



Integration of Case-Based Dialogue to Enhance Medical Students' Understanding of Using Health Communication to Address Social Determinants of Health

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Background and Objectives: With the ever-growing diversity within our communities, it is imperative that we integrate social determinants of health (SDOH) such as racial disparity, economic instability, lack of transportation, intimate partner violence, and limited social supports, and the importance of health literacy into undergraduate medical education. By incorporating evidence-based curriculum on the disproportionality within healthcare faced by racial and ethnic minorities, we have the opportunity to develop more culturally sensitive providers. The purpose of this study was to assess the impact of a case-based debrief experience on medical students' knowledge about how social determinants of health can impact health and healthcare within a family medicine clinical setting and their intent to practice in an underserved community.

Methods: We utilized a retrospective paired-sample *t*-test analysis of program data from 640 third-year medical students who engaged in a family medicine clerkship between July 2020, and April 2022. For inclusion in the study, students must have engaged in a case-based exercise and corresponding small group debrief around the impact of social determinants of health on patient care.

Results: We found a statistically significant improvement in students' reported knowledge about SDOH, as well as the confidence and intent to work with and care for individuals of diverse cultural and socioeconomic backgrounds.

Conclusion: Medical students must have the knowledge and self-efficacy to understand how social determinants of health can impact health and healthcare within a family medicine clinical setting. As a result of integrating more active learning strategies such as the case-base and debrief experience, students may have a more robust medical education experience.

Keywords: social determinants of health, problem-based learning, vulnerable populations, education, medical, patient care

Introduction

Despite advancements in healthcare, public health, and health education, health disparities still disproportionality effect groups that have been historically marginalized, especially African Americans and patients who live in low socio-economic communities.¹ According to the US Centers for Disease Control and Prevention, health disparities are preventable differences that impact historically marginalized individuals' opportunities to receive optimal healthcare.² Along with high mortality rates, health disparities result in higher instances of obesity, heart disease and cancer which are all chronic health conditions.³ The American Public Health Association has identified racism as a driving force of social determinants of health (SDOH) and as a barrier to health equity.⁴ SDOH are nonmedical factors that can influence healthcare and are not based on individual health behaviors or choices, but more so situations that are the result of where they live, work, and grow up.⁵ Examples of SDOH include access to transportation, food, employment, healthcare access and quality, economic stability, neighborhood safety, and other societal obstacles.

To improve population health, we must recognize the role of implicit bias in clinical decision and the indirect contribute to health-care disparities.⁶⁻⁹ Implicit bias describes associations or attitudes that unconsciously alter our

perceptions, behaviors, interactions, and decision-making.⁹ When considering social factors that can impact patient care, students should also consider levels of health literacy for the patients they care for. Almost half of the adult population in the United States has low health literacy.¹⁰ According to the US Institute of Medicine, low health literacy occurs when a patient has a limited capacity to fully obtain and process health information needed to make informed health-care decisions.¹¹ While, low health literacy can affect those across socioeconomic demographics, there are higher correlations among those from marginalized populations.¹²

In an effort to address health disparities, it is imperative that we include information and experiences in medical student education that exposes students to SDOH, the importance of health literacy, and plausible patient scenarios involving diverse patient populations. Students must understand the role of SDOH in patient care and develop the skills to use health communication strategies to address their patients' unique health needs. Health communication is defined as the practice of applied communications to advance the health of people and populations.¹³ Accrediting bodies such as the Liaison Committee on Medical Education have incorporated standards addressing medical school diversity and the inclusion of health disparities into medical student education, although the standards do not include identified outcomes to define success.¹⁴ By incorporating evidence-based curriculum regarding the disproportionality within healthcare faced by racial and ethnic minorities, there is an opportunity to develop more culturally sensitive medical clinicians.^{8,15}

Research shows that active learning strategies such as case-based experiences and small-group discussions or debriefs are valuable for improving student knowledge and understanding of population health disparities^{15,16} as well as the value of improving learner confidence to address challenges faced by patients in low-resourced underserved communities.¹⁷ Given the high value placed on medical students to understand how SDOH can impact patient care, we sought to assess the impact of a case-based experience and corresponding small group discussion on medical students' knowledge about how social determinants of health can impact health and healthcare within a family medicine clinical setting and their intent to practice in an underserved community.

Methods

The study is a prospective pre-post cohort study assessing the association between a case-based experience and associated small group discussion designed to teach third-year medical students how to better communicate with patients impacted by SDOH. This study received exempt approval by the Indiana University institutional review board.

Students are first introduced to the concept of social determinants of health within first 2 years of their undergraduate medical education in Foundations of Clinical Practice course (two-year-long courses). During their third-year rotations, students can apply their knowledge about SDOH in real-life scenarios during multiple clinical rotations. At the start of their 160-hr family medicine clerkship experience, all third-year medical students complete online didactic modules involving health disparities and SDOH. At the conclusion of the modules, students are directed to participate in a simulated case experience designed to teach students to understand the role of social determinants of health on patient care. The case-based exercise is of a fictional 28-year-old black woman presenting with a chief concern of cough and shortness of breath. Students are given a history of present illness, laboratory results, medication list, social history, family history, and financial difficulties. The case outlines SDOH faced by the patient such as racial disparity, economic instability, lack of transportation, intimate partner violence, and lack of social supports. Students must identify three priority issues for the patient and develop a social needs action plan (using the American Academy of Family Physicians' EveryONE Project Toolkit).¹⁸ The AAFP EveryONE Project Toolkit includes a social needs screening tool that allows students to screen their patients for five core health-related social needs, which include housing, food access, transportation, utilities, and personal safety, using validated screening questions, as well as the additional needs of employment, education, childcare, and financial strain.¹⁹ Students are tasked with identifying local community-based organizational resources (using the clinic's zip code) as well as their local Area Health Education Center as they create a social needs plan for the patient's short-term and long-term needs. The utilization of zip codes allows students to observe how some zip codes and parts of the state have more resources than others. Research shows that health disparities can often be more severe in communities (zip codes) with few resources.^{20,21}

During the last week of their clerkships, students present their social needs plan along with a suggested follow-up care plan for the fictional patient to their preceptor for feedback. During the same week, students met for a 45 min facilitated

virtual small group discussion with no more than six students per group. A facilitator trained in applied health and interpersonal communication led students through a series of questions designed to encourage learners to think critically about their experience, their role as future physicians, the importance of culturally competent care, health literacy, and the role race and ethnicity has on patient–clinician relationships and overall patient adherence. Throughout the small group discussion, students are encouraged to think critically about how SDOH can influence patients' care and care decisions. Students are encouraged to share how they plan to use health communication strategies to identify a patient's social determinants of health and work with the patient to identify feasible care options.

During the session, the facilitator uses two main communication theories, Muted Group Theory and Intersectionality Theory, to help lead the conversation, and tie scenarios together. Muted group theory is a communication theory that focuses on how marginalized groups are muted and excluded via the use of language and communication.²² Intersectionality Theory is an analytical framework for understanding how aspects of both a person's social and political identity combine to create different modes of discrimination and privilege.²³ Students are reminded that personal identities that can intersect include but are not limited to age, race, sexual orientation, physical ability, and education level. Within healthcare, it is important for students to understand how each part of a patients' identity comes with its own set of obstacles and could potentially impact the care they receive, independently and collectively.

Following case-based experience and small group discussion, students complete an online survey evaluation. The survey includes retrospective pretest-posttest evaluation questions asking students to report their knowledge about social determinants of health, confidence to address social determinants of health in patient care, and plans for future practice in underserved communities. In the evaluation, students are asked to rank the following statements on a Likert scale where 1 is strongly disagree and 5 was strongly agree.

1. I can recognize how social determinants (housing, income, work, food access) can affect patient care.
2. I understand how a person's culture and/or background (race, ethnicity, sexual orientation, religion, rural areas, etc.) may impact their overall health and health-care options.
3. I feel prepared to work with individuals (both patients and professionals) from different cultures and/or backgrounds.
4. I feel I have the skills to care for the unique needs of individuals in rural and medically underserved settings.

In addition to the evaluation questions, students were asked to self-report their demographic information such as identified race and ethnicity, whether they are from an underprivileged background (self-identified as the first generation in their family to attend college, received social assistance benefits, received free or reduced lunch as a child, etc.) and geographic background (urban or rural environment). Self-identified racial and ethnic backgrounds were recoded into a category identified as underrepresented in medicine. Underrepresented in medicine is defined as individuals from racial and ethnic backgrounds that are underrepresented in the medical profession relative to their numbers in the general population.²⁴

The inclusion criteria for this study were that the participants must have been enrolled as a medical student with the Indiana University School of Medicine, participated in a 160-hr family medicine clerkship experience between July 2020, and April of 2022, and completed the program evaluation questions about their experience. The primary outcome of this study is to assess the impact of the case-based debrief experience on medical students' knowledge about how social determinants of health can impact health and healthcare within a family medicine clinical setting and their intent to practice in an underserved community. We conducted a paired *t*-test with the study data using SPSS version 28. A two-sided *P* value of less than 0.05 was statistical significance.

Results

Between July 2020 and April 2022, 640 third-year family medicine clerkship students completed the simulated case experiences and submitted the program evaluation. Most program participants self-reported their race as white or Caucasian (70.9%, 454), Asian (16.4%; 105), and Black or African American (5.0%, 32) with the remaining identifying as American Indian or Alaska Native (0.3%, 2), and other/more than one race (7.3%, 47). Approximately 11.1% (n=71)

of the participants self-reported as Hispanic or Latino. Students reported growing up in an even mix of rural (39.5%, 253) versus urban (60.5%, 387) and approximately 31.4% (201) reported having an economically or educationally underprivileged background (Table 1).

The results of the program assessment are highlighted in Figure 1, depicting the pretest-posttest means for each evaluation question. The data analysis demonstrated a statistically significant positive change between the pre-test and post-test for students' self-reported understanding how social determinants (housing, income, work, food access) can affect patient care [X^2 (4, $N = 497$) = -11.632, $p < 0.01$] and how a person's culture and/or background (race, ethnicity, sexual orientation, religion, rural areas, etc.) may impact their overall health and health-care options [X^2 (4, $N = 497$) =

Table 1 Medical Students by Self-Reported Demographics

	N= 640	%
Gender		
Male	328	51.3
Female	305	47.7
Non-binary	2	0.3
Not reported	5	0.8
Race		
American Indian or Alaska Native	2	0.3
Asian	105	16.4
Black or African American	32	5.0
More than one race	39	6.1
Other	8	1.3
White	454	70.9
Ethnicity		
Hispanic or Latinx	71	11.1
Geographic background		
Self-identified as coming from a rural background	253	39.5
Self-identified as coming from an urban background	387	60.5
Socioeconomic background		
Self-identified as coming from an underprivileged background	201	31.4
Clinical site geography		
Clinical placement in a medically underserved community	292	47.8
Clinical placement in a rural community	186	30.6

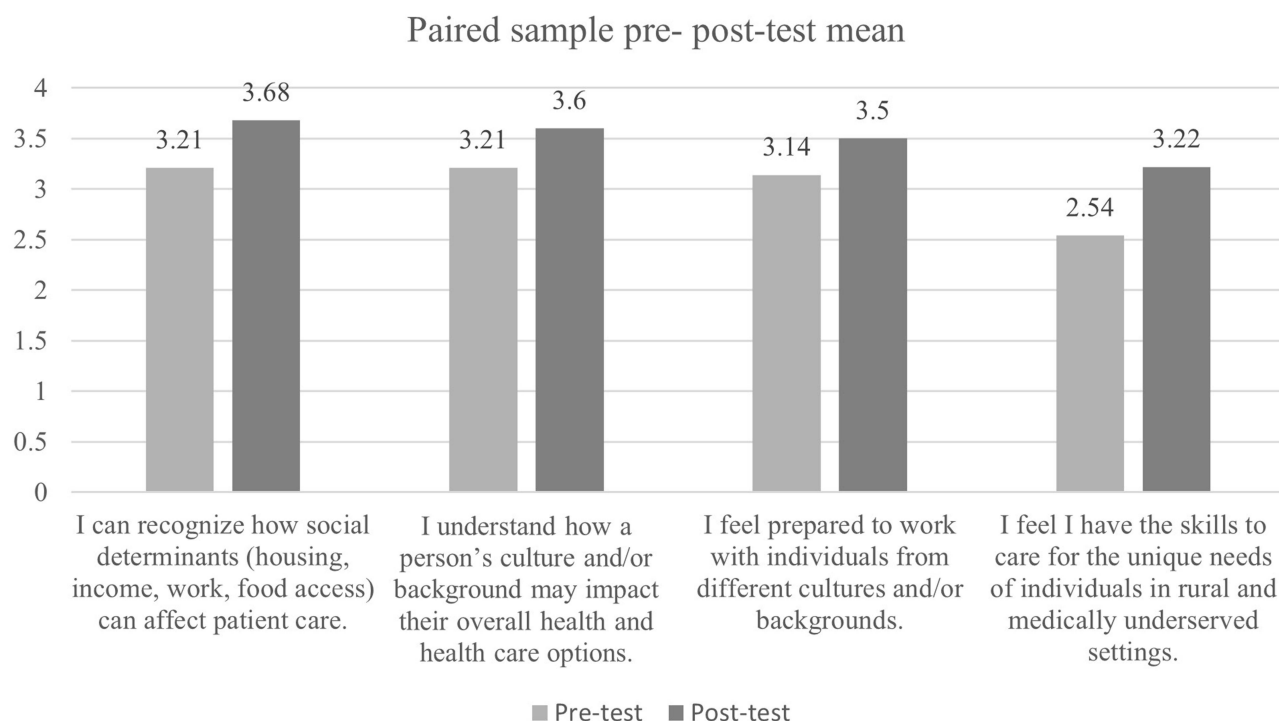


Figure 1 Paired sample mean (where 0 is strongly disagree and 4 is strongly agree) and standard deviation between the pretest and posttest.

−11.632, $p < 0.01$]. Furthermore, the data analysis demonstrated a statistically significant positive change between the pre-test and post-test for students' self-reported confidence to work with other health professions (both in a clinic and community) in a rural or underserved setting [X^2 (4, $N = 497$) = −11.632, $p < 0.01$]; work with individuals (both patients and professionals) from different cultures and/or backgrounds [X^2 (4, $N = 497$) = −11.632, $p < 0.01$]; and care for the unique needs of individuals in urban and rural underserved settings [X^2 (4, $N = 497$) = −11.632, $p < 0.01$].

Discussion

If medical schools continue to integrate health disparity education into the curriculum, there is potential to improve the ability to further diversify medicine as a practice.⁶ As our population continues to diversify, it is crucial to increase access and exposure to curriculums that focus on healthcare disparities, diverse populations, and the impact on patient care. The focus of this study was to better understand the impact of a clinical case-based exercise and related small group discussion on student's knowledge about how social determinants of health can impact health and healthcare within a family medicine clinical setting and their intent to practice in an underserved community. Our findings demonstrate a positive correlation between medical students engaging in the simulated case study and corresponding facilitated small group discussion and an improvement in knowledge and self-efficacy around the impact of social determinants on patient care.

Research shows that when students are given evidence about the ways in which race and lack of care for diverse patients can affect treatment and diagnosis, it can help increase their self-awareness as a physician.⁶ When this project was first created, the fictional patient was not assigned a race or ethnicity. During that time, Indiana had two high profile incidents where two Black female physicians passed away during medical visits/treatments. The decision was made to incorporate race to the scenario to better address the ways in which a patient's race can impact the care they receive, particularly Black women.^{25–27} The goal is not to perpetuate existing stereotypes but to bring awareness to barriers or obstacles in care a Black patient could potentially face. Our hope is that by openly discussing the impact race can have on patients care, along with examples students have seen during their clinical rotations, we are not enhancing stereotypes but being observant of the ways implicit bias and microaggressions currently exist.

The small group discussion allows the students to share and reflect on their own experiences, but it also allows them the opportunity to connect with their peers and create community. The Indiana University School of Medicine is the largest allopathic medical school in the US with nine total campuses, thus students are spread across the state in both their didactic and clinical education experiences. Furthermore, the family medicine clerkship practice sites are often decentralized from the students' academic campus. Conducting the discussions virtually gives students the opportunity to hear their peers' experiences in other parts of the state.

A major component of the debrief experience is asking learners to identify any patients they have seen in a clinic that had a similar lived experience to the simulated patient case or any other social needs that needed to be addressed. During this discussion, students are asked to share how the experience made them feel, how they communicated with patients, and how to increase their patients' interactions with clinicians, health literacy, and patient adherence. In sharing with each other, we believe that students are gaining the knowledge and skills necessary to be more culturally sensitive clinicians.

Our study faced several limitations. Case-based experience with a corresponding small group discussion is a new initiative designed to address SDOH within the curriculum during clinical training years. As a result, our findings are based on the initial 2 years of the project. Another limitation is due to the 4-week duration of the clerkship rotation, the current evaluation methodology does not include an observable assessment of behavioral changes or to determine if students are using health communication skills to address SDOH in a clinical setting. A third limitation is the self-reported/response shift bias nature of the program evaluation. We recognize that students may over-exaggerate their knowledge or self-efficacy. To limit the potential for response bias, we utilized a retrospective pre-post-test design known to limit pre-test over exaggeration and resulting bias.²⁸ Additionally, given the large nature of the medical school, by default students are often placed in decentralized clinical practice sites throughout the state to complete their four-week rotation. With that, we recognize that students encountered different patient populations depending on where they were placed. Students who were placed in more affluent areas to complete this rotation did not have the same in-person encounters compared to their peers. However, the small group discussion provided students with the opportunity to share and learn about their experiences around SDOH and other observations they had in the clinical setting.

Health communication is a necessary skill for medical students. Research has shown that most medical schools incorporate health communications training during pre-clinical years when the clinical environment is an ideal setting for students to learn of and practice communication strategies.^{29,30} While case-based experience and discussion did not provide us with the opportunity to observe students utilizing their health communication skills, future initiatives should provide additional opportunities for students to further develop communication strategies in clinical situations with vulnerable patients faced with multiple SDOHs.

Conclusion

If we are to actively disrupt the trend of health disparities in our communities, we must ensure our students are comfortable and have the skills to care for vulnerable, diverse populations. To do so, medical students must have the knowledge and self-efficacy to understand how social determinants of health can impact health and healthcare within a family medicine clinical setting. As a result of integrating more active learning strategies such as the case-base and debrief experience, students may have a more robust medical education experience. Moving forward, we plan to incorporate more thought provoking and reflective questions for students to discuss in their small group discussions and exploring ways to determine if students implement any strategies learned during the base-based exercise. Our expectation is that by sharing these experiences, students learn about resources and other ways to provide care for their future patients.

Ethical Approval

This study was reviewed and received exempt approval (#16601) by the Indiana University Institutional Review Board due to the minimal risk to students participating in the program.

Informed Consent

Study participants voluntarily completed the form. A consent paragraph is provided at the start of the survey.

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Disclosure

The authors have no conflicts of interests to declare.

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