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Applying a Structural Competency Lens to Teach Medical Students About Social Determinants of Health

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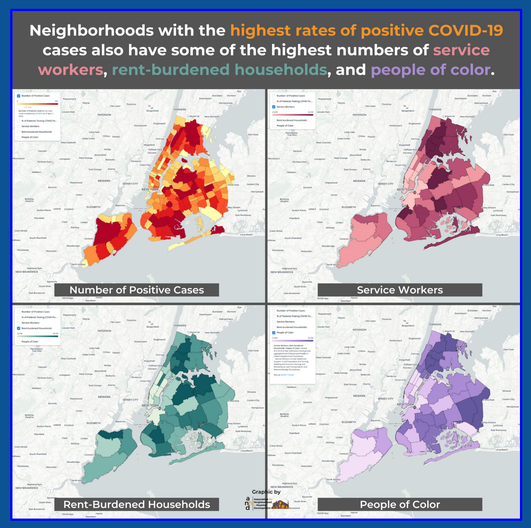
Introduction & Purpose of Research

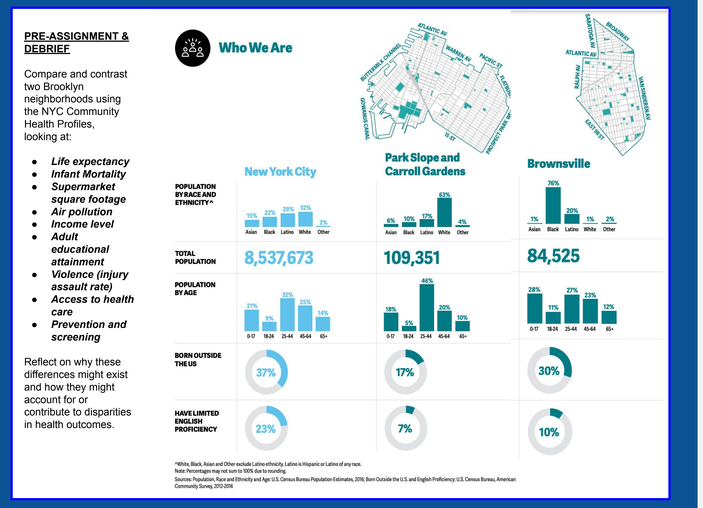
Decades of research on health disparities point to systemic inequities, often rooted in institutions and policies that disenfranchise marginalized communities, as the primary driver of poor health outcomes.[1] This past year, COVID-19 has exacerbated these pre-existing disparities, highlighting the impact of historically embedded racism in healthcare and reinforcing the importance of centering discussions about health inequities on structural racism.[1-5] However, few frameworks exist that are oriented towards educating medical students about upstream factors, such as the discriminatory policies that contribute to ongoing health disparities in America.

- Metzl and Hansen describe a paradigm of **structural competency**, defined as "the trained ability to discern how a host of issues defined clinically as symptoms, attitudes, or diseases… also represent the downstream implications of a number of upstream decisions about such matters as health care and food delivery systems, zoning laws, urban and rural infrastructures, medicalization, or even about the very definitions of illness and health."[6]

- Undergraduate medical education has not yet met the growing need and demand for training of structurally competent physicians.[7]

In response to this gap in medical curricula, we applied Metzel and Hansen's structural competency framework[6] in updating a mandatory session aimed at introducing first-year SUNY Downstate medical students to social determinants of health.
Our goal was to train future physicians to not only identify but critically analyze and begin to consider how to address root causes of health disparities. We developed illustrative and interactive cases, with patient scenarios involving diabetes and COVID-19, to demonstrate the intersection between structural racism, social determinants of health, and healthcare systems, contextualized to our local population in Brooklyn, New York.[5]





Materials & Methods

Through student-faculty collaboration, we updated an in-person required session for first-year medical students into an online synchronous session, taught via Zoom, with both didactic and interactive, discussion-based and small group components.

Applying a Structural Competency Framework

1. ***Before the session, students were tasked with exploring health disparities between two Brooklyn neighborhoods while also considering underlying, contributing factors.***
   - Students debriefed the pre-assignment at the start of the session, after learning about social determinants of health.[8]
2. ***During the session, students had to conduct a patient-centered interview with a woman living with diabetes.***
   - Students conducted a group interview with near-peer facilitators playing the standardized patient.
3. ***After learning about COVID-19, structural competency and racism, students had to come up with and present potential solutions for the patient scenario explored earlier, within the context of Brooklyn.***
   - Students worked in small groups to develop interventions oriented around the levels of the social ecological model[9] (individual, family, community, and healthcare policy), to improve their patient's diabetes-related outcomes and/or to support her and her family during COVID-19, through a structural competency lens.

Session Components

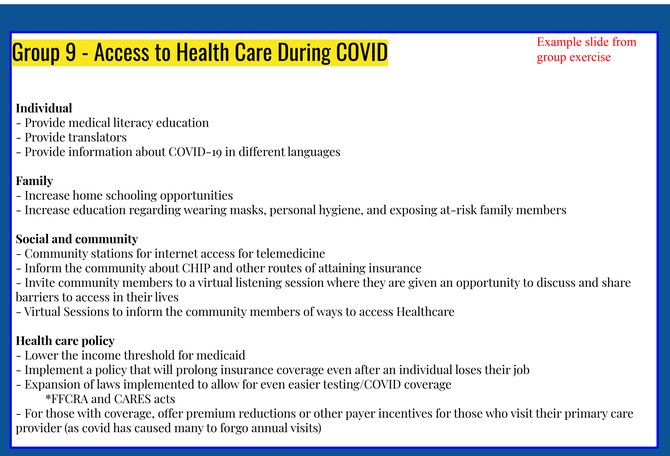
Main Room

1. Defining social determinants of health
2. Structural competency & health equity presentation
3. COVID-19 and structural racism presentation

Breakout Rooms

1. Debriefing and discussion of pre-assignment
2. Patient interview for social history
3. Brainstorming potential interventions to address inequities and discuss existing resources for patients in Brooklyn

Evaluation: Participants were asked to complete pre- and post-surveys to assess knowledge gained, changes in confidence or comfort with topics discussed and rating of importance of topics covered. Questions were asked on a Likert scale and a paired t- test was performed in SPSS (IBM Corp, Armonk, NY) to compare responses from before versus after the session. Additionally, demographic data was collected for all 210 participants and there was an opportunity to provide qualitative feedback via the post-survey.

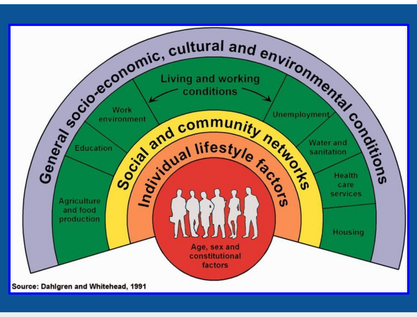


Findings

- Of the 210 first-year medical students who completed the session, 123 filled out the anonymous pre- and post-surveys using the same personal identifier, allowing for matched comparison of responses before versus after.
- Statistical analysis showed a significant increase (p-value < 0.05) in reported comfort with competencies discussed and an increase in perceived importance of topics covered to medical education for all but one question (Refer to Table 1).
  - Students reported increased knowledge about topics covered, increased comfort with addressing structural issues in patient care and increased perceived importance of education on systemic racism and racism in healthcare as well as education around structural competency during medical school.
  - In the case of the question that did not show a significant change in mean response pre- versus post-session, it was because students came in already reporting that they perceived education around social determinants of health in medical school to be "extremely important", the highest rating possible in the surveys, and continued to perceive it to be as important after the session.

Table 1 - Pre- versus Post-Survey Results

Survey Question	Mean Pre-Survey Score	Mean Post-Survey Score	Mean Difference (95% CI)	P-value
How knowledgeable are you about each of the following subject areas? (Scale of 1-5: 1 - Not at all, 5 - Very)				
1 - Health disparities experienced by diverse racial and ethnic groups	3.50	3.84	0.34	0.000
2 - Historical and contemporary impact of racism, bias, prejudice, and discrimination in health care experienced by various populations in the United States	3.39	3.78	0.39	0.000
3 - Relationships between clinical symptoms and social, political, and economic systems	3.26	3.82	0.56	0.000
How comfortable are you/would you feel doing the following? (Scale of 1-7: 1 - Extremely uncomfortable, 4 - Neither comfortable nor uncomfortable, 7 - Extremely comfortable)				
4 - Coming up with a treatment plan which takes into account any structural issues in a patient's life	5.35	5.86	0.51	0.000
5 - Creating a list of institutions or policies that might account for your patient's nonadherence with their prescription medication regimen	5.09	5.81	0.72	0.000
How important is the following in medical school? (Scale of 1-5: 1 - Not at all important, 5 - Extremely important)				
6 - Education around social determinants of health	4.68	4.72	0.03	0.348
7 - Education about systemic racism and racism in healthcare	4.62	4.70	0.08	0.032
8 - Education around structural competency	4.55	4.70	0.15	0.001



Discussion & Conclusion

This was the first required session in our curriculum to discuss structural competency, racism and COVID-19.

- According to survey analysis, incorporation of this session as a mandatory part of our preclinical curriculum provided first-year medical students with additional **knowledge about systemic issues and structural inequities that impact patients and create barriers to adequate healthcare**.
- We found that participants reported an **increase in perceived importance of learning about structural competency and systemic racism in medical school** as well as **increased confidence in identifying and addressing situations in clinical practice that are impacted by structural factors.**
- These findings support the efficacy of this session, through its emphasis on current events and local communities as well as its novel approach, employing the framework of structural competency.
- Limitations of our analysis include self-reporting of data, leading to potential reporting bias. Furthermore, there was a lack of qualitative feedback, which may be addressed through targeted follow-up with students.
- Strengths include the reproducibility and adaptability of this virtual session to diverse settings and the fact that it provides the opportunity for both faculty-led and near-peer learning.
- We plan to conduct further research and analysis, including comparison of responses to this session versus the previous in-person version.

This work is part of a larger institutional effort to continue to shift away from framing of social determinants of health, and race in particular, as immutable risk factors for disease and poor health outcomes.
We aim to ensure students understand social determinants from a structural perspective and appreciate that widespread and deeply ingrained racism, rather than race itself, is in fact a risk factor for patients. Initial findings and session feedback indicate that this educational initiative is both a valuable and effective approach to teaching medical students about social determinants of health, structural racism and systemic inequities in the context of clinical care as well as how to utilize that knowledge to provide better informed healthcare to future patients. It is imperative that we continue to discuss health disparities through the lens of structural competency while explicitly naming and addressing structural racism in medicine. Starting these conversations early on in medical school can create better prepared physicians who are more socially responsible and considerate of the diverse circumstances of the people they work with and treat, as well as the policies and systems within which they live and operate.

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