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Health Education Fair at African Community Education, Worcester

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Abstract

Health knowledge and health literacy are important social determinants of health, and can have a major impact on the health and well-being of an individual. Health education, through formal classroom instruction, peer education, or community health fairs, has been effective in increasing health knowledge and literacy. Worcester, MA is home to many refugees and immigrants from around the world, who represent a key population vulnerable to disparities in social determinants of health, especially health knowledge and literacy. This Capstone project created a Health Education Fair at African Community Education (ACE), an afterschool enrichment program in Worcester for refugee and immigrant students hailing from African countries. The Health Education Fair consisted of multiple stations: Hygiene, Mental Health, Nutrition, Sexual Health, and Substance Use/Peer Pressure. Curriculum and materials were created and University of Massachusetts Medical School (UMMS) student volunteers facilitated the stations. Evaluation of the curriculum was done using pre- and post- surveys administered to the ACE students on the day of the Health Education Fair. Survey data demonstrated that students who participated in the Health Education Fair had an average increase in knowledge, for all included stations, of 2 points on a 10-point scale. The Health Education Fair provided an important opportunity for UMMS students to collaborate with ACE and provide health education to this key population.

Introduction

A wide range of factors, or social determinants of health, strongly influence health outcomes[1]. These factors include, but are not limited to, highest level of education[2], socioeconomic status[3], and other social factors[4]. In addition, lower levels of health literacy have been linked to poor health outcomes[5]. These factors, while all related, need to be considered separately to address health disparities.

The Centers for Disease Control and Prevention (CDC) has defined “Health Literacy” as “the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others”[6]. While there are many contributors to health literacy, one study by van der Heide et al., has demonstrated a link

between health outcomes, health literacy, and education. The findings show that increasing individual health literacy can positively modify disparities in education level and further improve health outcomes[7].

Formal health education programs can provide early exposure and information about healthy behaviors and choices in school-aged children. While no long-term studies have examined a direct link between health literacy and formal health education[8], school health education curricula have demonstrated improved health outcomes and health behaviors[8-10] and that health literacy is likely linked to health education provided in schools[11].

Health education has been a part of formal education since the early nineteenth century[8] and many teaching styles have been adapted and integrated over the years. Methods of health education that can often be more effective than traditional classroom teaching include peer-led health education[12-14] and the use of interactive materials, involving discussions and activities[15-18]. Outside of the formal education system, health fairs are used in a variety of communities to promote healthy behaviors and provide information on disease prevention and screening. While limited studies have examined direct long-term outcomes of health fairs, their use has been effective in a variety of communities[19,20].

Within the City of Worcester, Massachusetts, there is a diverse population that includes many immigrants and refugees. In 2019, the State of Massachusetts welcomed 814 refugees with 14% of that population relocating to Worcester[21]. It is well known that immigrant and refugee populations are at a particularly high risk of being negatively impacted by disparities in social determinants of health, and further, at a higher risk of experiencing worsened health outcomes[22].

As Massachusetts becomes home to many immigrants and refugees, there are multiple institutions in place to assist with relocation. For example, in Worcester, school-aged children have the opportunity to enroll in the New Citizen Center School, a school with trained teachers and curriculum designed specifically for non-English speaking students. Another program in Worcester is African Community Education (ACE). ACE is a nonprofit organization that was founded in collaboration with the University of Massachusetts Medical School and has held a long-standing partnership with the institution since its inception. It is an afterschool enrichment program for immigrant and refugee middle school and high school age students, hailing from

African countries, Over the years, ACE has expanded to serve this population in other ways, such as hosting fundraisers for the community.

As a second-year medical student, I volunteered with ACE as an afterschool tutor. During informal discussions with ACE leadership, health education was identified as an unmet need of this population, a population that is inherently vulnerable to disparities in social determinants of health. Based on these discussions, this Capstone project was developed to meet the needs identified by the organization. The project involved creation of a one-day Health Education Fair. The purpose of the Health Education Fair was to increase knowledge and practical skills related to health through interactive educational activities. By empowering students with knowledge, it is predicted they will become their own best health advocates, increase their working health literacy, and ultimately improve individual health and well-being.

Methods

Planning and Collaboration with ACE Leadership

ACE leadership was contacted to discuss feasibility and logistical planning of the Health Education Fair curriculum. The event was planned for a regularly scheduled Saturday program, on May 18, 2019. This timing would allow for the Health Education Fair to occur on one day, rather than over multiple sessions. It also would not interfere with students' schoolwork. Saturday programming occurs from 9 AM to noon weekly, and timing for the Health Education Fair was selected from 9 AM to 11 AM. This allowed for ten minutes of an introduction and time for the students to complete a pre-survey. Six stations were developed, and each station was allotted 15 minutes. There was also a ten-minute wrap-up period and time for students to complete the post-survey. The stations were each held in different classrooms of the high school rented by ACE for Saturday programming.

The following stations were determined as the most appropriate for the diverse age group: Hygiene, Mental Health, Nutrition, Sexual Health, and Substance Use/Peer Pressure. The organization's leadership had involved Planned Parenthood in previous programming and further it was determined the Sexual Health station would be best taught by Planned Parenthood volunteers. We coordinated with Planned Parenthood so their volunteers could join the UMMS

students during the Health Education Fair. We also added a Hands-Only CPR station, taught by one of the UMMS volunteers trained in CPR teaching.

UMMS Volunteers, who served as facilitators for each station, consisted of medical students enrolled in the UMMS Global Health Pathway, class of 2020.

Curriculum & Materials

Lesson plans were created for four stations: Hygiene, Mental Health, Nutrition, and Substance Use/Peer Pressure. The Sexual Health station curriculum was provided and implemented by Planned Parenthood. The Hands-Only CPR station did not require additional materials. Each lesson plan was designed to include interactive discussions and activities to facilitate learning. These lesson plans were created and distributed to the station facilitators/UMMS volunteers. A pre-survey, post-survey, and resource handout were created for the ACE students. The resource handout included comprehensive resources from all stations for the students to bring home. Appendix A provides the lesson plans and sources used to produce the curriculum. Appendix B includes the handout that was distributed to all ACE students.

Survey Production & Administration

The curriculum was evaluated using pre- and post- surveys administered to the ACE students prior to and after completion of the Health Education Fair stations, on the same day as the Health Education Fair. The pre-survey was completed during the introduction to the day and the post-survey was administered during the group wrap-up. The survey used a 10-point Likert scale (1 being ‘least comfortable’ with information, 10 being ‘most comfortable’ with information) and was used to assess student knowledge of each of the station topics (Hygiene, Mental Health, Nutrition, Sexual Health, and Substance Use/Peer Pressure). The pre- and post- surveys were completely identical, other than the post-survey including an open-response section for students to provide feedback and suggestions. ACE students were told that the survey was anonymous and they had the option to opt-out of survey participation. Appendix A includes the surveys.

IRB Determination

Consultation with the University of Massachusetts Institutional Review Board determined this project did not require IRB review and approval, as the proposed activities of the project are not human subject research as defined by DHHS and FDA regulations.

Results

ACE Saturday program attendees participated in the Health Education Fair and ranged from age 10 to 18 (approximately 5^{th} – 12^{th} grade). Students qualified within the ACE determination of immigrants or refugees from African countries. Other demographic information was not collected.

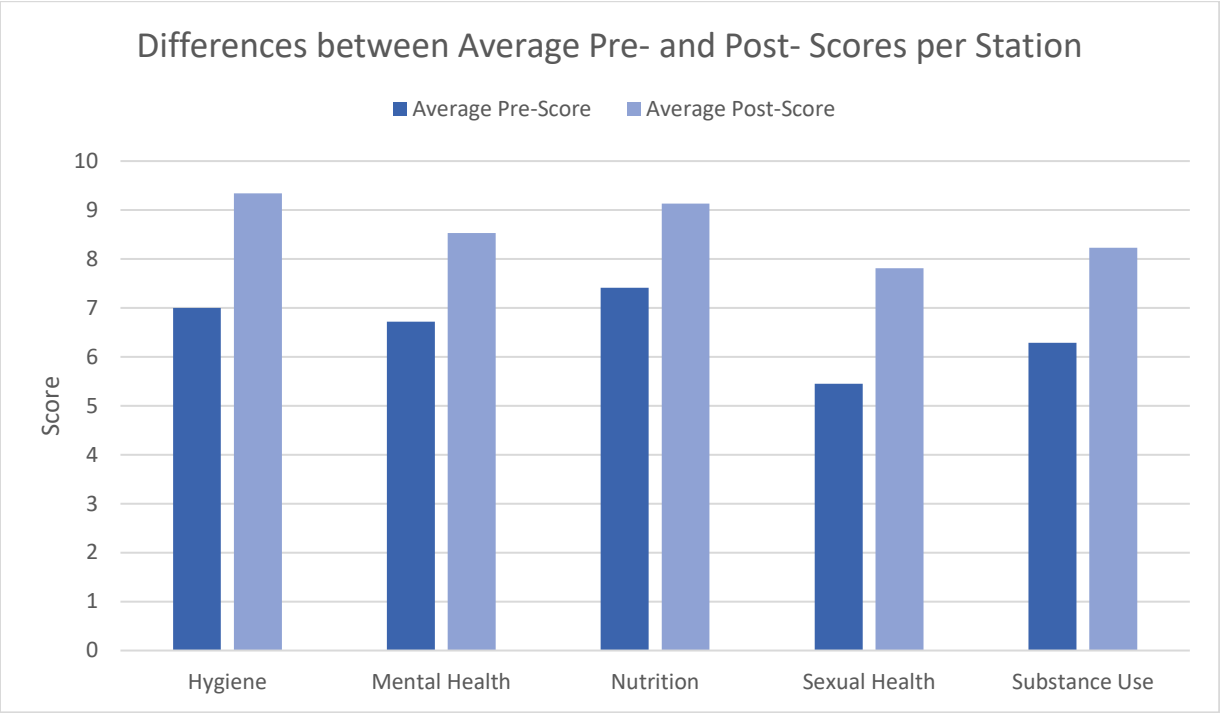
Thirty-eight students participated in completion of the survey. While data was limited, the collected data was inputted into a Microsoft Excel datafile. Means were calculated for pre- and post- scores for each station. Microsoft Excel was also used to calculate p-vales using a T-Test with unequal variances function.

Table 1 and Figure 1 display the average pre- and post- knowledge scores for each of the station topics. All stations displayed an average increase in post- Health Education Fair knowledge scores, with an average increase of 2 points on a 10-point scale. The increases per station were 2.3. 1.8, 1.7, 2.4 and 1.9 for the Hygiene, Mental Health, Nutrition, Sexual Health, and Substance Use/Peer Pressure stations respectively. In addition, all increases for the stations demonstrated statistical significance.

Table 1: Differences between Average Pre- and Post- Scores per Station

Station	Average Pre-Score	Average Post-Score	Difference	p-value
Hygiene	7	9.3	2.3	0.0002
Mental Health	6.7	8.5	1.8	0.005
Nutrition	7.4	9.1	1.7	0.001
Sexual Health	5.4	7.8	2.4	0.002
Substance Use	6.3	8.2	1.9	0.01

Figure 1: Differences between Average Pre- and Post- Scores per Station



Overall feedback from the open-response part of the survey was positive, and students expressed enjoying the experience. Many students especially enjoyed the Hygiene, Nutrition, and Hands-Only CPR stations.

Discussion

Overall, this first Health Education Fair event at ACE was successful. As shown by the data, there was an average increase in knowledge for all of the station topics of approximately 2, out of 10, possible points. All station score increases demonstrated statistical significance. The day was also successful in that it was enjoyed by both the students at ACE and medical student volunteers.

Health fairs have been proven successful in a variety of settings, and their success has gone beyond increasing attendee knowledge. Health education fairs in school-aged children, especially those provided by medical and nursing students, provide an opportunity for career modeling and exposure to the medical field, as they have the ability to initiate students' interest in a career

within the medical field[23]. This could have been examined more as part of the open-response post-survey.

Not only did the ACE Health Education Fair directly demonstrate a knowledge impact on the participants, but it also provided an important opportunity for UMMS medical students to learn about this target population and their needs. Medical students reciprocal learnership, through participation in teaching in health fairs, has also been proven in previous studies[24].

A primary strength of this project was the direct collaboration with ACE leadership, whose involvement and guidance were critical for identifying the needs of the students. This eliminated the need to administer a formal needs assessment. The collaboration with volunteers from Planned Parenthood was also quite successful, as they are well-versed in teaching Sexual Health to adolescents. A positive result of this event was the generation of a resources handout, which provided students a compilation for their own further research, and also serves as a resource for their parents. Lastly, by virtue of the collaboration with ACE leadership, this program will sustain support and reproducibility for future years.

While successful, this programming also had its limitations and there are opportunities for improvement in future years. First, the ACE students all completed the same curriculum. While this was helpful for planning purposes, the students ranged from grade 5 to grade 12, which created challenges for creation of material that was age-appropriate. In addition to a wide range of ages, the students had varying levels of English proficiency which also impacted the creation of station materials that would be used universally within this group. Varying levels of English proficiency also impacted the students' ability to complete the survey, which was the method of assessing health fair effectiveness. Future improvements could include separate development of materials targeting the different age groups and language proficiencies. All materials were created by only one student after discussion with the ACE leadership. This programming and curriculum would benefit from feedback and improvements from future UMMS students with varying experiences and perspectives. Lastly, more coordination between UMMS students and ACE staff would have been helpful. Miscommunications regarding expectations for the ACE staff volunteers on the day of the Health Education Fair (including misunderstandings regarding

completing surveys) did occur with this first event and need to be improved for future years for more seamless programming and accurate data collection.

Conclusion

The Health Education Fair provided an important opportunity for UMMS students to collaborate with ACE as an organization and engage their students in a meaningful way. Continuing this programming will strengthen the relationship between ACE, and further the Worcester community, and UMMS. Continuing this programming in future years will also allow for improvements and modifications to the material, which will ultimately be increasingly beneficial for the ACE students. This Health Education Fair will further empower them, especially as their own health care advocates, with a long-term goal of improving health outcomes in this population. For UMMS students, continuing this partnership gives the opportunity to engage within the Worcester community and better understand this diverse patient population and their needs.

I hope this program will continue in the future as it is an important opportunity for medical students to provide mentorship and promote health education and awareness to underserved populations within the Worcester community.

References

1. Braveman, P., & Gottlieb, L. (2014). The Social Determinants of Health: It's Time to Consider the Causes of the Causes. *Public Health Reports*, *129*(Suppl 2), 19–31. https://doi-org.umassmed.idm.oclc.org/10.1177/00333549141291S206
2. Cutler, D. M., Lange, F., Meara, E., Richards-Shubik, S., & Ruhm, C. J. (2011). Rising educational gradients in mortality: The role of behavioral risk factors. *Journal of Health Economics*, *30*(6), 1174–1187. https://doi.org/10.1016/j.jhealeco.2011.06.009
3. Wang, J., & Geng, L. (2019). Effects of Socioeconomic Status on Physical and Psychological Health: Lifestyle as a Mediator. *International Journal of Environmental Research and Public Health*, *16*(2). https://doi.org/10.3390/ijerph16020281
4. Matthews, K. A., Gallo, L. C., & Taylor, S. E. (2010). Are psychosocial factors mediators of socioeconomic status and health connections? A progress report and blueprint for the future. *Annals of the New York Academy of Sciences*, *1186*, 146–173. https://doi.org/10.1111/j.1749-6632.2009.05332.x
5. Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine*, *155*(2), 97–107. https://doi.org/10.7326/0003-4819-155-2-201107190-00005
6. *What is Health Literacy? | Health Literacy | CDC*. (2020, September 18). https://www.cdc.gov/healthliteracy/learn/index.html
7. van der Heide, I., Wang, J., Droomers, M., Spreeuwenberg, P., Rademakers, J., & Uiters, E. (2013). The relationship between health, education, and health literacy: Results from the Dutch Adult Literacy and Life Skills Survey. *Journal of Health Communication*, *18 Suppl 1*, 172–184. https://doi.org/10.1080/10810730.2013.825668
8. Auld, M. E., Allen, M. P., Hampton, C., Montes, J. H., Sherry, C., Mickalide, A. D., Logan, R. A., Alvarado-Little, W., & Parson, K. (2020). Health Literacy and Health Education in Schools: Collaboration for Action. *NAM Perspectives*. https://doi.org/10.31478/202007b
9. Hoelscher, D. M., Springer, A. E., Ranjit, N., Perry, C. L., Evans, A. E., Stigler, M., & Kelder, S. H. (2010). Reductions in child obesity among disadvantaged school children

with community involvement: The Travis County CATCH Trial. *Obesity (Silver Spring, Md.), 18 Suppl 1*, S36-44. https://doi.org/10.1038/oby.2009.430

10. Melnyk, B. M., Jacobson, D., Kelly, S., Belyea, M., Shaibi, G., Small, L., O'Haver, J., & Marsiglia, F. F. (2013). Promoting Healthy Lifestyles in High School Adolescents: A Randomized Controlled Trial. *American Journal of Preventive Medicine*, *45*(4), 407–415. https://doi.org/10.1016/j.amepre.2013.05.013
11. Tappe, M. K., & Galer-Unti, R. A. (2001). Health Educators' Role in Promoting Health Literacy and Advocacy for the 21st Century. *Journal of School Health*, *71*(10), 477–482. https://doi.org/10.1111/j.1746-1561.2001.tb07284.x
12. Okanlawon, F. A., & Asuzu, M. C. (2011). Effect of peer education intervention on secondary school adolescents' reproductive health knowledge in Saki, Nigeria. *African journal of medicine and medical sciences*, *40*(4), 353–360.
13. Layzer, C., Rosapep, L., & Barr, S. (2017). Student Voices: Perspectives on Peer-to-Peer Sexual Health Education. *The Journal of school health*, *87*(7), 513–523. https://doi-org.umassmed.idm.oclc.org/10.1111/josh.12519
14. Parwej, S., Kumar, R., Walia, I., & Aggarwal, A. K. (2005). Reproductive health education intervention trial. *Indian journal of pediatrics*, *72*(4), 287–291. https://doi-org.umassmed.idm.oclc.org/10.1007/BF02724005
15. Wallerstein, N., & Bernstein, E. (1988). Empowerment education: Freire's ideas adapted to health education. *Health education quarterly*, *15*(4), 379–394. https://doi-org.umassmed.idm.oclc.org/10.1177/109019818801500402
16. Ennett, S. T., Ringwalt, C. L., Thorne, J., Rohrbach, L. A., Vincus, A., Simons-Rudolph, A., & Jones, S. (2003). A comparison of current practice in school-based substance use prevention programs with meta-analysis findings. *Prevention science : the official journal of the Society for Prevention Research*, *4*(1), 1–14. https://doi-org.umassmed.idm.oclc.org/10.1023/a:1021777109369
17. Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics*, *66*(1), 64–74. https://doi.org/10.1119/1.18809
18. White, S., Park, Y. S., Israel, T., & Cordero, E. D. (2009). Longitudinal evaluation of peer health education on a college campus: impact on health behaviors. *Journal of*

American college health : J of ACH, *57*(5), 497–505. https://doi-org.umassmed.idm.oclc.org/10.3200/JACH.57.5.497-506.

19. Escoffery, C., Liang, S., Rodgers, K., Haardoerfer, R., Hennessy, G., Gilbertson, K., Heredia, N. I., Gatus, L. A., & Fernandez, M. E. (2017). Process evaluation of health fairs promoting cancer screenings. *BMC Cancer*, *17*(1), 865. https://doi.org/10.1186/s12885-017-3867-3
20. Murray, K., Liang, A., Barnack-Tavlaris, J., & Navarro, A. M. (2014). The reach and rationale for community health fairs. *Journal of Cancer Education : The Official Journal of the American Association for Cancer Education*, *29*(1), 19–24. https://doi.org/10.1007/s13187-013-0528-3
21. The Massachusetts Office for Refugees and Immigrants. (2019). Annual Report 2019. Boston: Massachusetts Office for Refugees and Immigrants, 2019. P.8.
22. Khullar, D., & Chokshi, D. A. (2019). Challenges for immigrant health in the USA—the road to crisis. *The Lancet*, *393*(10186), 2168–2174. https://doi.org/10.1016/S0140-6736(19)30035-2
23. Lauver L. S. (2011). Health Fairs as a forum to pique young children's interest in nursing. *Journal of pediatric nursing*, *26*(4), 359–363. https://doi-org.umassmed.idm.oclc.org/10.1016/j.pedn.2010.06.013
24. Landy, D. C., Gorin, M. A., & O'Connell, M. T. (2011). Student-led rural health fairs: Attempting to improve medical education and access to health care. *Southern Medical Journal*, *104*(8), 598–603. https://doi.org/10.1097/SMJ.0b013e31822580a9