



Outcomes of a Peer-to-Peer Model in Health Disparities Advocacy

Research Article

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Abstract: Health disparities have been an emerging area of concern for healthcare professionals and community activists alike as new reports document increased disease incidence and mortality in communities of color. Much of this disparity stems from distrust and other cultural barriers against healthcare professionals in inner-city communities. In this study, we explore a new intervention to educate minority students about this crisis through peer-to-peer workshops. Surveys were given to students and adults before and after a teaching session and a focus group was held after the workshop. We found statistically significant improvements in both students and adult cohorts researcher trust, interest in clinical trial participation and other variables correlated with improved attitudes towards the healthcare community. Students also reported new awareness of racial predisposition to disease and a commitment to becoming health activists. During the dialogic portion of the workshop, students shared that a personal story helped them understand the issue and the experience of seeing their peers lead a workshop inspired them to work to reduce this inequity. The workshop was rated a 9.2/10 by students and 8.8/10 by adults. Therefore, this new, cost-effective public health intervention model has strong promise for reducing health inequities in previously underserved communities.

Keywords: health disparities • peer-to-peer • focus group • survey • healthcare

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1. Introduction

“Health disparities”, defined in this paper as inequalities in patient experiences and/or outcomes based on race and ethnicity, have been an emerging area of concern for healthcare professionals, researchers and community activists alike [1]. The Centers for Disease Control names 5 key contributors to health disparities: “poverty, environmental threats, inadequate access to health care, individual and behavioral factors and educational Inequalities” [2]. Select researchers and social justice leaders have been aware of the existence of differences in disease incidence and treatment based on race for nearly a century, with W.E.B. Du Bois an early visionary in

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his 1906 book “The Health and Physique of the Negro American” [3]. During the long era of racial segregation in the United States, it became increasingly clear that black patients were subjected to a different standard of care than white patients [3]. This is most disturbingly seen in the Tuskegee Syphilis Experiments (1932-1972) where patients were lied to about study duration, availability of treatment for syphilis contracted during the experiment and other ethical violations [4]. The spectre of this study still looms large over communities of color who have lost trust in the healthcare establishment and who have moved instead towards cultural alternatives to medicine [5]. Since the foundation of the National Institute on Minority Health and Health Disparities in 2000, knowledge of this crisis has become mainstream and the healthcare community has taken a lead role in alleviating disparities.

Some plans to alleviate health disparities, such as by the Board on Population Health and Public Health Practice by the National Academies of Sciences, Engineering, and Medicine, do so by suggesting broad changes to areas of civil rights/incarceration, income inequality, urban planning and health insurance [6]. Other solutions attempt a similar top-down approach centered around policy to change aspects of physical environment (green spaces, neighborhood safety, walkability) or social programs (education of healthcare and social service staff, availability of clinics, introduction of technology). However these have been proven to have limited effects on communities of color [6]. Programs that instead harness lay community health workers have been seen to have consistently larger, positive results [6]. Professional healthcare staff that lead group education also reap similar positive results [7]. These experienced professionals are often scarce, making the feasibility of this approach on a large scale questionable.

Considering the various options, in our study, we favored the use of community health workers to make meaningful, long-term impacts in the health of communities of color. Another key component to our approach was the peer-to-peer model. Although much research has been done corroborating the positive impact of adult to youth initiatives, little comparatively has been done on peer-to-peer youth health initiatives. Peer-to-peer interventions with survivors of life-threatening medical conditions like stroke have been shown to provide an inclusive forum to share resources and effective medical interventions in high risk populations [8]. Further, peer-to-peer intervention had improved adherence to screening mammograms [9]. The few youth peer-to-peer studies come to similar conclusions about the effectiveness of this intervention in encouraging healthy behavior in changing youth attitudes towards tobacco use and engage in advocacy behaviors [10]. Expanding this peer-to-peer approach to the health disparities field will ensure that no generational gap persists in health education and encourage a lifetime of healthy living.

This is the first study to explore a student led peer-to-peer and adult engagement model for health disparities awareness amongst minority communities. This study promoted awareness of disease predispositions based on race and ethnicity, presented incidence and mortality inequalities in local communities and fostered a safe space where honest conversations around health could take place. We hypothesized that this intervention would improve knowledge and attitudes in three areas: health disparities, trust in healthcare professionals and willingness to spread awareness within communities

2. Methods and Materials

At two sites, a health fair for New Yorks minority community and a community program for minority youth in Baltimore, workshops were held and surveys distributed. Student sample was of minority background in order to ascertain the effect of our intervention on students of color. Questionnaires were distributed before each workshop. The workshop consisted of a 30 minute presentation about the concept of health disparities, local and national cancer statistics amongst various races followed by a 30-minute open forum for audience participation. Seventeen adults and 12 students filled out the pre- and post-questionnaires; 4 adults only filled out the pre-questionnaire. The forms were designed to be anonymous and no identifiable information was asked. The questionnaires were similar for both groups; adults were given a 14 question pre-questionnaire and 13 question post-questionnaire while students were given a 13 question pre-questionnaire and 11 question post-questionnaire. Both groups questions were largely ‘yes’ or ‘no’ (Table 1). Questionnaires were aimed at determining participant knowledge of health disparities, trust in researchers, interest in community activism and knowledge of health disparities outcomes before the intervention. Post-questionnaires consisted of largely the same questions to measure change in knowledge/attitudes among participants. Pearson’s chi-squared test and Yates continuity correction was performed on survey data

Twelve students participated in a focus group after the workshop. After the focus group was completed they were asked to fill out the post questionnaire. Six predetermined questions were asked over the course of the 30 minute focus group session. All students answered at least one question. Student responses to certain questions often led to followup questions. All responses were typed into a computer and coded. Coding was done to trace common themes throughout the discussion. Members of the 501(c)3 non-profit Health Disparity (healthdisparity.org), which organizes workshops to teach student of color about health disparities, planned and taught both events. This study was approved by IRB (1133149-1, 1108900-1).

3. Results

Twenty-one respondents were adults (M:F=1:6) and 12 were middle school students (M:F=1:3). All respondents filled out pre- and post-questionnaires, except four adults who did not complete the latter. Respondents were self-declared one third Black (13/33) and one third Latino (11/33); the rest were of varying races. Eleven out of 12 students were Black, while 11/21 adults were Latino (Fig. 1, Table 2).

All of the students were in middle school, 81 percent of adults had at least a Bachelor’s Degree (Fig. 2 with 76 percent reporting employment (Fig. 3, Table 2) experience in a healthcare-related field.

All students were enrolled in an after-school program exposing them to various STEM experiences, including medicine. In spite of having experience in healthcare, both students and adults showed improvement ($p=0.06$) in awareness of health disparities after the workshop. Both students and adults had low trust in researchers before the workshop, and by the end showed significant ($p=0.04$) improvements. Willingness to participate in a clinical

Table 1. Questions

Question	Students Yes/No	Adults Yes/No	Total Yes/No
Q 1: Do you know what Health Disparities are?			
Pre Q	10/2	16/5	26/7
Post Q	9/2	17/0	26/2
Q 2: Do you trust that all researchers have your best interests in mind?			
Pre Q	4/7	9/12	13/19
Post Q	8/4	11/6	19/10
Q 3: Do you plan on participating in a clinical study?			
Pre Q	5/7	3/18	8/25
Post Q	7/5	12/5	19/10
Q 4: Do you know what age women should begin seeking screening for breast cancer?			
Pre Q	3/9	17/4	20/13
Post Q	10/2	16/1	26/3
Q 5: In the future, do you plan on informing your community on health disparities?			
Pre Q	8/4	20/1	28/5
Post Q	12/0	17/0	29/0
Q 6: Are you aware that African Americans can die more than other races from the same cancer?			
Pre Q	9/2	15/6	24/8
Post Q	12/0	17/0	29/0
Q 7: Are you aware that African Americans are likely to get more aggressive cancers than other races?			
Pre Q	10/2	12/9	22/11
Post Q	12/0	17/0	29/0
Q 8: Do you think you will get the best possible care from healthcare professionals if you are seriously ill?			
Pre Q	8/4	NA	8/4
Post Q	9/3	NA	9/3
Q 9: Do you think that the current healthcare system in the United States need to change?			
Pre Q	7/5	NA	7/5
Post Q	9/3	NA	9/3
Q 10: When is the best time to get informed about health disparities?			
	NA	College (1), High School or College(10), Middle School (5), All of the above (2)	College (1), High School or College (10), Middle School(5), All of the above (2)
Q 11: Have you or are you currently employed in a field which is healthcare-related?			
	NA	16/5	16/5
Q 12: Which are the most effective way to increase awareness on health and health-related issues?			
	Television/Radio (3), Doctor/Healthcare Professional (4), Community Events/Health Fairs (1), Peer to Peer Interactions (1), All of the above (2)	NA	Television/Radio (3), Doctor/Healthcare Professional (4), Community Events/Health Fairs (1), Peer to Peer Interactions (1), All of the above (2)

trial increased significantly for both adults and students (Fig. 4, $p=0.01$).

Awareness of breast cancer screening was robust in adults (81 percent), however students closed the gap by the end of the workshop (33 to 83 percent; $p=0.01$) (Fig. 5).

Eighty-five percent of both adults and students expressed interest in spreading knowledge about health disparities in their communities in the pre-questionnaire. The remaining 15 percent, mostly students, unanimously reported interest in spreading awareness about health disparities by the end of the workshop. By the end of the workshop, both cohorts showed increased awareness to disparities in morbidity (22/29 to 29/29, $p=0.001$) (Fig. 6) and mortality (24/29 to 29/29, $p=0.01$) (Fig. 7) experienced by African-Americans for diseases and cancers.

Adults and children differed in preferred platforms to increase awareness for community members, with

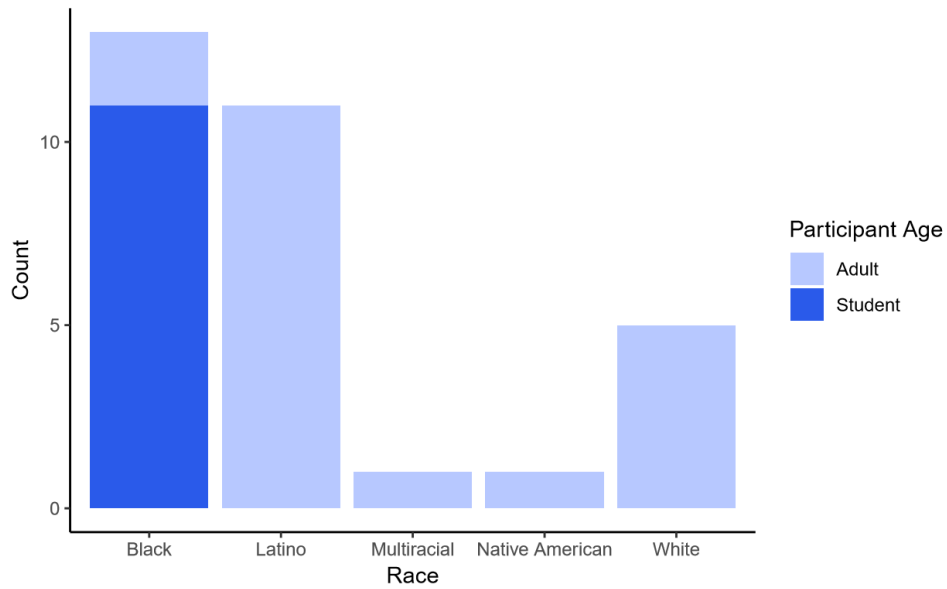


Figure 1. Race of Participants, N=32/33. One student preferred not to report race.

Table 2. Demographics

Race	African American	13
	White	6
	Latino	11
	Multiracial	1
	Native Americans	1
Education	Middle school	12
	High school	1
	Some College	2
	Bachelor's Degree	13
	Masters/Doctorates	4
Sex	Male	11
	Female	22

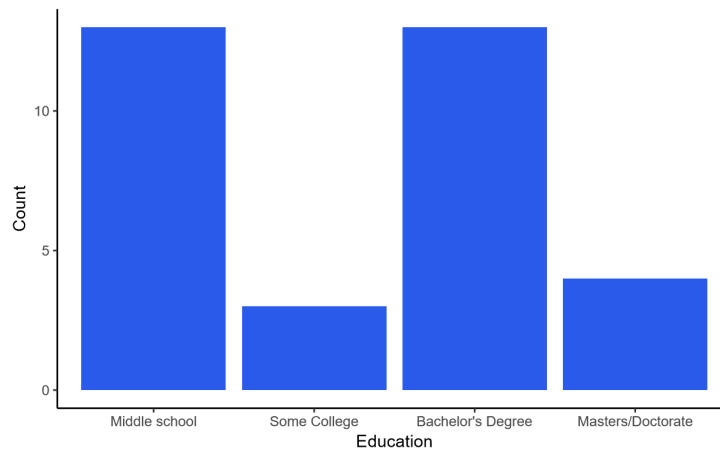


Figure 2. Education Level of Participants, N=33.

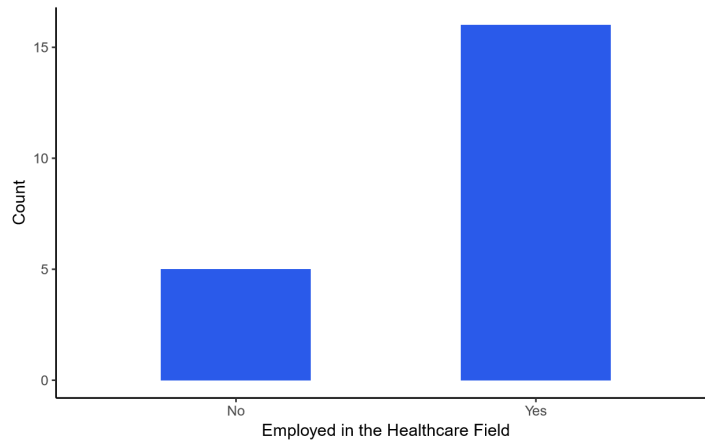


Figure 3. Exposure of Participants to Healthcare Field, N=21.

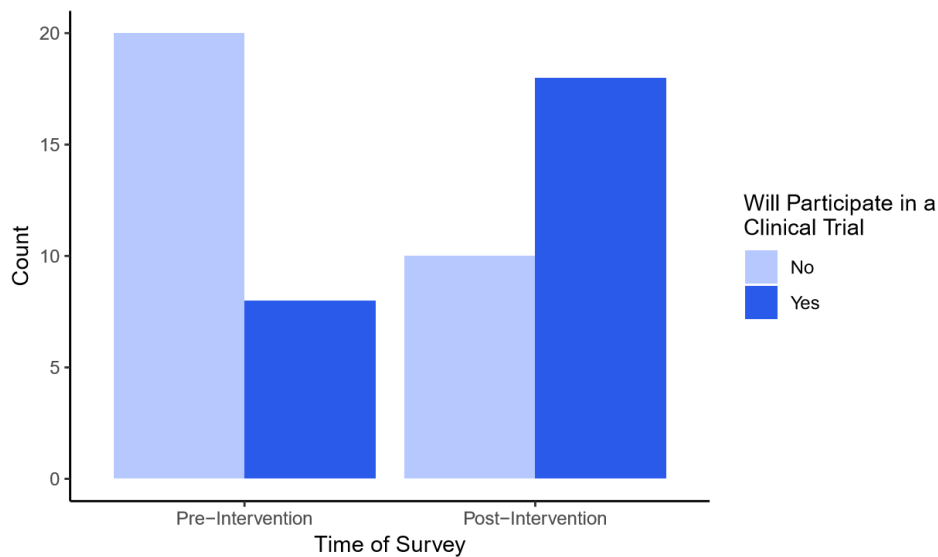


Figure 4. Interest in Participating in Clinical Trials, $p=.01$, N=28.

television being the most popular for adults (13/21), while discussion with a physician (11/23) was most popular for students (Table 1). The final average score for workshop satisfaction among the adult cohort was an 8.8/10, while students awarded a 9.2/10.

Several themes permeated the focus group discussion: specific facts about health inequalities, predominantly higher mortality in Blacks in spite of a lower incidence of cancer, which students would repeat when asked about key takeaways. “I learned that black people get cancer less than other people but die more than other people.” Further, a story shared at the beginning of the workshop about an African-American woman’s breast cancer experience was also repeated by students throughout the focus group, suggesting that it was impactful. Another theme was reliance on the internet and close family members for personalized information about health. The few students who were aware about the challenges of health disparities before the workshop had superficially heard

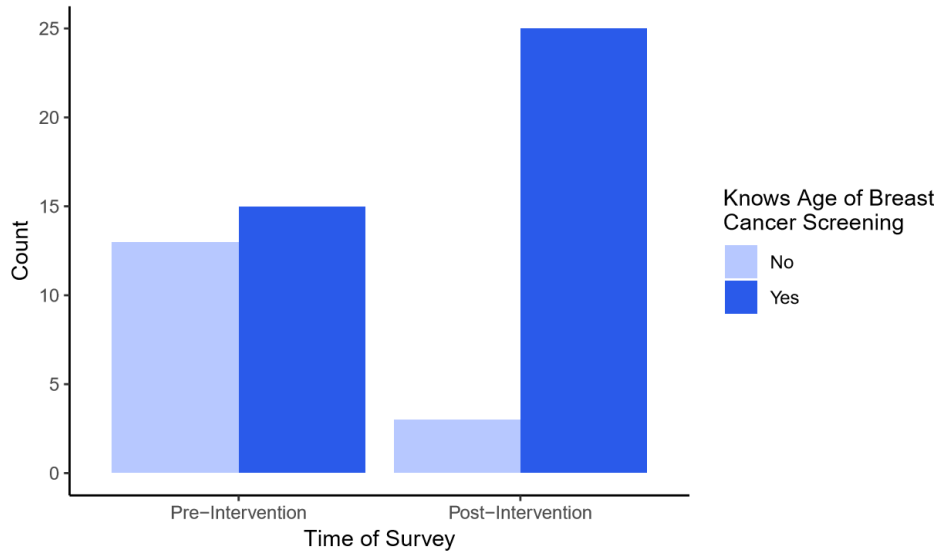


Figure 5. Knowledge of Breast Cancer Screening, $p=.007$, $N=28$.

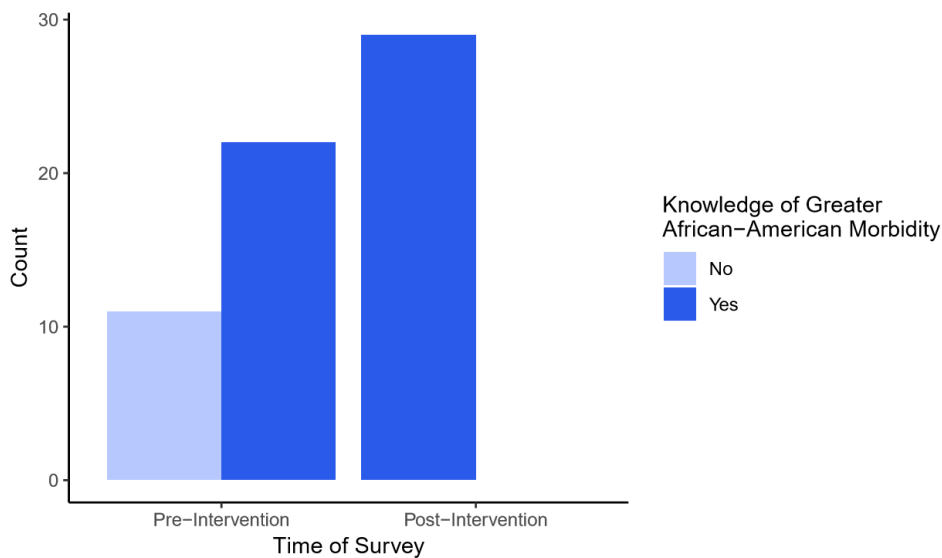


Figure 6. Knowledge of Greater African-American Morbidity, $p= .001$, $N=28$.

about them from these two sources. “My mom told me about it one morning.” A third theme was a unanimous desire to spread knowledge of health disparities. “Yes, I would because I want to help my community, and make sure everyone gets the healthcare they need!” However, this was restrained by a sense that they were too young, too inexperienced, lacked resources or were too busy to make a difference. Upon reminder that this presentation was youth-led and organized, students became more confident in their ability to spread awareness at their age. This newfound interest resulted in each student having a unique idea for ways they can help out, from making a video for social media to participating in local youth events. A fourth theme was students perceived lack of opportunity to ask questions about health and wellness. Therefore, they asked many questions such as “What

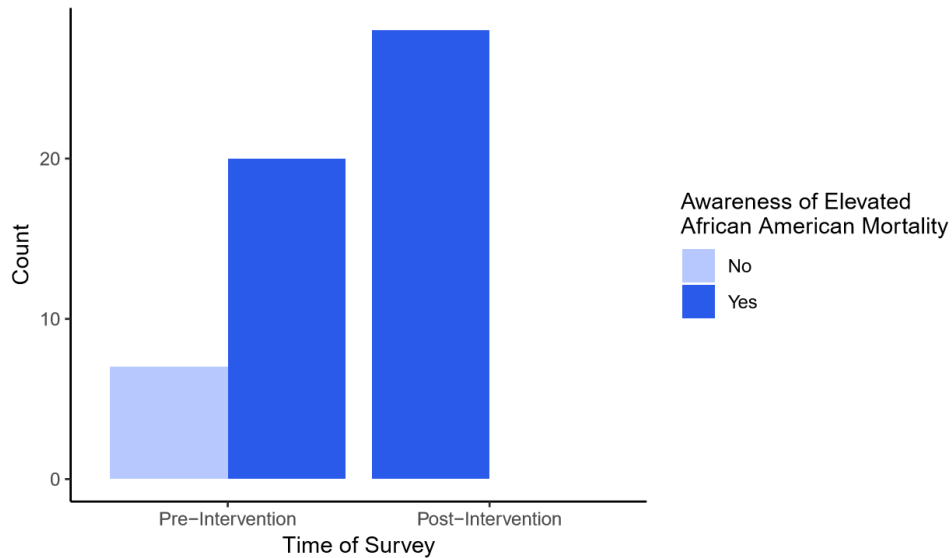


Figure 7. Awareness of Elevated African American Mortality, $p=.01$, $N=28$.

is cancer?” during the workshop. Students supported one another as they asked questions by sharing their own and their families’ experiences.

4. Discussion

This study investigated whether youth-led workshops could improve adult and students’ knowledge about health disparities through workshops and focus group feedback. This study examines outcomes of youth-led workshops, a novel public health intervention which is effective, low-cost and scalable. Outcomes were measured using surveys administered before and after the workshop.

Students and adults of minority backgrounds, despite having experience in the healthcare field, showed remarkable improvements in health disparities knowledge after a youth-led peer-to-peer workshop. This finding suggests that even those with experience in healthcare still are not sufficiently aware of health disparities in their communities. This suggests that current methods within the healthcare system of spreading awareness have been ineffective. A recent report about healthcare literacy shows that 52 percent of Americans have low levels of understanding of the complexities of the healthcare system even in regards to their own well-being [11]. Considering the pervasive healthcare illiteracy, it follows that increasing knowledge about health disparities will be a difficult goal for public health professionals. Therefore new intervention models are needed to reach into communities in crisis and share knowledge on this biological phenomenon.

Peer to peer and youth led workshops have been shown to be a promising education model in engaging participants. Our finding of improvement in knowledge of health disparities for students is in line with similar research that supports youth as effective teachers and role models for other youth [10, 12]. Further, both the

audience members and the peer leader learn from this intervention as recent reports suggest students who teach other students develop deeper knowledge of their subject matter [13]. Across the nation, new initiatives positioning students as teachers are taking hold as this novel format's advantages in connecting with the audience are becoming appreciated [14]. Our survey results may be more significant in a lay population as this survey was limited to a population who had experience in healthcare related fields.

Trust that researchers “had [participant's] best interests in mind” increased for both adults and students, suggesting that minority communities continue to struggle with developing trust with the healthcare establishment, in spite of having experience in it. This data is supported by other research which shows African Americans and Mexican-Hispanics report equally lower trust compared to whites [15]. This low trust is tied to self-reported poor patient experiences which could be an opportunity for the healthcare community to rebuild trust with the communities they serve through ensuring a more satisfactory patient experience. For the Hispanic audience, language differences may have served as a barrier for trust in researchers as we see this demographic remain distrustful in our study [16]; 4 of 6 who remained distrustful were Latino.

Despite low researcher trust, all participants shifted significantly in favor of clinical trial participation after the workshop. For both the general and minority populations, it is critical to increase enrollment of minority patients in clinical trials as most fail because of poor patient accrument [17]. Therefore, an intervention which can reliably change audience willingness to participate warrants additional investigation. As the largest factor in the barrier to minority patient participation is fear of white physician malpractice, programs like these that rebuild trust should be effective in encouraging participation [18].

In terms of basic personal health information, such as the recommended age for breast cancer screening adults performed much better than students before the workshop began, however students were able to match adult knowledge levels by the end. This result is promising for pediatric health as a large percentage of young women have risk factors for breast cancer, and for high risk groups adherence to guidelines is important for early detection and treatment [19]. Likely reasons for high knowledge of screening guidelines in adults include their healthcare background, high education level and income [20]. In addition, as they were older than the student cohort, they may have felt more responsibility towards their own health and, particularly in women, are more aware of regular mammograms guidelines for their personal health [21].

In our cohort, broad support was present from the beginning to raise awareness about health disparities in the community. The student population, however, was more mixed initially but unanimously shifted to a more involved role by the end. This follows existing research on student activism which claims that students passionate about improving their communities can readily inspire others to join them [10]. Greater interest for activism among members of minority/disadvantaged communities follows similar results [22]. The all-black nature of our student sample in our survey makes these results applicable to communities of color.

The difference in preferred method for health disparities knowledge dissemination (television for adults and doctor for students) shows the different experiences of each group. This result suggests that the healthcare

community has the opportunity to effectively target youth of color during physician interactions in their goal of reducing cultural barriers to health. Adults are more likely to be engaged in more passive forms of communication, like television, a finding which will help large scale awareness campaigns in communities of color. Both students and adult cohorts rated workshops highly, showing high engagement and the effectiveness of lay community health workers in increasing awareness.

The focus group revealed that students of color may learn best about health disparities from stories that illustrate the problem and simple, clear facts that connect to their experiences. The use of storytelling and facts that students can relate to as a teaching tool is supported by a study which engaged undergraduate students in a challenging course of Genetics through storytelling [23]. As a result, this technique motivated them to stay in the STEM field.

We also found that the medium by which minority communities share information is largely familiar as students had heard of health disparities from family members or peers, a finding which is supported by “The Guide to Enhance Grassroots Risk Communication Among Low-Income Populations” which finds distrust in medical institutions to be pervasive and recommends local interventions to raise awareness [24]. Students also mentioned the value of the internet as a tool to learn about health disparities. This suggests that youth are avid internet users and they use and trust this source to get personal wellness information [16].

Students unanimously expressed a belief in the importance of spreading awareness of health inequity in their community, but were concerned that their student life and inexperience would prevent them from making a difference. These barriers to community activism has been reported in other student engagement initiatives targeting students in New York City [25]. Providing an avenue for students to overcome some of these obstacles is critical in enabling their participation in community awareness projects; programs with inconsistent student participation, a result of poor student support structure, reported great difficulty in achieving project goals [25].

The workshop provided a perceived safe space to ask and answer health-related questions. This dialogue has remarkable positive implications as previous research in diabetic populations shows “culturally appropriate health education improved blood sugar control among participants and participants attained healthier lifestyles” [26]. In discussing health-related questions or experiences, a new feeling of community emerges among students who share them, a phenomenon which is tied to healthier lifestyles; social relationship breeds good health habits and concern for their own and others well-being [27].

Expanding this study to different regions throughout the United States would help paint a broader and more complete picture of the attitudes towards disparities in health prevalent in a variety of communities. This study was limited to participants who have had exposure to the healthcare environment and expanding the cohort to include more lay community members would increase our understanding of the healthcare experiences of inner-city communities. Performing a focus group on students of all ages, including high school and undergraduate, will add to our understanding of the healthcare needs of youth.

5. Conclusion

In this study we measured the outcomes of a student led peer-to-peer and adult engagement model to raise participant knowledge of health equity in communities of color. We found that this model was successful in increasing participant knowledge of health disparities, trust in the healthcare establishment and awareness of their individual predispositions to disease. We also identified that adults would be best reached through passive media like television and students preferred active engagement with healthcare professionals. This model can be used as a vehicle to influence hard to reach groups in inner-city communities. The focus group revealed that honest student-to-student dialogue is the first step in building lifelong health habits. Further, student role models can inspire minority students and give them confidence in their potential to be changemakers.

Conflict of Interest

Authors M. A., D. P. and P. M. declare that they have no conflict of interest.

Human Studies/Informed Consent

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

Animal Studies

No animal studies were carried out by the authors for this article.

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