this video?
- Discuss examples of bias in healthcare you've experienced (or witnessed)?
- What could you learn from the discussion about bias in the last scene?
- Should Dr. J have specifically pointed out the comment about Black people having a higher pain tolerance? What would that conversation look like?
- Is it important to use the word "racism" when you see it happen? Are there situations that would be more or less appropriate to do this? Why or why not?

12:45 – 1:00 pm: Healthcare Equity Experts panel and dismissal

Legend: Box plot showing the pre- and post-seminar responses to the Ethnic Perspective-taking survey questions. t-test = 3.83 (***p≤0.001) when comparing pre- and post-seminar mean scores. Note that higher scores indicate greater ethnic perspective-takin.

Table 2. Adapted Implicit Bias Knowledge Scale Responses (N=20)

	Pre-seminar True Response	Post-seminar True Response	Difference	CI Lower Bound	CI Upper Bound	Effect Size
Question	N (%)	N (%)	N (%)			
1. People of all races and ethnicities have access to the same resources in my city.	2 (10.0)	0 (0.0)	2 (10.0)	2.1	.15	.32
2. People of all races and ethnicities are treated the same in healthcare.	0 (0.0)	0 (0.0)	0 (0.0)	-	-	-
3. Everyone (including me) has implicit biases.	20 (100.0)	20 (100.0)	0 (0.0)	-	-	-
4. Biases can extend beyond racial/ethnic group characteristics.	20 (100.0)	20 (100.0)	0 (0.0)	-	-	-
5. Even if our attitudes and beliefs come from our culture, they can be changed.	20 (100.0)	20 (100.0)	0 (0.0)	-	-	-
6. We can manage microaggressions by becoming aware of them, and slowly learning to catch our biases before they become actions.	19 (95.0)	20 (100.0)	1 (5.0)	1.0	.31	.22
7. I feel I have the skills needed to identify a solution for my implicit biases.	10 (50.0)	19 (95.0)	9 (45.0) ***	10.2	.001	.71
8. I feel knowledgeable about implicit bias.	15 (75.0)	20 (100.0)	5 (25.0) *	5.7	.02	.53
9. I am uncomfortable to have conversations about bias with others.	7 (35.0)	6 (30.0)	1 (5.0)	.11	.74	.07
10. I feel qualified to explain the impact of implicit bias to others.	6 (30.0)	16 (80.0)	10 (50.0) ***	10.1	.001	.71

N= Number of "True" responses, which at times shows more or less implicit bias knowledge, depending on the question; ***p<.001, *p<.05; "-" indicates constant values for the item

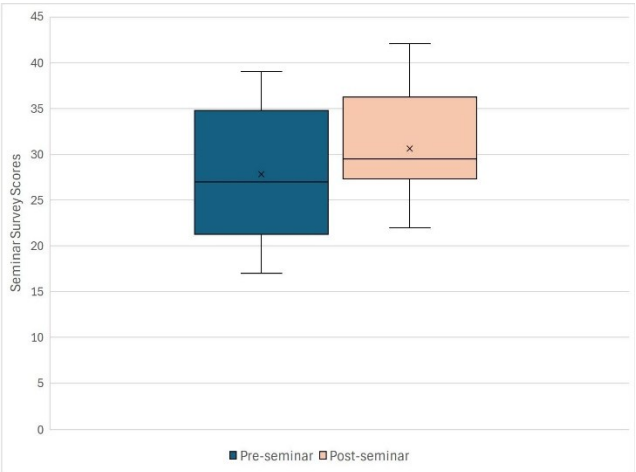
Incorporating community members' voices is necessary when crafting viable solutions to healthcare challenges, including creating educational content.[36–40] They offer valuable insight to students by allowing participants to hear directly from the people they will serve. This provides an understanding of the impact of their care in a way that traditional classroom lectures cannot. This seminar prioritized community engagement from project conception and production to implementation to ensure more effective training and realistic experience for students. Other institutions should consider incorporating community voices into student training where feasible.

Limitations

This program was an optional, single-session student seminar implemented and evaluated at a single institution with a small sample size, which may limit generalizability. Conducting similar studies at multiple institutions could enhance generalizability. Strategies to improve participation could include additional participant incentives and adjusting the timeframe of the seminar to allow for strategic survey completion in-person before and after the seminar using QR codes. There was also no control group; inclusion of this could have strengthened findings. Voluntary seminar participation may have led to a self-selection bias towards individuals who already exhibit baseline knowledge and empathy regarding bias in healthcare. While we obtained both pre- and post-seminar evaluations, these did not assess the long-term impact of the seminar on participants, and unmatched post-seminar evaluations limited assessments of change of

evaluation scores for 50.0% of participants. Future research should include longitudinal assessments to measure the lasting impact of the seminar. The seminar was planned and executed during the COVID-19 pandemic, resulting in unique challenges with volunteer participation and partial virtual participation. Lastly, as a pilot the seminar's scope was limited to racial bias and does not represent the full spectrum of bias patients may experience in healthcare.

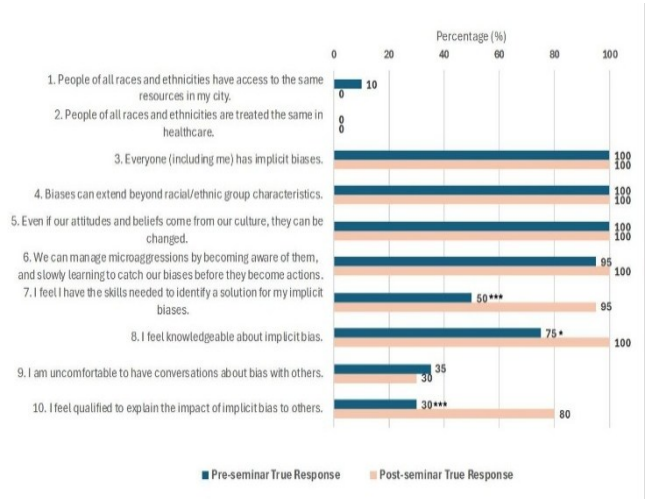
Figure 1. Ethnic Perspective-Taking Score Comparisons (N=20)



	Pre-seminar scores	Post-seminar scores
Mean (SD)	27.8 (6.8)	30.6 (5.6)***
Median (3rd quartile-1st)	27.0 (34.7-27.2)	29.5 (36.2-27.2)
Range (max-min)	22 (39-17)	20 (42-22)

Legend: Box plot showing the pre- and post-seminar responses to the Ethnic Perspective-taking survey questions. t-test = 3.83 (***p≤0.001) when comparing pre- and post-seminar mean scores. Note that higher scores indicate greater ethnic perspective-taking.

Figure 2. Adapted Implicit Bias Knowledge Scale Responses (N=20).



Legend: Bar graph showing the percentage of true responses from seminar participants pre- and post-seminar (***p<.001, *p<.05). N= "True"responses, which at times shows more or less implicit bias knowledge, depending on the question.

Table 3. Themes of Student Perceptions Regarding Racial Bias and the Seminar

Themes Subthemes	**Representative Comments (Participant Role/Number)**
Existing inadequate or insufficient bias training	
Necessity of such programs in health professionals' training	"…It's essential that all students learn about bias in healthcare as many patients, particularly those of racial and ethnic minority groups, often do not receive quality care because their experiences are overlooked. Learning about bias can reduce negative experiences of all patients." (Student 19) "I think [bias in healthcare] is very important. I really think this type of experience should be mandated for future healthcare professionals. To help combat bias people need to first understand that they have bias (even if they don't realize it)." (Student 3)
Traditional health training does not address implicit bias	"I want more concrete examples of how bias manifests in healthcare settings…I want more opportunities to practice addressing my own implicit biases, because practice is going to be the only way I get better at acknowledging and working to change my implicit biases as I'm working as a health care provider." (Student 21)
Strengths of Seminar	
Video vignette provided tangible examples	"It was so helpful to have a video with specific examples to reflect on together, and it helped many people in our discussion group recall similar personal experiences that they shared." (Student 15)
Small focus group discussions	"The small group discussion and expert panel were the most helpful but also would not have been as helpful without the video vignette preceding them. Since these bias problems center around people-to-people interactions I think discussing and communicating with others is the best way to learn and grow in this area." (Student 3)
In-person experience	"For me, an in-person setting for this event in particular was so valuable. There was a level of connection and understanding between our group members that I feel would have been lost in an online format." (Student 15)
Suggested improvements to/expansion of seminar	
Increasing allotted time for certain training components	"I would have loved if there was more time for the discussion and the expert panel!" (Student 7)
Provide support material to participants with actionable steps	"Her verbiage was excellent. I would love a transcript of some of the phrases she used. That was something I felt this session lacked - there was an elevation of awareness, but I didn't feel I walked away with specific tools I could use in the real world." (Student 22)
Suggestions for expanding sessions	"I just think this should be expanded upon—a video vignette and conversation about 1) LGBTQIA patients, 2) Patients with strict cultural norms that we think of as "strange", 3) Low SES patients we may have a socioeconomic bias toward." (Student 18)

Legend: Participant comments categorized into themes and subthemes with examples.

Table 4. Joint Display of Qualitative and Quantitative Results.

Key Quantitative Results	Key Related Qualitative Results	Interpretation
"Everyone (including me) has implicit biases" *No change in pre- and post-seminar responses*	*Increased awareness of implicit bias* "My main takeaway was that implicit bias is present before we ever even meet the patient and that needs to be actively worked against." (Student 6)	Participants recognized the existence of bias in themselves and others and noted that training such as the seminar should be integral to an education in healthcare.
"Biases can extend beyond racial/ethnic group" characteristics *100% of respondents agreed both pre- and post-seminar. No change in pre- and post-seminar responses*	*Current bias training is inadequate, and participants were interested in learning more about potential biases.* "Everyone did great. I just think this should be expanded upon—a video vignette and conversation about 1) LGBTQIA patients, 2) Patients with strict cultural norms that we think of as "strange", 3) Low SES patients we may have a socioeconomic bias toward." (Student 18) "I think we need programs like this more often, with greater variety of subject material covered..." (Student 18)	A participant called for bias training to extend beyond race and ethnicity to include other marginalized groups.

Legend: Includes a selection of quantitative and qualitative results displayed jointly; qualitative results come from the Adapted Implicit Bias Knowledge Scale while the quotes are from the participants' responses to open-ended survey questions.

Future Seminars/Next Steps

Based on post-seminar feedback, future seminars will be expanded to 1.5 hours with a goal of full incorporation into the IPE curriculum which would make the seminar mandatory, leading to a more diverse participant pool and mitigating self-selection bias. Further emphasis on illustrating strategies to address bias in situations within a power differential as the subordinate would be beneficial for the student population. Longer-term goals include offering seminars to faculty and staff excluded from this pilot, which focused on student learners. Data could be gathered of student performance in the clinical setting relating to treatment of patients with or without bias, months or years post-seminar to determine the longer-term impact/results of seminars (Kirkpatrick Model's level 4). Furthermore, the program produced high-quality videos that can be directed for use in on-demand learning on this topic.

Anti-bias curricula for health professions students are an important part of the educational experience, as the reality of downstream health implications for patients may not be easy to envision for students with limited clinical experience if this is not explicitly addressed. Building on interactive, interprofessional approaches with realistic examples can allow students with limited clinical experience to improve their delivery of care. Understanding these topics and how to address them is key to being a well-rounded clinician who provides patient-focused care. Institutions should build on this framework as they create content for both anti-bias and interprofessional training.

Summary – Accelerating Translation

This report discusses the successful implementation and outcomes of an interactive, interprofessional pilot seminar addressing racial bias in healthcare for health professions students. The seminar aimed to raise awareness and provide strategies to mitigate bias in healthcare, contributing to the broader goal of fostering equitable patient care.

In the seminar, 40 students participated in a 1-hour session comprising a video vignette, interprofessional small group discussions, and interaction with a health equity expert panel. Pre- and post-seminar assessments measured Ethnic Perspective-Taking (EP) and an adapted Implicit Bias Knowledge Scale (IBKS) to evaluate the impact on participant empathy and knowledge. Qualitative feedback was gathered to further assess the effectiveness of the seminar.

The findings revealed a significant increase in post-seminar EP scores, indicating improved empathy towards racial and ethnic diversity. The adapted IBKS demonstrated significant enhancements in participant knowledge in certain areas regarding implicit bias. Participants advocated for the inclusion of bias education in healthcare training, emphasizing the seminar's effectiveness in promoting awareness and understanding of bias. Facilitators reported that learners developed a deeper appreciation for the effects of bias and racism on health outcomes. Most facilitators observed improvements in student knowledge and skills, highlighting the seminar's success in achieving its educational objectives.

The seminar addressed the critical need for both interprofessional and health equity education in health professions training. By incorporating community voices and realistic examples, the seminar engaged students effectively without requiring significant resources for those who would replicate this experience.

Limitations of the study include its single-session format and a focus on racial bias. Future seminars plan to expand in duration, address power differentials, and target faculty and staff. The high-quality videos produced during the program offer valuable resources for on-demand learning on this critical topic.

In conclusion, this interactive, interprofessional seminar effectively promotes understanding of the impact of bias on patient care, fostering awareness and promoting equitable care delivery in health professions education

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Author Contributions

Conceptualization: MR, TC, YS, CW, PC, SS, JRM. Data Curation: MR, NT, OO, KK, TG. Formal Analysis: MR, NT, KK, TG, JRM. Funding Acquisition: MR, JRM. Investigation: MR, NT, OO, TC, YS, CW, PC, SS, MG, JRM. Methodology: MR, NT, OO, KK, TC, YS, SS, TG, JRM. Project Administration: MR, NT, OO, TC, YS, JRM. Resources: MR, TC, YS, SS, JRM. Supervision: JRM. Validation: KK, TG. Visualization: MR, NT, KK, TG. Writing - Original Draft: MR, NT, OO, TC, MG, JRM. Writing - Review Editing: MR, KK, TC, YS, SS, MG, TG, JRM.

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Supplementary Material

Let's Talk about Bias in Healthcare: An Interactive Interprofessional Student Educational Experience

Principal Investigators: Mckenzie Rowe and Jasmine R. Marcelin, MD

Dear Student Colleague,

Thank you for participating in the Let's Talk about Bias in Healthcare interactive interprofessional student educational experience. We invite you to complete this survey to help us to evaluate the value of this experience and achievement of educational objectives. The primary physical location of this survey is the University of Nebraska Medical Center. You are eligible to participate in this 5-minute survey because you are a health professions student currently enrolled at UNMC.

The survey is connected to the interprofessional educational experience "Let's Talk about Bias in Healthcare", where students have facilitated group discussions about bias in healthcare prompted by a video vignette viewing. This survey will assess your understanding of bias in healthcare before and after the experience, as well as your evaluation of the program itself.

This survey has been reviewed by the University of Nebraska Medical Center Institutional Review Board and deemed exempt (IRB # XXXX-XX). If you have questions about the rights of research subjects, please contact the Institutional Review Board at https://www.unmc.edu/irb/about/contact.html

Your participation in this survey is voluntary and your responses will be confidential and anonymous. No personal identifiable information will be collected for this study. You will not receive personal benefit from completing the survey, however data from the survey will inform us of the value of the program and ways to improve education about bias, which has societal benefits. Participation or the refusal to participate will have no effect on academic standing.

Completion of the survey will be considered an agreement to participate in the research study. Participants may choose to skip questions they do not wish to answer and may choose to cease participation at any time.

If you have questions about the survey, please contact
Mckenzie Rowe M4 (mailto:mckenzie.rowe@unmc.edu)
or Jasmine Marcelin, MD (mailto:jasmine.marcelin@unmc.edu).

Thank you for considering participating in this survey!

Pre-Educational Experience Survey

We are de-identifying your information to ensure confidentiality. Before you answer the assessment questions below, please create your personal code using the following questions:

1. What day of the month were you born?
(e.g. If your birthday is November 17, put "17")

2. What is the first letter of your middle name?
(If you don't have a middle name, please use "F")

3. How many OLDER siblings do you have?

4. What is the first letter of the state that you were born in?
(If you were born outside of the United States use "H")
Your code: _____

Demographic Information

1. Age: [ ]18-24 [ ]25-30 [ ]31-40 [ ]41-50 [ ]51-60 [ ]>60
2. To which gender identity do you most identify with: [ ] Man [ ] Woman [ ] Trans-gender man []Trans-gender woman [ ] Nonbinary [ ] Another gender not described
[ ] Prefer not to answer

3. Which best describes you? (Please select one answer): [ ] White/Caucasian [ ] Hispanic/Latino [ ] Black/African American [ ] Asian [ ] Pacific Islander/Native Hawai'ian [ ] American Indian/Alaskan Native [ ] Multiracial/Biracial [ ] A race/ethnicity not listed above (please specify) _____
4. Do you identify as a member of the LGBTQ+ community? (Yes, No, Prefer not to answer)
5. Do you identify as a member of the disability community? (Yes, No, Prefer not to answer)
6. Primary college affiliation: [ ]College of Medicine [ ]College of Nursing [ ]College of Public Health [ ]College of Dentistry [ ]College of Allied Health Professions [ ]College of Pharmacy [ ]Graduate Studies [ ]Postdoctoral Education [ ]Other
7. Year in School: [ ]1 [ ]2 [ ]3 [ ]4 [ ]5 [ ]6 [ ]7+

Using the following scale, please rate your ability for each of the following statement:
1=Poor 2=Fair 3=Good 4=Very good 5=Excellent
1. Use respectful language appropriate for a given difficult situation, crucial conversation, or conflict.

Using the following scale, please rate how each statement describes you:
1 = Strongly disagree
2 = Disagree
3 = Somewhat disagree
4 = Somewhat agree
5 = Agree
6 = Strongly agree

	Questions						
a.	It is easy for me to understand what it would feel like to be a person of another racial or ethnic background other than my own.	1	2	3	4	5	6
b.	It is difficult for me to relate to stories in which people talk about racial or ethnic discrimination they experience in their day to day lives. (R)	1	2	3	4	5	6
c.	It is difficult for me to put myself in the shoes of someone who is racially and/or ethnically different from me. (R)	1	2	3	4	5	6
d.	I know what it feels like to be the only person of a certain race or ethnicity in a group of people.	1	2	3	4	5	6
e.	I can relate to the frustration that some people feel about having fewer opportunities due to their racial or ethnic backgrounds	1	2	3	4	5	6
f.	I feel uncomfortable when I am around a significant number of people who are racially/ethnically different than me. (R)	1	2	3	4	5	6
g.	I don't know a lot of information about important social and political events of racial and ethnic groups other than my own. (R)	1	2	3	4	5	6

Choose if the statement is True or False

True False	1. People of all races and ethnicities have access to the same resources in my city.
True False	2. People of all races and ethnicities are treated the same in healthcare.
True False	3. Everyone (including me) has implicit biases.
True False	4. Biases can extend beyond racial/ethnic group characteristics.
True False	5. Even if our attitudes and beliefs come from our culture, they can be changed.
True False	6. We can manage microaggressions by becoming aware of them, and slowly learning to catch our biases before they become actions.
True False	7. I feel I have the skills needed to identify a solution for my implicit biases.
True False	8. I feel knowledgeable about implicit bias.
True False	9. I am uncomfortable to have conversations about bias with others.
True False	10. I feel qualified to explain the impact of implicit bias to others.

Free-Form Questions

1. What are your thoughts on learning more about bias in healthcare?

2. What are some ways bias affects patient care?

Thank you for taking the time to complete this survey

Post-Training Survey

We are de-identifying your information to ensure confidentiality. Before you answer the assessment questions below, please create your personal code using the following questions:

1. What day of the month were you born?
(e.g. If your birthday is November 17, put "17")

2. What is the first letter of your middle name?
(If you don't have a middle name, please use "F")

3. How many OLDER siblings do you have?

4. What is the first letter of the state that you were born in?
(If you were born outside of the United States use "H")
Your code: _____

Demographic Information

1. Age: [ ]18-24 [ ]25-30 [ ]31-40 [ ]41-50 [ ]51-60 [ ]>60

2. To which gender identity do you most identify with: [ ] Man [ ] Woman [ ] Trans-gender man []Trans-gender woman [ ] Nonbinary [ ] Another gender not described
[ ] Prefer not to answer

3. Which best describes you? (Please select one answer): [ ] White/Caucasian [ ] Hispanic/Latino [ ] Black/African American [ ] Asian [ ] Pacific Islander/Native Hawai'ian [ ] American Indian/Alaskan Native [ ] Multiracial/Biracial [ ] A race/ethnicity not listed above (please specify) _____

4. Do you identify as a member of the LGBTQ+ community? (Yes, No, Prefer not to answer)

5. Do you identify as a member of the disability community? (Yes, No, Prefer not to answer)

6. Primary college affiliation: [ ]College of Medicine [ ]College of Nursing [ ]College of Public Health [ ]College of Dentistry [ ]College of Allied Health Professions [ ]College of Pharmacy [ ]Graduate Studies [ ]Postdoctoral Education [ ]Other

7. Year in School: [ ]1 [ ]2 [ ]3 [ ]4 [ ]5 [ ]6 [ ]7+

Using the following scale, please rate your ability for each of the following statement:
1=Poor 2=Fair 3=Good 4=Very good 5=Excellent

2. Use respectful language appropriate for a given difficult situation, crucial conversation, or conflict.

Using the following scale, please rate how each statement describes you:

1 = Strongly disagree

2 = Disagree

3 = Somewhat disagree

4 = Somewhat agree

5 = Agree

6 = Strongly agree

	Questions						
a.	It is easy for me to understand what it would feel like to be a person of another racial or ethnic background other than my own.	1	2	3	4	5	6
b.	It is difficult for me to relate to stories in which people talk about racial or ethnic discrimination they experience in their day to day lives. (R)	1	2	3	4	5	6
c.	It is difficult for me to put myself in the shoes of someone who is racially and/or ethnically different from me. (R)	1	2	3	4	5	6
d.	I know what it feels like to be the only person of a certain race or ethnicity in a group of people.	1	2	3	4	5	6
e.	I can relate to the frustration that some people feel about having fewer opportunities due to their racial or ethnic backgrounds	1	2	3	4	5	6
f.	I feel uncomfortable when I am around a significant number of people who are racially/ethnically different than me. (R)	1	2	3	4	5	6
g.	I don't know a lot of information about important social and political events of racial and ethnic groups other than my own. (R)	1	2	3	4	5	6

Choose if the statement is True or False

True False	1. People of all races and ethnicities have access to the same resources in my city.
True False	2. People of all races and ethnicities are treated the same in healthcare.
True False	3. Everyone (including me) has implicit biases.
True False	4. Biases can extend beyond racial/ethnic group characteristics.
True False	5. Even if our attitudes and beliefs come from our culture, they can be changed.
True False	6. We can manage microaggressions by becoming aware of them, and slowly learning to catch our biases before they become actions.
True False	7. I feel I have the skills needed to identify a solution for my implicit biases.
True False	8. I feel knowledgeable about implicit bias.
True False	9. I am uncomfortable to have conversations about bias with others.
True False	10. I feel qualified to explain the impact of implicit bias to others.

Post- Educational Experience Free- Form Questions

1. After participating in the educational experience, describe your thoughts on learning about bias in healthcare.
2. After participating in the educational experience, describe your thoughts about ways bias affects patient care?
3. What was most helpful to your learning about bias in healthcare in this event? (e,g. video vignette, small group discussion, expert panel)
4. What were some of the areas of improvement for this event? (e.g. video vignette, small group discussion, expert panel) Please describe.

Would you be willing to participate in a brief interview regarding your experience? Please click this link if yes.

https://forms.office.com/Pages/ResponsePage.aspx?id=QImihGS0w0G6O7T6ZmW8BXq6NPJAv8ZLu1FTGtsV3ARUMDAxUDZWWDZVM1NWRE9YOUozOEhDN1dQWS4u

Thank you for taking the time to complete this survey

Let's Talk about Bias in Healthcare: Facilitator Evaluation Survey

1. I felt that learner knowledge and/or skills have been improved by today's activities, with respect to their ability to:

	Hardly at all	To a small degree	To moderate degree	To a great degree	To a considerable degree
Understand how bias and racism can affect patient care.	◯	◯	◯	◯	◯
Understand how bias and racism can affect healthcare providers' experiences.	◯	◯	◯	◯	◯

Understand how to recognize bias and take steps to mitigate it.	◯	◯	◯	◯	◯
St0atement 4.	◯	◯	◯	◯	◯

2. Rate the degree to which you agree/disagree with the following statements:

	Strongly	Disagree	Neutral	Agree	Strongly agree
After this activity, learners gained a deeper appreciation for the effect of bias and racism on health outcomes.	◯	◯	◯	◯	◯
After this curriculum, learners felt more comfortable in their ability to talk about bias and racism in a clinical setting.	◯	◯	◯	◯	◯
This curriculum increased learners' desire to understand health inequities in our community.	◯	◯	◯	◯	◯
This curriculum increased learners' desire to speak up when they witness or experience bias.	◯	◯	◯	◯	◯
Learners perceived the topics covered as an important part of their education to become a good healthcare provider.	◯	◯	◯	◯	◯
Learners were interested in pursuing (or intend to pursue) additional training on one or more topics covered in this curriculum.	◯	◯	◯	◯	◯

3. Rate the degree to which you agree/disagree with the following statements:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Prior to today, learners already had a strong knowledge base on the topics covered in the activities.	◯	◯	◯	◯	◯
Learner interest in the topics covered in today's activities did not change much.	◯	◯	◯	◯	◯
Learner attitudes about the topics covered in today's activities did not change much.	◯	◯	◯	◯	◯

4. Please comment on the strengths of today's curriculum:

5. Please provide your suggestions for how today's curriculum may be improved:

6. What role(s) do you hold that led to your being invited to help facilitate this interprofessional student educational experience?

- ◯ UNMC clinical faculty member
- ◯ UNMC administrator
- ◯ - Other UNMC faculty / staff member
- ◯ - Nebraska Medicine administrator / staff member
- ◯ - Community member
- ◯ - Employee of a health-related community organization
- ◯ - Other: _____