Journal of Religion and Health (2019) 58:1687–1697
https://doi.org/10.1007/s10943-019-00893-9

ORIGINAL PAPER

Community Intervention for Syrian Refugees in Baltimore City: The Lay Health Educator Program at a Local Mosque

Anila Chaudhary[1,2] · Niccolo Dosto[1] · Rachel Hill[1] · Maiju Lehmijoki-Gardner[3] · Phyllis Sharp[4] · W. Daniel Hale[1,5] · Panagis Galiatsatos[1,6]

Published online: 14 August 2019

Abstract

This study focused on a partnership with a mosque in Baltimore, MD, and its impact on the local Syrian refugee population through a peer-to-peer healthcare training program. We implemented the Lay Health Educator Program over a 6-week period in an effort to teach members of the mosque about healthcare-related topics that they could then disseminate to the Syrian refugee population that attends the mosque. Physicians and nurses instructed community members on health, healthcare resources, and healthcare information during 2-h long sessions once a week. A total of 18 community members took part in the program, and their participation highlighted that the most significant health issues for the Syrian refugees are "access to healthcare," "mental health," and insight into certain noncommunicable disease. Finally, the community program graduates implemented several health-related campaigns over 2 years in an effort to disseminate information taught to them. In doing so, they significantly impacted the ability of the refugees to assimilate to the US healthcare system.

Keywords Community health · Refugees · Islam · Faith-based intervention

✉ Panagis Galiatsatos
panagis@jhmi.edu

1 Medicine for the Greater Good, Johns Hopkins School of Medicine, 4940 Eastern Avenue, Asthma & Allergy Building, 4th Floor, Baltimore, MD 21224, USA

2 Ronald Reagan UCLA Medical Center, Los Angeles, CA, USA

3 Department of Theology, Loyola University Maryland, Baltimore, MD, USA

4 Johns Hopkins University School of Nursing, Baltimore, MD, USA

5 Division of Geriatrics, Johns Hopkins School of Medicine, Baltimore, MD, USA

6 Division of Pulmonary and Critical Care Medicine, Johns Hopkins School of Medicine, Baltimore, MD, USA

Introduction

While many refugees have medical issues and morbidities that are present in their country of origin, these chronic health concerns are often unknown to the refugees or the refugees have received insufficient attention due to the poor health infrastructure in their country of origin (Amara and Aljunid 2014). While arrival to the USA often results in an immediate focus on acute conditions for refugees, there has been a growing awareness of the burden of chronic noncommunicable diseases (e.g., diabetes, hypertension) plaguing the refugees (Amara and Aljunid 2014; Yanni et al. 2013; Bhatta et al. 2014). Further, assimilating to the US health system to address these and other health issues is unknown or not in line with the context of the lives of refugees (Bustamante and Van der Wees 2012). Therefore, many refugees begin to experience dire health disparities in many health outcomes as compared to US-born persons around common health issues.

Peer-to-peer educational programs have emerged as a strategic health initiative across illnesses, populations, and communities in an effort to allocate healthcare information and resources to susceptible and vulnerable populations (Buman et al. 2011; Medley et al. 2009; Repper and Carter 2011). The growth in popularity of peer-to-peer programs is due, in part, to the bidirectional health benefits of both the participants and peers, as well as the ability to maximize the impact of interventions' acceptability and feasibility to otherwise hard-to-reach communities (Lorthios-Guilledroit et al. 2018). The Lay Health Educator Program (LHEP) has taken the peer-to-peer model and has trained dozens of community members on health information and health topics with immediate impact on local neighborhoods and communities of Baltimore City (Galiatsatos and Hale 2016; Galiatsatos et al. 2016). However, with the current model of the LHEP, it is unclear whether its success can be replicated on a smaller scale toward a more targeted population: the refugees coming to Baltimore City from Syria.

The objective of this study is to assess whether the LHEP model implemented for community members of a local mosque improves certain health outcomes of newly arrived Syrian refugees, specifically access to mental health resources and primary care. We evaluated the process outcomes of the LHEP curriculum as well as the outcomes of the graduates of the LHEP at specific time intervals.

Methods

The Lay Health Educator Program Curriculum

Building off of the curriculum of the LHEP that has been previously discussed (Galiatsatos and Hale 2016; Galiatsatos et al. 2016), a satellite version of the program was created for a local masjid (the place of worship in Islam) that serves a significant portion of the Syrian refugees staying in Baltimore City. Working with the Imam, the leader of the congregation, we set forth to identify community

members that would volunteer their time to learn about healthcare resources and information that could be utilized to aid the refugees in their assimilation into the US healthcare system. Further, the Imam identified which topics would be important to emphasize (e.g., mental health) and deliver in a culturally sensitive manner.

The curriculum for the masjid was set forth as a 6-week course in the spring of 2017, with 2 h each week devoted to interactive learning on specific health topics. Table 1 lists the agreed-upon topics by the community members of the masjid and the healthcare professionals of Medicine for the Greater Good (MGG) (Zakaria et al. 2015). Note that the topics were dichotomized into "Healthcare System" and "Health-related Diseases." The andragogy of the course took on an adult learner model, emphasizing material that would rely on the community members' current insight and experiences with the healthcare topic and how to take the information into transformational and experiential learning moments. The topics were taught by healthcare professionals involved with MGG, which included nursing students, medical students, and resident physicians.

Outcomes

Several variables and process outcomes were considered. First, sociodemographic data were collected on the participants of the LHEP from the masjid. This included gender, age, current occupation, and fluency in speaking Arabic. Second, we noted attendance each week of the LHEP participants. Finally, using a Likert scale, we measured satisfaction with the LHEP at the end of the 6 weeks. The scale ranged from 1 to 4 and included four questions: "Were the objectives of each topic identified and achieved?", "Did the presenters create a comfortable environment to learn?", "Was the information shared clear and consistent and practical for the refugee community?", and "Did the presenters start and finish on time?". The question on timing was of significance to the Imam as the LHEP course was in-between an after-school program for children and before evening prayer. A free-response section ("Is there any more additional information you would like to provide?") was available on these surveys.

We were in contact with the graduates of the LHEP at 3-month, 6-month, 12-month, and 24-month intervals. At each touch point, we discussed initiatives they were to implement and/or outcomes of said initiatives. From our end, we collected data on "type of project," "aim of the project," and "number of Syrian refugees impacted." Further, we provided resources and assistance when asked by the LHEP graduates (e.g., to have a physician speaker discuss mental health). All handouts, if requested, were provided in both English and in Arabic. Institutional Review Board (IRB) approval was provided by the Johns Hopkins University School of Medicine.

Analysis

Where appropriate, mean $\pm$ standard deviation is provided for continuous variables and percentage for categorical variables. Student t tests were run when comparing

Table 1 Topics for the Lay Health Educator Program at a community masjid in Baltimore City

Topic	Objective	Category	Presenter(s)
Making a doctor's appointment	To understand how to schedule an appointment with a healthcare professional and what to expect at the visit	Healthcare system	Resident physician Nursing student
Healthcare insurance	To understand how to obtain healthcare insurance and the various benefits certain insurances offer	Healthcare system	Nursing student
How to approach a pharmacy	Sharing insight into how persons can obtain over-the-counter medications as well as prescription medications, and what role a pharmacist can play in medication management	Healthcare system	Nursing student
When to utilize urgent care or an emergency room	Discussions on how to self-triage certain symptoms and understand the differences between urgent care visits and emergency room visits	Healthcare system	Resident physician
Mental health: depression and anxiety	Understanding symptoms of these mental health morbidities and local resources, as well as insight into pharmacological management	Health-related disease	Resident physician Nursing student
Mental health: post-traumatic stress disorder	Understanding symptoms of this mental health morbidity, resources, pharmacological management, with an emphasis on both pediatric and adult populations	Health-related disease	Resident physician
Hypertension	Understanding symptoms of high blood pressure, preventative care, and lifestyle modifications to prevent or manage high blood pressure	Health-related disease	Nursing student
Diabetes	Understanding symptoms of diabetes, preventative care, and lifestyle modifications to prevent or manage diabetes	Health-related disease	Nursing student
Smoking cessation	Discussions on the cultural perspectives of smoking and insight into approaching a person who smokes to help with cessation	Health-related disease	Resident physician
Eye health	Understanding local resources around eyeglasses and eye screenings	Health-related disease	Nursing student
Vaccinations for children and adults	Understanding the timing of vaccinations and diseases they aim to prevent	Healthcare system	Nursing student

Table 2 Sociodemographic data of the 18 participants of the LHEP

Individual characteristics	
Age	43.2 ± 18.1
Female	17 (94.4%)
Occupation	
Student	3 (16.7%)
Employed	5 (27.8%)
Unemployed	2 (11.1%)
Retired	8 (44.4%)
Arabic fluency	5 (27.8%)
Number of participants	
Week 1	18 (100%)
Week 2	14 (77.8%)
Week 3	17 (94.4%)
Week 4	15 (83.3%)
Week 5	18 (100%)
Week 6	18 (100%)

Table 3 Results of the Likert scale from participants evaluating the LHEP curriculum

Question	Score
"Were the objectives of each topic identified and achieved?"	3.9 ± 0.2
"Did the presenters create a comfortable environment to learn?"	3.8 ± 0.1
"Was the information shared clear and consistent and practical for the refugee community?"	3.8 ± 0.1
"Did the presenters start and finish on time?"	3.5 ± 0.3

1 = Not at all; 2 = sometimes, but the majority of the times; 3 = the majority of the time; 4 = all of the time

continuous variables, with a p value < 0.05 identified as statistically significant. All data analyses were conducted with R software (version 0.99.903).

Results

A total of 18 participants from the masjid participated in the satellite LHEP 6-week curriculum. Of the 18 participants, only one was a male. Five of the participants identified that they spoke Arabic fluently. The age ranged from 21 years of age to 68 years of age. The average attendance to each class was 16.7 ± 1.8. Table 2 lists the complete set of the sociodemographic data of the LHEP participants.

Evaluation of the Lay Health Educator Program

All 18 participants completed the surveys with the results of the overall course listed in Table 3. The lectures were dichotomized into "Healthcare System" (5 total

classes) and "Health-related Diseases" (6 total classes). The Health-related Diseases classes scored higher (3.9 ± 0.1) in the question "Were the objectives of each topic identified and achieved?" than the Healthcare System class (3.5 ± 0.4) ($p = 0.02$). The remaining comparisons between these two categories did not achieve statistically significant differences in the remaining questions.

From the free-response section of the survey, the most common feedback (14 out of the 18 participants) centered on a request for additional information on mental health. Specifically, regarding the mental health teachings, the participants wrote that domestic violence and resources should have been discussed (11 out of the 14) and more insight into pediatric-specific mental health issues (3 out of the 14). Additional comments suggested more information on access to nutritious food, advanced directives, women's health, and cancer screenings.

Community Outcomes

Table 4 lists outcomes identified by each graduate of the LHEP program. The graduates identified that working as a cohort was most optimal as opposed to individually setting forth projects and tasks. Further, they felt that implicit bias among the masjid members and local neighborhood would occur if the activities they began to plan were only for the Syrian refugees. Therefore, the projects that were identified were generalized for all members of the congregation and local neighborhood, with additional emphasis to assure the Syrian refugees were present, participated, and followed through on certain actionable items.

The first major community event reached 47 community members, with 14 Syrian refugees in attendance. While the group wanted to emphasize mental health first as their main subject, they were receiving feedback that this would come across as off-putting by the community members and the refugees as this is a sensitive topic within their community. Therefore, the theme was on heart health and heart disease. However, to assure mental health was addressed, the discussions centered on how stress, depression, anxiety, and post-traumatic stress disorder impact heart health outcomes. An on-site psychologist was present to lead group conversations and meet with persons one on one. Further, resources were available for insurance access, access to a primary care physician, and access to mental health professionals.

The next event was "Vaccination and Preventive Care," occurring 3 months after the "Heart Health Awareness" initiative. A total of 52 persons attended, with 22 Syrian refugees present. Nurses and physicians from both hospitals and the Baltimore City Health Department were present to discuss timing of vaccinations and where to find cost-effective (if not free) vaccine services. Discussions on safety, benefit, and concerns of vaccines were done. The timing of the event also allowed for an emphasis on back to school, with school supplies and materials handed out at the end of the event.

At the 24-month mark, the cohort identified a significant outcome as the hiring of a part-time case manager through the masjid. The case manager's role fulfilled gaps where the LHEP cohort felt they could not greatly assist: assuring continuity with the Syrian refugees, follow-up post-clinic visits, and assuring proper cost-effective

Table 4 LHEP graduate community health outcomes for Syrian refugees

Time	Outcome	Description
3-Month	Internal meetings established Planning for two health events initiated	The graduates began to work together as a cohort and scheduled frequent meetings every 2–4 weeks at the masjid. After their second meeting, it was selected that the next course of action would be to implement two large health events for all the congregation and local neighborhood, with themes that would be attractive to the Syrian refugees
6-Month	Heart health awareness event	The focus was on heart-related diseases (high blood pressure, diabetes, coronary artery disease). Further, emphasis on stress and mental health was discussed during the event, with an on-site psychologist to initiate conversations and resources
12-Month	Vaccination and preventive care event	Discussions on timing of vaccines, where to find cost-effective vaccines, and additional preventive care measures to be taken for both children and adults
24-Month	Ongoing internal meetings. Establishment of an annual health event as well as a part-time case manager	The cohort continued to have their internal meetings, inviting more persons from the masjid to attend. An annual health event was created. Finally, the masjid hired a part-time case manager, advocated by the LHEP graduates, to better organize the concerns many of the refugees continued to have

access to medicine and health equipment. The advocacy for a case manager was initiated and led by the LHEP cohort, after conducting many informal needs assessments with the Syrian refugees. The LHEP cohort continues to work with the case manager in order to ensure the refugees are accessing all available healthcare resources.

Discussion

An adapted version of the Lay Health Educator Program used to train a community-based cohort of volunteers in an effort to impact a specific population (Syrian refugees) was found to have a significant impact. An assurance of access to primary care and mental health for the Syrian refugees was evident throughout the feedback provided by the graduated LHEP community members, and a primary focus of their projects and their case manager. Further, the trained cohort was able to implement healthcare educational initiatives that were culturally sensitive, with themes of importance to their community, and an emphasis on sustainable processes and action regarding health, all of which reaffirm the impact the LHEP can have on a scale more appropriate for a local community working with a vulnerable population.

The Lay Health Educator Program at Johns Hopkins has been ongoing since 2011, where participants are recruited throughout the mid-Atlantic region from various faith-based organizations. The health and healthcare themes are pulled from input from prior year graduates and are taught with general insight into resources. A graduate of the 2016 program, the Imam of the masjid, advised creating a more targeted LHEP for his community members with a focus on health and healthcare issues for the Syrian refugees. The variances in this satellite LHEP from the larger version include themes that have never been covered before (specifically, the Healthcare System topics), material translated into another language (Arabic), and an emphasis on cultural sensitivities around lifestyle modifications and mental health. Such changes resulted in the significant impact the masjid's cohort of LHEP graduates had in regard to the healthcare access for the Syrian refugees for both somatic and mental health.

Mental health consequences and morbidity are well documented in refugee populations, impacting both adults and children (Repper and Carter 2011; Kroening and Dawson-Hahn 2019; Nickerson et al. 2019; Walden 2017). Wanna et al. highlighted that community support during the time refugees resettle can have a significant impact on mental health and well-being. Further, the authors discuss that ethnic-like communities who implement social support programs result in significant outcomes in regard to well-being. Similar to the findings of Wanna et al., we demonstrated that a community with similar beliefs and language to the Syrian refugees that implements a social support program results in significant health-related outcomes. Specifically, the hiring of a case manager as well as an on-site psychologist has been crucial in assuring mental health resources are provided to the Syrian refugees who attend the local Baltimore City masjid. Therefore, the impact of a satellite LHEP and its graduates, with adaptations made to take into account a specific culture and population, is evident through the social support programs executed.

Noncommunicable somatic morbidities also plague refugees (Akik et al. 2019; Eryurt and Menet 2019; Kayali et al. 2019). However, for many host countries taking in refugees, funding shortages may impact health outcomes for refugees, especially around prevalent issues such as diabetes and hypertension (Akik et al. 2019). Kayali et al. (2019) highlighted that models of care for certain noncommunicable diseases, such as diabetes and hypertension, can be created that are both efficient in disease management and affordable for host nations. With a similar emphasis on cost-effective management of health issues, as well as attempting novel strategies by the LHEP graduates, the satellite LHEP has been able to allocate healthcare resources for the local Syrian refugees. However, it is not evident currently whether the initiatives implemented by the LHEP graduates will result in clinically significant disease management. Further analysis of the health outcomes of the Syrian refugees served by the masjid and its LHEP graduates is warranted to reaffirm the significance of this social support program.

Several limitations must be taken into consideration. First, the size of the Syrian refugee population served by the masjid varied over time. Much of this is due to either the refugees leaving Baltimore City or leaving the masjid itself. Therefore, longitudinal studies of the impact the LHEP graduates would have on the refugee population is largely driven by immediate goals (e.g., access to mental health provider) rather than long-term outcomes (e.g., disease management and stability of mental health issues). Long-term outcomes are warranted and should be a priority for future studies that implement LHEP-like programs. Second, it is unclear whether the outcomes that were identified were largely driven by the LHEP curriculum, the sociodemographic makeup of the LHEP cohort, or a combination of the two. Given that LHEP graduates are volunteers, future studies must consider factors of motivation and reaffirmation that maintain sustainability and accountability by LHEP graduates toward community health outcomes. Finally, it remains unclear how the LHEP curriculum specifically influences outcomes. For instance, while the themes of the courses in the curriculum were identified by the masjid community, the outcomes over 24 months did not take into account all of the subject matters (e.g., eye screenings). It should be investigated whether this was due to loss of interest, an understanding that certain subject matters take longer to organize a health initiative, and/or lack of a sense of priority.

In conclusion, the Lay Health Educator Program graduates implemented several health-related campaigns over 2 years at their respective masjid in an effort to ameliorate health and healthcare issues of the Syrian refugees. In doing so, these graduates significantly impacted the ability of the refugees to assimilate to the US healthcare system, especially for services around mental health and management of noncommunicable diseases. Future programs should take into account implementing lay health educator programs to a motivated community that serves refugees and/or various other vulnerable populations so as to provide meaningful and achieve equitable health-related services and outcomes.

Compliance with Ethical Standard

Conflict of interest The authors declare that they have no conflict of interest.

Animal and Human Rights This article does not contain any studies with human participants performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

Akik, C., Ghattas, H., Mesmar, S., Rabkin, M., El-Sadr, W. M., & Fouad, F. M. (2019). Host country responses to non-communicable diseases amongst Syrian refugees: A review. *Confl Health., 13,* 8.

Amara, A. H., & Aljunid, S. M. (2014). Noncommunicable diseases among urban refugees and asylum-seekers in developing countries: A neglected health care need. *Global Health, 10,* 24.

Bhatta, M. P., Assad, L., & Shakya, S. (2014). Socio-demographic and dietary factors associated with excess body weight and abdominal obesity among resettled Bhutanese refugee women in Northeast Ohio, United States. *International Journal of Environmental Research and Public Health, 11*(7), 6639–6652.

Buman, M. P., Giacobbi, P. R., Jr., Dzierzewski, J. M., et al. (2011). Peer volunteers improve long-term maintenance of physical activity with older adults: A randomized controlled trial. *Journal of Physical Activity and Health, 8*(Suppl 2), S257–S266.

Bustamante, A. V., & Van der Wees, P. J. (2012). Integrating immigrants into the U.S. health system. *Virtual Mentor, 14*(4), 318–323.

Eryurt, M. A., & Menet, M. G. (2019). Noncommunicable diseases among Syrian refugees in Turkey: An emerging problem for a vulnerable group. *Journal of Immigrant and Minority Health*. https://doi.org/10.1007/s10903-019-00900-x.

Galiatsatos, P., & Hale, W. D. (2016). Promoting health and wellness in congregations through lay health educators: A case study of two churches. *Journal of Religion and Health, 55*(1), 288–295.

Galiatsatos, P., Sundar, S., Qureshi, A., Ooi, G., Teague, P., & Daniel, Hale W. (2016). Health promotion in the community: Impact of faith-based lay health educators in urban neighborhoods. *Journal of Religion and Health, 55*(3), 1089–1096.

Kayali, M., Moussally, K., Lakis, C., et al. (2019). Treating Syrian refugees with diabetes and hypertension in Shatila refugee camp, Lebanon: Medecins Sans Frontieres model of care and treatment outcomes. *Confl Health., 13,* 12.

Kroening, A. L. H., & Dawson-Hahn, E. (2019). Health considerations for immigrant and refugee children. *Advances in Pediatrics, 66,* 87–110.

Lorthios-Guilledroit, A., Richard, L., & Filiatrault, J. (2018). Factors associated with the implementation of community-based peer-led health promotion programs: A scoping review. *Evaluation and Program Planning, 68,* 19–33.

Medley, A., Kennedy, C., O'Reilly, K., & Sweat, M. (2009). Effectiveness of peer education interventions for HIV prevention in developing countries: A systematic review and meta-analysis. *AIDS Education and Prevention, 21*(3), 181–206.

Nickerson, A., Byrow, Y., Pajak, R., et al. (2019). 'Tell Your Story': A randomized controlled trial of an online intervention to reduce mental health stigma and increase help-seeking in refugee men with posttraumatic stress. *Psychological Medicine*. https://doi.org/10.1017/S0033291719000606

Repper, J., & Carter, T. (2011). A review of the literature on peer support in mental health services. *Journal of Mental Health, 20*(4), 392–411.

Walden, J. (2017). Refugee mental health: A primary care approach. *American Family Physician, 96*(2), 81–84.

Yanni, E. A., Naoum, M., Odeh, N., Han, P., Coleman, M., & Burke, H. (2013). The health profile and chronic diseases comorbidities of US-bound Iraqi refugees screened by the International Organization for Migration in Jordan: 2007–2009. *Journal of Immigrant and Minority Health, 15*(1), 1–9.

Zakaria, S., Johnson, E. N., Hayashi, J. L., & Christmas, C. (2015). Graduate medical education in the Freddie Gray era. *New England Journal of Medicine, 373*(21), 1998–2000.