Signature: 4/17/2023

__________________________ _________________
Nushrat Nur

# Cancer Care Interventions Among Global Refugee Populations: A Scoping Review

By

Nushrat Nur
MPH

Hubert Department of Global Health

______________________________
Ghada N. Farhat, PhD, MPH
Committee Chair

# Cancer Care Interventions Among Global Refugee Populations: A Scoping Review

By

Nushrat Nur
B.S., University of Florida, 2020

Thesis Committee Chair: Ghada N. Farhat, PhD, MPH

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Global Health
2023

# Abstract

Cancer Care Interventions Among Global Refugee Populations: A Scoping Review

By Nushrat Nur

Background: Noncommunicable diseases (NCDs) are responsible for 74% of deaths worldwide, despite being preventable. Cancer is the second leading cause of mortality globally, with refugee populations suffering through delayed diagnoses and treatment, leading to higher prevalence of advanced-stage cancer and poorer prognosis.

Objectives: This scoping review aims to provide a comprehensive investigation and assessment of the status of cancer care among refugee populations around the world using the socioecological model as framework for analysis. An assessment of gaps and areas for improvement will be discussed as well as recommendations to address them.

Methods: This scoping review developed eligibility criteria through the Participants, Interventions, Comparators, Outcomes (PICO) model. Studies were restricted to English language only, placed between the years 2000-2023 and focused on current existing primary, secondary and tertiary interventions or models of care and then information was extracted and assigned to the various levels of the socioecological model.

Results: The interventions were mainly health promotion and cancer awareness interventions that sought to increase knowledge and improve screening practice and behavior. The main cancer types that were investigated were breast and cervical cancer among refugee women. Tertiary prevention such as palliative care and more treatment-based interventions were lacking from the literature. Culturally tailored patient navigation and faith-based frameworks continued to be a crucial element of intervention planning and implementation. Mobile cancer care and virtual education programs showed a lot of promise to guide future interventions. Structural policy changes to protect refugees as they sought cancer care were lacking in the literature.

Conclusion: This scoping review looked to identify current cancer care interventions among the global refugee population and assess them according to the socioecological model to determine gaps in the literature. This paper can be used as a starting point to inform and guide future interventions for refugee cancer care across all contexts.

# Cancer Care Interventions Among Global Refugee Populations: A Scoping Review

By

Nushrat Nur
B.S., University of Florida, 2020

Thesis Committee Chair: Ghada N. Farhat, PhD, MPH

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Global Health
2023

# Acknowledgements

I want to thank my advisor, Dr. Ghada Farhat, for supporting me and my timeline and providing the guidance I so critically needed to get this done.

I want to thank all my loved ones who had to hear the words “my thesis” approximately 8 billion times as I worked on this throughout the semester - your patience is underrated and highly appreciated.

I want to thank my thesis crew and fellow GH friends for the long hours on Zoom and on campus, cracking jokes to keep up morale and offering love and support so we could all make it past the finish line.

Finally, I want to thank Kaldi – the Ethiopian goat farmer who discovered coffee. Through his contributions to humanity, I was able to stay caffeinated enough to push this out.

# Table of Contents

# Chapter 1: Introduction

## Background

Noncommunicable diseases (NCDs), mainly cardiovascular disease, chronic respiratory conditions, cancer, diabetes, and mental health, now account for 74% of all deaths worldwide despite being highly preventable in nature[1]. With almost 10 million deaths attributed to cancer in 2020, it sits as the second leading cause of mortality around the world[2].

The burden of cancer varies by location - cancers associated with infection, such as stomach cancer or cervical cancer, are more common in low- and middle- income countries (LMICs) due to the prevalence of cancer-causing infection while high-income countries see more incidence of breast, colon, and lung cancers[3]. Weakened healthcare infrastructure and lack of resources in LMICs contribute to delayed diagnoses and treatment leading to higher prevalence of patients in advanced stages and poorer prognosis[4]. Comprehensive and timely cancer care, which includes screening, prevention, treatment and palliative care, is a crucial element in the global effort to improve cancer outcomes.

Worldwide, cancer care implementation frameworks are variable depending on country, region or even state. Global cancer care improvement can be realized with programs like World Health Organization’s "Cancer Control: Knowledge into Action", which offers a framework of developing comprehensive cancer control planning and implementation[5]. The Global Initiative for Cancer Registry Development (GICR), led by the International Agency for Research on Cancer (IARC) and Union for International Cancer Control (UICC), looks to develop robust cancer registries in LMICs which aim to strengthen health information systems and create stronger educational resources on cancer risk for country populations[6].

## Statement of Problem

Refugee populations around the world are particularly vulnerable to the burden of NCDs, including cancer, due to the disruption of forced migration, limited access to services and barriers to affordability of preventative care and other treatment. According to the United Nations High Commissioner for Refugees (UNHCR), there are approximately 27.1 million refugees scattered across camps and resettled in host countries around the world[7]. Approximately 72% of the world's refugees come from 5 countries - Syria, Venezuela, Ukraine, Afghanistan and South Sudan[7]. The countries that host the largest number of refugees are Türkiye, Colombia, Germany, Pakistan and Uganda[7].

Refugee populations face an increased burden of infection-based cancers attributed to their countries of origin as well as non-infection-based cancers like breast cancer[8]. Despite the increased risk, cancer care remains a neglected area in humanitarian intervention for refugees, for populations in both camp settings and resettled in host countries. Language and cultural barriers, lack of access to care services, lack of financial resources, and limited health literacy all contribute to poor cancer outcomes among refugees. Preventative care and screening are also historically underutilized among this population, and in conjunction with other barriers to care, leads to advanced stage diagnosis[9]. For instance, refugee and immigrant women are twice as likely -18.6% versus 6.8% - as US citizens to have never received a pap smear, thus amplifying their risk for cervical cancer[9].

In order to alleviate the global burden of cancer on refugee populations these gaps in cancer care must be addressed through programmatic intervention, increased access to resources, educational campaigns and policy changes. Current interventions are in need of assessment to evaluate what needs are still being unmet and what future interventions can improve upon further.

## Statement of Purpose

The purpose of this scoping review is to provide a comprehensive investigation and assessment of the status of cancer care among refugee populations around the world. The findings will eventually inform the design of evidence-based interventions and programs in Lebanon, Türkiye, Colombia, Germany, Pakistan, Uganda and other refugee host countries to meet NCD needs among refugees within the country. The review examined the existing cancer interventions and categorized them according to primary, secondary and tertiary prevention levels. The interventions within each prevention level are then analyzed using the socioecological model according to individual, social setting and community, health system, institutional and health systems, and structural levels. The review then assessed whether there were gaps or places to improve in the existing cancer care among this population.

## Statement of Significance

The results from this scoping review will be helpful for the development of future cancer care interventions among global refugee populations. Researchers and public health practitioners can use the assessments of current interventions from this study to develop more robust programs for cancer care along all levels of prevention to address barriers throughout all levels of the socioecological model. The gaps identified can also help advocates develop and push for policy changes that will lower the burden of cost, improve access to cancer care facilities and provide protections for refugee populations to seek out cancer care in crisis settings or unfamiliar host country settings.

## References

1. Non communicable diseases. www.who.int. https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases#:~:text=Risk%20factors
2. Bray F, Laversanne M, Weiderpass E, Soerjomataram I. The ever-increasing importance of cancer as a leading cause of premature death worldwide. Cancer. 2021;127(16). doi:https://doi.org/10.1002/cncr.33587
3. Estimated Number of New Cancer Cases by World Area, 2018*.; 2018. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/global-cancer-facts-and-figures/global-cancer-facts-and-figures-4th-edition.pdf
4. Shah SC, Kayamba V, Peek RM, Heimburger D. Cancer Control in Low- and Middle-Income Countries: Is It Time to Consider Screening? Journal of Global Oncology. 2019;5(5):1-8. doi:https://doi.org/10.1200/jgo.18.00200
5. Cancer control: knowledge in action: diagnosis and treatment. www.who.int. Accessed April 19, 2023. https://www.who.int/publications/i/item/9789241547406
6. Global Initiative for Cancer Registries (GICR). UICC. Published 2022. Accessed April 19, 2023. https://www.uicc.org/who-we-work/networks/global-initiative-cancer-registries-gicr
7. UNHCR. Global Trends Report 2021. UNHCR. Published 2021. https://www.unhcr.org/62a9d1494/global-trends-report-2021
8. de Martel C, Georges D, Bray F, Ferlay J, Clifford GM. Global burden of cancer attributable to infections in 2018: a worldwide incidence analysis. The Lancet Global Health. 2020;8(2):e180-e190. doi:https://doi.org/10.1016/s2214-109x(19)30488-7

9. Walker PF, Settgast A, DeSilva MB. Cancer Screening in Refugees and Immigrants: A Global Perspective. The American Journal of Tropical Medicine and Hygiene. Published online May 9, 2022. doi:https://doi.org/10.4269/ajtmh.21-0692

# Chapter 2: Literature Review

## Non-communicable Diseases and Displacement

Non-communicable diseases (NCDs) - including cardiovascular diseases, chronic pulmonary diseases, cancer, and diabetes - have become the leading cause of mortality and disability worldwide[1]. Unhealthy diets, alcohol consumption, tobacco use and sedentary lifestyles are risk factors that contribute to the development of NCDs in an increasingly urbanized world[3]. While NCD prevalence has grown and is expected to continue growing globally, the burden of these diseases fall mostly on low- and middle- income countries (LMICs) with approximately 80% of annual NCD-attributed deaths occurring in these nations[5]. This rise of NCDs has coincided with an increased burden of humanitarian emergencies within the recent decades, which, in turn, has increased the number of displaced people affected by NCDs worldwide.

Climate change induced natural disasters, ongoing conflict, political persecution and human rights violations have all contributed to the growing 27.1 million global refugee population[2]. Refugees are particularly vulnerable to the effects of NCDs due to the disruptions of forced migration that create financial barriers, lower health literacy, geographic distance from healthcare resources and cultural or linguistic barriers[5]. NCD morbidity among refugee populations is exacerbated by disaster-related psychological stress, war-related trauma and grief[6]. Malnutrition and food insecurity in emergency settings are also commonly cited as risk factors for NCD morbidity in addition to environmental exposure from natural disasters or war-related chemical toxins[6].

The nature of humanitarian emergencies creates a disruption of coordinated care for chronic diseases which negatively affects timely prevention, detection, diagnosis, monitoring, treatment and management of NCDs[4]. Health actions within humanitarian emergencies also often prioritize addressing more acute conditions and communicable diseases over NCDs, which require more long-term management and care[4]. Additionally, health care systems in LMICS tend to focus more on NCD treatment and less so on primary care and prevention[5]. NCD surveillance and epidemiological data is sparse within LMICs which further hinders disaster mitigation efforts[6]. Even when refugees relocate to more urban or developed environments, they often reside in poor housing conditions and are not able to access or afford the secondary or tertiary health care they may need to manage a non-communicable health condition[3].

Non-communicable disease care remains a neglected area in refugee healthcare and research. But among NCDs, cancer care specifically suffers from lack of research and intervention implementation.

## Cancer Care in Refugee Populations

Within the ecosystem of humanitarian medicine, cancer care for refugee populations remains a substantial burden. Risk factors for other NCDs such as tobacco usage, high fat diets, and lack of exercise also heighten the risk for developing cancer[7]. During humanitarian emergencies, refugees may experience a disruption to ongoing care or even develop new cancers in a host country[9]. Barriers to comprehensive cancer care share many similarities with other NCDs among refugee populations. This includes poor hygiene and living conditions, linguistic and cultural barriers, lack of cancer surveillance, financial barriers, lack of access to health facilities (often due to location and availability of resources), limited health education, and lack of preventative screening services. Beyond these more obvious barriers, there is also destruction of infrastructure, medical supply theft by parties in conflict, threats to medical personnel, as well as fear for the personal safety of those seeking treatment[7]. Consequently, the poor health outcomes of these patients indicate a need for more effective cancer interventions on all levels of care.

Cancer care interventions as they exist for refugee populations are mostly focused in primary and secondary prevention, with less programming tertiary prevention. A number of refugee cancer care interventions focus on increasing awareness and knowledge of risk factors and screening practices. For instance faith-based or culturally competent cancer care education is often used as a way to relay important cancer information, most often for breast and cervical cancer among refugee women[14, 15]. Palliative care interventions, treatment based interventions and more policy focused interventions are major places for future programming

### *Financial Burden and Access to Overall Cancer Care*

Forced displacement often limits the financial capacity for displaced populations to afford specialized healthcare. While there is mobilization on part of international agencies and other NGOs to provide medical care and support for refugees, expenses for cancer care remain uncovered for the most part due to a combination of lack of funding and poor prognosis. More often than not, refugees rely on international bodies to fund their more specialized and expensive healthcare. The United Nations High Commissioner for Refugees (UNHCR) is one of those international bodies that works specifically to address the needs of refugee populations, including medical care support. The UNHCR selectively funds more expensive medical treatment through the decision-making body known as the UNHCR Exceptional Care Committee (ECC), which looks at individual cases through a set of criteria to determine which ones will get cancer care coverage[9]. However, poor prognosis is a determinant of which cases receive this funding, which comes at a detriment for refugee populations, who often are diagnosed at later stages[8]. In Jordan, the ECC rejected almost 50% of the 511 cancer cases in need of more expensive treatment due to poor prognosis[9].

Generally, the financial burden of cancer care is placed on refugees paying out-of-pocket and the host countries they reside in. Host countries face incredible strain balancing allocating resources for incoming refugees on top of the already existing population. In 2014, Jordan restructured its free health care programming for refugees after the initiative strained the existing health system[9]. The government then implemented a hybrid system that would allow NGOs to fund primary care while private donors or NGOs funded access to Ministry of Health secondary and tertiary services[9]. This was not accessible to all displaced people in the country however, as the policy was made available only to registered refugees within established camps, but not the nearly 500,000 registered refugees outside of them[9].

Physical access to cancer care resources also poses a big obstacle for refugee patients seeking care. During conflict or natural disaster, healthcare infrastructure is compromised, forcing patients to seek care in other, more distant places.  In Syria, hospitals were shut down or decimated during the civil war and many medical physicians left the country, drastically limiting pathways for refugees to access cancer care in the country[7]. As a result, patients are forced to figure out cancer care across international borders which may often involve a journey that could compromise patient safety and exacerbate poor health conditions further[11]. In Afghanistan, patients seeking cancer care often travel into Pakistan with visas that require renewal every 2-4 weeks, which consequently forces patients to miss follow ups and thus have inconsistent treatment[11]. The barriers to physical access for cancer care that refugee patients are forced to navigate cost them precious time for diagnosis and intervention.

### *Barriers to Cancer Screening*

Many cancers - most notably, breast cancer - are amenable to prevention and early detection, but among refugee populations prevention and detection become difficult. Refugees often present with cancer at later stages due to unfamiliarity with health systems in host countries, competing priorities delaying cancer care seeking behavior, physical access barriers and lack of health literacy[7]. Cancer screening is one of the ways in which patients can halt cancer progression in its early stages. However, refugees may hail from countries that do not have the facilities for prevention or may not place an emphasis on preventative screening practice, opting instead to pour more resources into secondary and tertiary treatment services.

Screening rates are also impacted by cultural and linguistic barriers. Cancer screening is often a new concept for many refugee patients, but information is not usually accessible in target languages. Additionally, refugees feel uneasiness or fear regarding medical procedures that are unknown to them as well as discrimination in these healthcare settings, especially if they are in other host country systems[12]. Fear can also stem from stigma surrounding screening practices for certain cancers, specifically cervical cancer and breast cancer, among certain religious or cultural groups which could then lead to hesitance for getting diagnosed[12].

Patient navigation, health education and culturally tailored programmatic changes are crucial for increased access to cancer screening and prevention among refugee populations.

### *Barriers to Cancer Diagnosis and Treatment*

Cancer diagnosis suffers major setbacks in humanitarian contexts, just as other aspects of cancer care among refugee populations. Refugees may arrive to host countries without medical records or the countries they fled may have not kept records or cancer registries to begin with, making it difficult to track diagnosis or progression of a disease[7]. Cancer surveillance systems, including the upkeep of cancer registries, is crucial in humanitarian settings where people are unable to access personal records.

Diagnostic technology is another important element of diagnosis that is essential for cancer detection. Imaging devices are essential to accurately diagnose, stage and monitor the disease as well as detect comorbidities that may also need treatment such as pneumonia[10]. Additionally, certain procedures, such as venous catheter placements for medicine administration, are also aided through imaging technology[10]. However, due to destruction of infrastructure and the general disruption of conflict and forced migration as discussed prior, diagnosis and diagnostic technology remain deeply under-resourced in humanitarian contexts. Lack of specialized personnel is yet another factor for diagnostic setbacks as seen in eastern Aleppo which houses almost 500,000 inhabitants but virtually no hybrid imaging (combination of molecular and anatomic imaging modalities) specialists, medical physicists, radiopharmacists, radio chemists or even oncologists). This in turn, leads to late diagnoses among refugee patients, suboptimal care and financial hardship[10].

Beyond diagnosis, secondary and tertiary treatments such as chemotherapy or radiotherapy are hindered by patient noncompliance. As with all aspects of cancer care, there are many reasons that refugee noncompliance manifests with such cancer treatments. Financial barriers, linguistic and cultural barriers as well as lack of access all act as major roadblocks. Additionally, longer treatment cycles often see patient nonadherence[13]. For most displaced people prioritization of housing, hygiene, nutrition, education and security take precedence over cancer treatment[13]. Refugees in camp settings are also less likely to seek and maintain continuity of care than those who are resettled outside of camp settings[13].

Cancer care is not limited to chemotherapy and radiation therapy but also includes psychosocial care, palliative care, and genetic counseling as well[8]. There are large gaps in the literature regarding cancer treatment options among refugee populations.

Refugee populations in and out of camp settings around the world face numerous hurdles when it comes to cancer care. Access, knowledge, stigma and the very nature of displacement itself prevent many refugee populations from receiving the critical diagnosis, screening and treatment to manage cancer throughout their lives. Understanding these barriers offers clear ideas as to where interventions can plug in to address some of these gaps to improve cancer outcomes among this population. This scoping review will look into these existing interventions, analyze what they aimed to improve in refugee cancer care and discuss further places for improvement for future interventions and models of care.

## References

1. Non communicable diseases. www.who.int. https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases#:~:text=Risk%20factors
2. UNHCR. Global Trends Report 2021. UNHCR. Published 2021. https://www.unhcr.org/62a9d1494/global-trends-report-2021
3. Amara A, Aljunid S. Noncommunicable diseases among urban refugees and asylum-seekers in developing countries: a neglected health care need. Globalization and Health. 2014;10(1):24. doi:https://doi.org/10.1186/1744-8603-10-24
4. Sethi S, Jonsson R, Skaff R, Tyler F. Community-Based Noncommunicable Disease Care for Syrian Refugees in Lebanon. Global Health: Science and Practice. 2017;5(3):495-506. doi:https://doi.org/10.9745/ghsp-d-17-00043
5. Saleh S, Farah A, Dimassi H, et al. Using Mobile Health to Enhance Outcomes of Noncommunicable Diseases Care in Rural Settings and Refugee Camps: Randomized Controlled Trial. JMIR mHealth and uHealth. 2018;6(7):e137. doi:https://doi.org/10.2196/mhealth.8146
6. Ngaruiya C, Bernstein R, Leff R, et al. Systematic review on chronic non-communicable disease in disaster settings. BMC Public Health. 2022;22(1). doi:https://doi.org/10.1186/s12889-022-13399-z
7. Spiegel P, Khalifa A, Mateen FJ. Cancer in refugees in Jordan and Syria between 2009 and 2012: challenges and the way forward in humanitarian emergencies. The Lancet Oncology. 2014;15(7):e290-297. doi:https://doi.org/10.1016/S1470-2045(14)70067-1
8. Abdel-Razeq H, Tamimi F, Abdel-Razeq N, et al. Late presentation and suboptimal treatment of breast cancer among Syrian refugees: a retrospective study. Journal of

International Medical Research. 2021;49(5):030006052110184. doi:https://doi.org/10.1177/03000605211018448

9. El Saghir NS, Soto Pérez de Celis E, Fares JE, Sullivan R. Cancer Care for Refugees and Displaced Populations: Middle East Conflicts and Global Natural Disasters. American Society of Clinical Oncology Educational Book. 2018;(38):433-440. doi:https://doi.org/10.1200/edbk_201365
10. Al-Ibraheem A, Abdlkadir AS, Mohamedkhair A, et al. Cancer diagnosis in areas of conflict. Frontiers in Oncology. 2022;12. doi:https://doi.org/10.3389/fonc.2022.1087476
11. Yusuf MA, Hussain F, Sultan F, Badar F, Sullivan R. Cancer care in times of conflict: cross border care in Pakistan of patients from Afghanistan. ecancermedicalscience. 2020;14. doi:https://doi.org/10.3332/ecancer.2020.1018
12. Percac-Lima S, Ashburner JM, Bond B, Oo SA, Atlas SJ. Decreasing Disparities in Breast Cancer Screening in Refugee Women Using Culturally Tailored Patient Navigation. Journal of General Internal Medicine. 2013;28(11):1463-1468. doi:https://doi.org/10.1007/s11606-013-2491-4
13. Sayan M, Eren MF, Kilic SS, et al. Utilization of radiation therapy and predictors of noncompliance among Syrian refugees in Turkey. BMC Cancer. 2022;22(1). doi:https://doi.org/10.1186/s12885-022-09558-5
14. Shirazi M, Shirazi A, Bloom J. Developing a Culturally Competent Faith-Based Framework to Promote Breast Cancer Screening Among Afghan Immigrant Women. Journal of Religion and Health. 2013;54(1):153-159. doi:https://doi.org/10.1007/s10943-013-9793-z

15. Racine L, D’Souza MS, Tinampay C. Effectiveness of breast cancer screening interventions in improving screening rates and preventive activities in Muslim refugee and immigrant women: A systematic review and meta-analysis. Journal of Nursing Scholarship. Published online October 5, 2022. doi:https://doi.org/10.1111/jnu.12818

# Chapter 3: Manuscript

## Abstract

***Background:*** Noncommunicable diseases (NCDs) are responsible for 74% of deaths worldwide, despite being preventable. Cancer is the second leading cause of mortality globally, with refugee populations suffering through delayed diagnoses and treatment, leading to higher prevalence of advanced-stage cancer and poorer prognosis.

***Objectives:*** This scoping review provided a comprehensive investigation of the status of cancer care among refugee populations around the world using the socioecological model as framework for analysis. An assessment of gaps and areas for improvement was conducted, followed by the development of a set of w recommendations to address them.

***Methods:*** Eligibility criteria were developed through the Participants, Interventions, Comparators, Outcomes (PICO) model. Studies were included if they focused on existing primary, secondary and tertiary interventions or models of care for cancer, were in the English language, and took place between the years 2000-2023. Eligible studies (n=26 ) were reviewed and information was extracted and assigned to the various levels of the socioecological model.

***Results:*** The interventions were mainly health promotion and cancer awareness interventions that sought to increase knowledge and improve screening practice and behavior. The main cancer types that were investigated were breast and cervical cancer among refugee women. Tertiary prevention such as palliative care and more treatment based interventions were lacking from the literature. Culturally tailored patient navigation and faith-based frameworks continued to be a crucial element of intervention planning and implementation. Mobile cancer care and virtual education programs showed a lot of promise to guide future interventions. Structural policy changes to protect refugees as they sought cancer care were lacking in the literature.

***Conclusion:*** This scoping review looked to identify current cancer care interventions among the global refugee population and assess them according to the socioecological model to determine gaps in the literature. This paper can be used as a starting point to inform and guide future interventions for refugee cancer care across all contexts.

## Background

Noncommunicable diseases (NCDs), including cardiovascular disease, chronic respiratory conditions, cancer, diabetes, and mental health, are responsible for 74% of deaths worldwide, despite being preventable[28].

Cancer is the second leading cause of mortality globally, with nearly 10 million deaths reported in 2020[30]. The burden of cancer varies by location, with low- and middle-income countries experiencing higher rates of infection-related cancers, while high-income countries see more incidences of breast, colon, and lung cancers[31]. Weak healthcare infrastructure and lack of resources in low- and middle-income countries result in delayed diagnoses and treatment, leading to higher prevalence of advanced-stage cancer and poorer prognosis [32]. Comprehensive and timely cancer care, including screening, prevention, treatment, and palliative care, is essential to improving cancer outcomes globally. Programs like the World Health Organization's "Cancer Control: Knowledge into Action" and the Global Initiative for Cancer Registry Development (GICR) are helping to improve cancer care [28, 29.]

There are approximately 27.1 million refugees worldwide, facing limited access to healthcare and preventive care, making them vulnerable to NCDs[33]. Refugee populations are at an increased risk for infection-related cancers, and cancer care is often neglected in humanitarian interventions for refugees, both in camp settings and host countries. Language and cultural barriers, lack of access to care services, financial resources, and limited health literacy contribute to poor cancer outcomes among refugees. Preventative care and screening are underutilized among this population, leading to advanced-stage diagnosis[34].

This scoping review aimed to comprehensively investigate the status of cancer care among refugee populations globally, using the socioecological model as framework for analysis.

An assessment of gaps and areas for improvement as well as recommendations to address them were also conducted. The findings will inform evidence-based interventions and programs in host countries, including Lebanon as the country meets NCD needs among its Syrian refugee population.

## Methods

### *Study Selection and Search Strategy*

This scoping review allowed for a broad assessment of the existing cancer care interventions and gaps in cancer care for refugee populations across the world.

Eligibility criteria were developed through the Participants, Interventions, Comparators, Outcomes (PICO) model (Table 1). Studies were restricted to English language only, placed between the years 2000-2023 and focused on current existing primary, secondary and tertiary interventions or models of care and plans for cancer care among refugee populations. The term “interventions” was used broadly to encompass empirical studies, programs, or models of care delivery. Refugee populations from all countries both in camp settings and resettled in host countries were included. All types of studies published in the peer-reviewed literature, regardless of study design, were included while conference proceedings and other gray literature were excluded.

A search strategy was developed and refined through the aid of the research supervisor and health science librarian. The data search was conducted across PubMed, Embase, Scopus and Web of Science databases for a thorough comb through the existing literature. The search terms were simple and broad in order to capture the full scope of the literature on cancer care interventions among refugee populations. The population search term used was ‘refugee*[tw]’ and the [tw] was included so that it could include all words within a title, abstract and MeSH terms or subheadings. The cancer related term that was used was ‘Neoplasms[Mesh]’ OR ‘cancer*[tiab]’ and the MeSH term ‘neoplasm’ was used to include all types of cancer and related cancer terms. The search phrase did not include terms for geographic location because the scope of this review has no geographic restrictions.

The search results were compiled into the Covidence software, where studies were imported and screened with all duplicates removed in the process. Articles were examined through an initial title scan to remove irrelevant studies that were not focused on the target population or cancer broadly. Following this step, the abstract and title of each work was sorted through to determine eligibility, with some papers requiring a full text scan if the title and abstract were insufficient. Ineligible papers at this stage were excluded if they were gray literature or were solely focused on barriers and the contextual background of cancer or cancer care without mention of interventions. Any other papers that were questionable were brought to the research supervisor for review to further ensure eligibility for inclusion.

### *Extraction and Synthesis*

Following the article screening in Covidence, the final group of articles selected for inclusion in the review were analyzed through a data extraction matrix spreadsheet created with the aid of the research supervisor (Appendix 1). The full text of the included articles was analyzed to fill out the following key extraction domains: Title, Study Location, Refugee Population, Sub-Population, Prevention Level, Issue in Cancer Care Being Addressed, Study Design, Main Findings, Conclusions, and Gaps/Limitations. The study design domain captured the domains for main findings and gaps/limitations included extracted information about the successes and pitfalls of the interventions that were investigated. Any uncertainty was brought for discussion with the research supervisor to ensure eligibility.

Results were synthesized according to level of cancer care: primary, secondary and tertiary. Prevention levels examined were primary (risk mitigation and awareness interventions), secondary (screening and early detection related interventions) and tertiary prevention (diagnosis, treatment-based interventions and palliative care interventions).The Socioecological model was then applied to each respective level of care to identify whether the intervention targeted the individual refugee, social network and community, institutional and health system levels, and broader structural and contextual level. The specific indicators for each level of the model can be found in Figure 2. The Socioecological model used was adapted from Tirado et al., a study on barriers and facilitators to sexual and reproductive health for young people in refugee contexts[27]. This scoping review was structured using the Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines extended for scoping review (PRISMA-Scr). Based on reviewed evidence, gaps and strengths were identified and a set of recommendations was developed accordingly.

## Results

### *Descriptive Results*

Out of the 436 imported articles, 26 were eligible and used for data extraction (Figure 1). Articles that were excluded if they focused solely on barriers to cancer with no tangible interventions for analysis, if they were giving broad contextual information on cancer within a region or among certain refugee populations and if they were gray literature which most often manifested as conference proceedings.  Studies varied across refugee population groups and regions, with a sizable number of papers focusing on interventions and frameworks developed in North America and the Middle Eastern and North African regions . The most common cancers investigated were breast and cervical cancer, with only one study on gastric cancer and another on Retinoblastoma. The most prominent intervention was health educational programs as they related to screening uptake and cancer prevention while interventions related to palliative services were the least prominent.

### ***Health promotion and Primary Prevention***

#### *Individual*

Within the individual level of the socioecological framework, a range of cancer educational programs focusing on improving breast cancer, cervical cancer and oral cancer awareness among Afghan, North/East/West African, Iraqi, Karen-Burmese, Nepali-Bhutanese, Syrian, Somali, South/Southeast Asian refugees in the United States and Australia were examined. Indicators of success looked like improved knowledge regarding each type of cancer, attributable risk behaviors or risk factors and physical signs of cancer progression or presence.

Faith, culture and language of refugee populations were prioritized in many interventions within this level. A few interventions focused heavily on culturally tailored faith-based frameworks to engage Muslim refugee populations [2, 19]. The interventions incorporated inspirational elements of the religion to incorporate in health promotion and education on breast health and breast cancer risk mitigation [2, 19]. Additionally, studies incorporated elements of culture within these faith-based frameworks in addition to providing information in the target language to further relay the importance of lifestyle and screening behavioral changes for cancer [2, 19]. For instance, in a study focused on Afghan refugee women, breast health educational materials were distributed in line with both Islamic values and narrative style communication that was consistent with Afghan oral storytelling[2].

To adjust for varying literacy levels, not all translated material was presented in printed form. Among some interventions, success was found by showcasing cancer educational information through videos in the target language and paired with culturally tailored, narrative storytelling[2, 11, 14, 18]. An intervention looking to address cervical cancer screening education in Australia, the educational program was delivered online for refugee participants due to the Covid-19 pandemic's disruption of in-person sessions[6]. Nevertheless, participants were receptive to screening education workshops through a virtual platform, which led researchers to consider a future of hybrid educational options - which could further support refugees that may not have transportation [6].

Cancer-causing substance abuse was only touched upon in one intervention that sought to increase awareness on betel nut use among South and Southeast Asian refugee communities in Clarkston, Georgia [26]. An educational brochure was disseminated and through pre and post surveys, the implementing team was able to see an increased awareness of betel nut user risk among the target population [26]. The refugee participants also benefited from the illustrations of oral cancer within the brochure, and could identify the signs and progression of oral cancer by the end of the intervention [26].

### *Social Settings and Community*

Within the social settings and community level, a range of cancer educational programs focusing on improving breast and cervical cancer awareness among Afghan, North/East/West African, Turkish, Albanian, Nigerian, Palestinian, and Somali refugees in the United States and

Australia were examined. Indicators of success ranged from improved knowledge regarding each type of cancer and attributable risk behaviors or risk factors to consistent attendance at educational workshops, improved attitudes towards screening and community involvement.

Interventions that integrated community members and used community-based participatory research methods were critical for the success of educational sessions hoping to engage with refugee communities on cancer mitigation strategies and awareness education[2, 3, 6, 7, 9, 19]. When community leaders lended support to programs, the larger community was more trusting and willing to participate with these programs[2, 3, 6, 7, 9, 19]. Group sessions and large community level educational sessions offered spaces for the community as a whole to address misconceptions about cancer prevention and screening as well provide each other support[16]. It was especially helpful if the educator was a trained member of the community who would then use their shared background and intimate knowledge about the community's ideas about cancer care to effectively facilitate these meetings[16].

With regard to breast and cervical cancers that predominantly affect women, some health education interventions acknowledge the role men play in cancer care access and awareness[2, 6, 9]. In one breast health education intervention, workshop staff worked to address spousal disapproval so participants could attend sessions without fear[9]. In contrast, other interventions encouraged men's attendance at breast and cervical cancer educational workshops, as a means of creating support for the population at risk and addressing stigma by raising awareness for all community members[2, 6].

### *Institutional and Health System*

Within the institutional and health system level, a range of cancer educational programs and patient navigation focusing on improving mainly breast and cervical cancer awareness among Afghan, Somalian, Palestinian and Bosnian refugees in the United States and Jordan were examined. Indicators of success ranged from improved knowledge regarding each type of cancer and attributable risk behaviors or risk factors to consistent attendance at educational workshops and better patient comprehension through health care workers' linguistic and cultural tailoring.

Across several interventions, training community health workers and other health providers in the facilitation of education sessions as well as culturally tailored patient navigation improved the ability of refugee participants to understand and retain information regarding their health[2, 6, 13, 16, 21]. Other patient advocacy roles also helped refugee cancer patients and their families navigate health systems they were unfamiliar with as these advocates often procured medical interpreters and guided medication administration for those with no prior experience of doing so[21].

Home visits by trained health providers supported refugee patients with logistical access to educational sessions[13, 16]. Access was further supported by the provision of childcare services for refugee mothers who sought to participate in educational programming[3, 9.]

### *Structural*

Within the structural level, a range of cancer educational programs and patient navigation focusing on improving breast and cervical cancer awareness among Somali, Albanian, Palestinian and Bosnian refugees in the United States and Jordan did so by addressing financial and transportation related barriers to cancer care. Indicators of success looked like improved attendance at educational sessions and increased use of cancer care services like screening due to lack of financial burden.

Transportation was a common thread across educational interventions that sought to address physical accessibility to intervention sites. Through program funding and staffing volunteers, programs were able to reach a wider swathe of refugees in need of cancer care education and patient navigation services[3, 9, 16].

Interventions offered different ways to address financial barriers. One intervention offered compensation for refugee participants that helped in the co-design of the program[6]. Another worked with patients to address insurance issues[16]. Yet another educational program offered participants free screening services at the completion of the educational curriculum, thus reducing the burden of cost for these services[13].

### ***Secondary Prevention***

#### *Individual*

The main focus of the secondary level was screening and early detection interventions. Interventions within the individual level sought to improve breast cancer and cervical cancer screening rates by addressing knowledge gaps for Afghan, Burmese, Karen-Burmese, Thai, Nepali, Nepali-Bhutanese, North/East/West African, Middle Eastern, Spanish and Latin American refugees in the US, Australia, Jordan and Lebanon through educational programs that were often paired with screening services and patient navigation[1, 2, 6, 7, 9, 11, 13, 16, 18]. Through creating screening education material in the target languages for patients, these interventions eliminated the communication barriers that so often kept refugee populations from understanding the importance of screening[1, 2, 6, 7, 9, 11, 13, 16, 18].

Another theme that arose was the importance of patient empowerment within interventions for cancer screening. Within the interventions that discussed patient empowerment, there was an emphasis on encouraging refugee patients to choose their own care, collaborate with the provider, and tailor care to patient needs[8,16]. Offering linguistic access and cultural or religious context in provision of care was also noted as a means of empowering patients with knowledge [8, 16].

Increasing self-examination for early detection of breast cancer through the implementation of holistic health promotion was emphasized as an important behavioral change goal within an intervention seeking to increase screening among refugee women at risk for breast cancer[25.]

### *Social Settings and Community*

Within the social settings and community level, breast and cervical cancer screening interventions looking to address low screening rates among Afghan, Albanian, Turkish, Somali, Nigerian, Palestinian and Bhutanese refugees in the US and Australia do so by working alongside refugee communities to design or implement the interventions. Indicators of success include improved screening knowledge and increased overall screening rates.

Screening interventions benefited from working with the very communities that they sought to target. A culturally tailored screening intervention was co-designed with women from the refugee community, which personalized the curriculum and increased accessibility for different refugee groups[6]. Community leaders such as religious heads often worked alongside research and intervention teams to spread awareness, recruit participants and instill trust among community members as new interventions were implemented[2, 7]. Community partnerships were beneficial in finding physical locations in which interventions, like breast cancer screening educational workshops, could be housed[7, 9.] Partnerships with academic institutions, cultural organizations and religious organizations helped with the development of screening education messaging, translation of materials, recruitment of participants, recruitment of provider volunteers and access to healthcare facilities[7, 9].

A cervical and breast cancer screening intervention model outlined by Bhutanese refugee women included group-based screening as a component[17]. Group-screening involved having other familiar refugee women in the room during screening with a female nurse and female interpreter that would relay screening information in a group setting. Women noted that this created a supportive environment that made the process of screening for breast cancer less daunting[17].

### *Institutional and Health System*

Many of the interventions within this level focused on culturally tailored and linguistically tailored patient navigation that looked to increase the intention to screen and screening rates for breast, cervical and gastric cancer among Middle Eastern, Burmese, Thai, Bhutanese, Spanish, Latin/Central American, North/East/West African, Afghani, Bosnian, Albanian, and Turkish refugees in the US, Canada, Australia and Jordan[1, 9, 15, 16, 18, 20]. Indicators of success included higher screening rates over the short and long term as well as an increase in screening knowledge.

Training the healthcare providers across all levels on cultural values of refugee patient populations, more comprehensively addressed the barriers to screening and allowed refugee patients to better understand healthcare resources[6, 15, 16]. Additionally, when healthcare providers or health workers were from similar cultural backgrounds, refugee patients formed more trusting relationships with their provider and experienced less communicational barriers to patient navigation[16]. These cultural and linguistic accommodations have shown to increase the rate of screening immediately after the intervention and have maintained a long-term increased prevalence of breast cancer screening completion[7, 20].

Specialized refugee clinics in the United States and Canada offer services that are particularly tailored to meeting refugee needs and addressing barriers to cancer care within this population. These clinics offer specialized screening services and trauma-informed care models that entail longer visits, comprehensive history intakes, maintaining continuity with the same provider, physical and emotional support and interpreter services to ensure clear communication[5, 8]. Consequently, this specialization has shown promisingly high rates of cancer screening completion[5].

Patient-provider relationships are crucial to increase rates of screening and early cancer detection among refugee patients. As mentioned before, providers that offer safe environments that are linguistically and culturally tailored, intensive attention to patient needs and strong emotional support for patients reinforce patient adherence to screening practice and care in the long term[8, 16, 17]. In one study, health workers accompanied patients to the screening appointment room, which offered comfort for patients that were experiencing the procedure for the first time[16]. In another study, Bhutanese refugee women outlined that providers must provide guidance, opportunistic screening, follow-ups, advice and language services to encourage adherence and continuity of care of part of the refugee patients[17].

Home visits from trained health workers significantly improve awareness and knowledge as well as increase screening practices, especially when there are additional free vouchers for free screening services[13, 16]. Follow-ups to these visits also aided the adherence to screening and improved continuity of care[13]. Similarly, mobile clinics that offered mobile screening services increased accessibility for patients, especially those who had never screened before[1, 9].

With respect to specific screening modalities, an empirical study found that stool antigen screening for Heliobacter pylori in refugees from high prevalence countries was more cost effective in reducing the burden of gastric cancer than current screening methods[12].

### *Structural*

Within the structural level, arranged transportation and financial supports such as free screening or participant compensation worked to support interventions looking to increase breast and cervical cancer screening rates for Middle Eastern, Burmese, Thai, Spanish, Latin/Central American, North/East/West African, Bosnian, and Albanian refugees in the US, Australia and Lebanon.Indicators of success included increased screening rates, improved consistent attendance at screening educational sessions and increase in long term screening adherence due to lowered financial burden.

While it is known that transportation often factors as a barrier to interventions for and access to preventative care. A specialized refugee clinic factored this barrier in and arranged Uber rides for patients, thus decreasing no-show rates[8]. Educational screening interventions that offered transportation for participants, experienced a higher retention rate along the course of the programs and encouraged participants to continue learning about early detection and screening practice[8, 9, 16].

Along the lines of financial support, an intervention that co-designed screening education with refugee women from the community compensated women who participated in the design of the program and gift vouchers were offered to women participating in the educational forums[6]. Another culturally tailored patient navigation program worked with participants to resolve insurance issues that may have prevented patients from accessing screening services[16]. Mobile mammograms within a screening program were offered free of charge and eliminated the financial barrier to screening for those patients[1, 9]. International and national agencies for refugee well-being providing the structural and financial support for screening interventions helped those programs eliminate disparities in access to screening services[13, 25]. A study looking at intervention mapping in Lebanon recommended adoption of policy that could protect refugees as they sought cancer screening as a means of shifting the environment of cancer care access for refugee populations overall[25]. These protections can look like offering a way for refugees to access cancer treatment at a reasonable price[25].

### ***Tertiary Care***

There were considerably less interventions focused on tertiary care within the literature. Palliative care, cancer treatment therapies and adherence to treatment were the main focuses within this level of care[10, 22, 23, 24, 25].

#### *Individual*

The singular study that fell under this level discussed using intervention mapping to address the high incidence and prevalence of breast cancer metastasis among Syrian and Iraqi refugees in Beirut, Lebanon[25]. One facet of the intervention plan involved improving health behaviors such as chemotherapy adherence through the use of culturally tailored and comprehensible treatment adherence messaging in video format[25]. This intervention also plans to display messaging in brochures and on billboards to normalize screening and treatment seeking behaviors and empower the target refugee populations to take action[25].

### *Social and Community*

There were no studies in the tertiary level of care that fell under the social and community level of the socioecological model.

### *Institutional and Health System*

Studies within the institutional and health systems level focused on timely diagnosis, patient-doctor relationships, healthcare worker palliative training and palliative care to improve better tertiary cancer care outcomes among Syrian, Rohingya and Iraqi refugees in Jordan, Bangladesh and Lebanon. Indicators for success included improved prognosis due to early stage diagnoses, wider availability of palliative services in refugee contexts and improved end of life care refugee populations.

The importance of timely diagnosis and therapy was emphasized heavily, especially with faster-progressing cancers, such as Retinoblastoma[10].

Patient provider relationships were noted as crucial elements of improving care within the tertiary level[23, 25]. Relationships between patients and providers were especially important in palliative care interventions, where patients often formed strong bonds with their care workers as they navigated the difficulties of chronic disease and refugeedom[23]. Palliative mobile care has taken a step further to support patients and their geographic barriers while also continuing to ease the suffering related to late stage cancer and chronic disease[23].

Along the lines of palliative training for healthcare workers, virtual training has shown promise in improving palliative care shortage and also access to palliative care for vulnerable refugee populations[22]. Integrating palliative services and palliative training programs into provider education across all healthcare levels was emphasized as a critical component of improving access to palliative care services[22, 23].

### *Structural*

Studies emphasized the importance of collaboration of international agencies, such as the UNHCR, and other national structures or agencies to implement large-scale palliative care as well as palliative care training for humanitarian health workers for the betterment of Syrian, Rohingya, Iraqi and Palestinian refugees in Jordan, Lebanon and Bangladesh[22, 23]. On a policy level, intervention plans encourage international bodies like the UNHCR to create and execute policies that would protect the right of refugees accessing cancer screening and treatment in order to further improve outcomes[25]. Additionally, large-scale funding of cancer treatment - from screening and diagnosis to treatment therapy - has shown to lead to lower abandonment of treatment amongst a patient population known to suffer from noncompliance and nonadherence[24]. This is further supported when funding also accounts for relocation of patients, so as not to disrupt the continuity of care[24]. Funding would also support the long-term sustainability of treatment and intervention programs[25].

## **Discussion**

This scoping review sought to identify the existing cancer care interventions for refugee populations across the world and assess the gaps that still exist within cancer care for this population. It identified existing primary, secondary, and tertiary care interventions and applied the socioecological framework to characterize whether they targeted the individual level, social setting and community, institutions and health systems, and the broader structural and contextual levels.

Across primary, secondary and tertiary prevention levels and throughout all the socioecological levels, the importance of culturally tailored patient care was emphasized. Patient navigation and cancer educational programming benefitted the most from being cognizant of the cultural, religious and linguistic backgrounds of refugee patients. This usually helped refugees better understand the importance of cancer prevention and risk mitigating behaviors as well as provide them some guidance in navigating a healthcare system that was often very unfamiliar and thus led to underutilization of resources. Training health providers in trauma-informed care that is also culturally tailored is also factored as a large component in improving patient access to information and cancer care.  Positive outcomes from these interventions included improved knowledge, increased intent to screen and higher rates of screening completion.

Within primary prevention, health awareness and increasing intent to screen were the main outcomes of interest found across most interventions. However, other behavioral changes for other risk factors or risky behaviors associated with various cancers were not common. A prevention on the awareness of betel nut use and its link to oral cancer was particularly successful in improving the awareness of the target population on the risk of betel nut use, the study was limited as it possessed no further programming to actually reduce or interrupt betel nut use[26]. Other lifestyle factors that interventions could have delved into like diet, alcohol consumption, infectious agents or environmental pollutants were also major gaps in the literature. Additionally, research touching on urban and rural environments and investigations into living conditions were missing in regard to other environmental factors that interventions could address to improve cancer prognosis.

Most of the cancers addressed within the review were usually breast, cervical, gastric, Retinoblastoma, oral or otherwise not listed explicitly. There is a crucial need to address cancer care interventions for prostate, colorectal, and lung cancers due to their commonality and the ways in which poor health outcomes associated with these cancers could be exacerbated in refugee contexts. Additionally, cancer care intervention really only focused on refugee women with a few that focused on refugee children. Men were never a subpopulation of focus and were usually included in a few interventions to receive some cancer education to provide support to refugee women - usually in regard to breast and cervical cancer education or screening. Additionally, elderly refugee cancer patients were also scarce as a subpopulation of interest. Both refugee men and refugee elderly patients exist as subpopulation gaps that future interventions may want to address. Men especially suffer from prostate cancer and also play an important role in dismantling stigmas surrounding certain cancer care interventions and thus should be considered in more cancer care intervention development in the future.

Some common elements found across many intervention models that also aided in eliminating barriers to access included provision of transportation to the intervention site, childcare, community collaboration and financial help. Transport and childcare worked hand in hand to give refugee participants - especially refugee women - mobility and time to dedicate to cancer care screening or education. Community involvement in intervention planning added a familiar element and created an environment of support so that refugees were more inclined to trust and participate in interventions. Financial access often looked like help with insurance navigation, compensation for participation in a study, and sometimes structural funding from international or national bodies for large scale intervention implementation.

Mobile screening, virtual education and video-based educational programs were quite common within the literature. These methods of delivering care or cancer education create accessibility for refugees that may not possess the freedom of movement to seek out care. Videos also provide access to information about cancer and cancer care in a format that accounts for lower literacy rates amongst this population.

Interventions within the realm of tertiary care were sparse and this represented a large part of the gap in research within this level of care. There were only two relevant studies on palliative care, one of which spoke on the importance of training health workers in palliative health while the other discussed a mobile palliative unit operating in Jordanian refugee camps. Palliative care is critical within refugee populations as so many refugees present at more advanced stages of cancer. Future interventions would do well to focus on addressing this gap to ensure that refugees are receiving support and comprehensive care at end of life.

Policy interventions to provide healthcare infrastructure, to contribute to funding cancer care interventions on all levels, to improve financial access for treatment based care, to grant political protections for refugees seeking cancer care, or to even implement widespread screening messaging were virtually nonexistent despite their critical importance with regard to cancer care among refugee populations. It is recommended that the UNHCR and other international and national bodies work with healthcare structures to improve refugee cancer care access and disease outcomes. Until large scale shifts in policy occur, many interventions are short-term solutions to a deeply embedded problem of healthcare disparity within refugee contexts.

Ultimately the best interventions are those that can be multifaceted and address multiple barriers within a given program. A breast health knowledge and screening intervention among Palestinian refugee women in Jordan did just that by conveying culturally tailored health information through home visits and also providing select at-risk women free mammography vouchers[13]. By accounting for cultural values in the health messaging, removing geographic access through the home visits and dissolving the financial barrier of screening costs, the intervention was able to successfully improve retention of breast health knowledge, improve self-efficacy and increase screening rates among the participants[13]. Programs that focus on solely one aspect of cancer care such as education are missing the opportunity to leverage that new knowledge to improve health behaviors and thus health outcomes.

Of course this multifaceted approach is not limited to primary prevention interventions. Secondary and tertiary interventions are in need of multiple pronged interventions because they have multiple pronged barriers for refugee populations. It is recommended that policy changes that protect the rights of refugees seeking cancer care are implemented in conjunction with interventions like mobile screening clinics or video based screening education to improve overall screening rates. National and international entities must pour funding into health infrastructure with an emphasis on training healthcare workers in trauma-informed, culturally tailored care models as well as investing into specialized care like palliative services for refugee cancer patients. For health outcomes of refugee oncology patients to improve, there must be movement along all levels of the socioecological model for all levels of prevention.

The strength of this work lies in its comprehensiveness. This review did not place barriers on intervention type, geographic location or refugee population thus allowing for a broad spectrum of interventions conducted across refugee ethnic groups, in and out of camp settings, across gender, age and intervention methods. This vastness in literature is something that will help inform future research and programming on what works and what can be improved upon within the realm of cancer care. The use of the socioecological models helps explore the ways in which the current interventions work to address barriers on all levels and provides a clear guide as to what is missing in current interventions across individual, social and community, institutions and health systems and structural levels.

This work has limitations however. The papers were all in English, thus missing a whole range of cancer care interventions written in other languages. The timeframe was limited between the years 2000-2023 which could have missed important works from prior years. The search term was designed purposefully to accommodate the large scope of this review, but could have still missed some works.

## Conclusion

This study looked to identify current cancer care interventions among global refugee populations. The socioecological model was used to analyze these findings and provide a clear outline of what exists across individual, social and community, institutions and health systems and structural levels and what is still missing. This paper can be used as a starting point to inform and guide future interventions for refugee cancer care across all contexts.

## References

1. Gondek M, Shogan M, Saad-Harfouche FG, et al. Engaging immigrant and refugee women in Breast Health Education. Journal of Cancer Education. 2014;30(3):593-598. doi:10.1007/s13187-014-0751-6
2. Shirazi M, Shirazi A, Bloom J. Developing a Culturally Competent Faith-Based Framework to Promote Breast Cancer Screening Among Afghan Immigrant Women. Journal of Religion and Health. 2013;54(1):153-159. doi:https://doi.org/10.1007/s10943-013-9793-z
3. Watanabe-Galloway S, Alnaji N, Grimm B, Leypoldt M. Cancer community education in Somali refugees in Nebraska. Journal of Community Health. 2018;43(5):929-936. doi:10.1007/s10900-018-0507-z
4. Erenoğlu R, Yaman Sözbir Ş. The effect of health education given to Syrian refugee women in their own language on awareness of breast and cervical cancer, in Turkey: A randomized controlled trial. Journal of Cancer Education. 2019;35(2):241-247. doi:10.1007/s13187-019-01604-4
5. Whalen-Browne M, Talavlikar R, Brown G, et al. Cervical cancer screening by refugee category in a Refugee Health Primary Care Clinic in Calgary, Canada, 2011–2016. Journal of Immigrant and Minority Health. 2022;24(6):1534-1542. doi:10.1007/s10903-022-01345-5
6. Power R, Ussher JM, Hawkey A, et al. Co-designed, culturally tailored cervical screening education with migrant and refugee women in Australia: a feasibility study. BMC Women’s Health. 2022;22(1). doi:https://doi.org/10.1186/s12905-022-01936-2

7. Kamaraju S, Olson J, DeNomie M, et al. Community Breast Health Education for immigrants and refugees: Lessons learned in outreach efforts to reduce cancer disparities. Journal of Cancer Education. 2018;34(6):1092-1096. doi:10.1007/s13187-018-1412-y
8. Lobo SJ, Lin JG, Vais S, et al. Pap smear and Mammogram screening rates in a refugee and general OB/GYN Clinic: A retrospective review. Journal of Immigrant and Minority Health. 2021;24(1):111-117. doi:10.1007/s10903-021-01297-2
9. Kamaraju, S., DeNomie, M., Visotcky, A., Banerjee, A., Krause, K., Tavares, E., Rao, A., Drew, E. M., Neuner, J. M., & Stolley, M. R. (2018). Increasing Mammography Uptake Through Academic-Community Partnerships Targeting Immigrant and Refugee Communities in Milwaukee. WMJ : Official Publication of the State Medical Society of Wisconsin, 117(2), 55–61.
10. Yousef YA, Abu Salim QF, Mohammad M, et al. Presentation and management outcomes of retinoblastoma among Syrian refugees in Jordan. Frontiers in Oncology. 2023;12. doi:10.3389/fonc.2022.1056963
11. Ornelas IJ, Ho K, Jackson JC, et al. Results From a Pilot Video Intervention to Increase Cervical Cancer Screening in Refugee Women. Health Education & Behavior. 2017;45(4):559-568. doi:https://doi.org/10.1177/1090198117742153
12. Schulz TR, McBryde ES, Leder K, Biggs B-A. Using stool antigen to screen for helicobacter pylori in immigrants and refugees from high prevalence countries is relatively cost effective in reducing the burden of gastric cancer and peptic ulceration. PLoS ONE. 2014;9(9). doi:10.1371/journal.pone.0108610

13. Taha H, Nyström L, Al-Qutob R, Berggren V, Esmaily H, Wahlström R. Home visits to improve breast health knowledge and screening practices in a less privileged area in Jordan. BMC Public Health. 2014;14(1). doi:https://doi.org/10.1186/1471-2458-14-428
14. Thiel de Bocanegra H, Goliaei Z, Khan N, Banna S, Behnam R, Mody SK. Refugee women's receptiveness for virtual engagement on reproductive health during the COVID-19 pandemic. International Journal of Behavioral Medicine. 2022. doi:10.1007/s12529-022-10097-3
15. Percac-Lima, S., Ashburner, J. M., Bond, B., Oo, S. A., & Atlas, S. J. (2013). Decreasing disparities in breast cancer screening in refugee women using culturally tailored patient navigation. Journal of general internal medicine, 28(11), 1463–1468. https://doi.org/10.1007/s11606-013-2491-4
16. Percac-Lima S, Ashburner JM, Bond B, Oo SA, Atlas SJ. Decreasing Disparities in Breast Cancer Screening in Refugee Women Using Culturally Tailored Patient Navigation. Journal of General Internal Medicine. 2013;28(11):1463-1468. doi:https://doi.org/10.1007/s11606-013-2491-4
17. Parajuli J, Horey D, Avgoulas M. Best practice models recommended by Bhutanese refugee women for cervical and breast cancer screening in Australia: A qualitative study. Ireland S, ed. Health Promotion Journal of Australia. Published online January 2020. doi:https://doi.org/10.1002/hpja.315
18. Zhang Y, Ornelas IJ, Do HH, Magarati M, Jackson JC, Taylor VM. Provider perspectives on promoting cervical cancer screening among refugee women. Journal of Community Health. 2016;42(3):583-590. doi:10.1007/s10900-016-0292-5

19. Racine L, D'Souza MS, Tinampay C. Effectiveness of breast cancer screening interventions in improving screening rates and preventive activities in Muslim refugee and immigrant women: A systematic review and meta-analysis. Journal of Nursing Scholarship. 2022;55(1):329-344. doi:10.1111/jnu.12818
20. Rodriguez-Torres SA, McCarthy AM, He W, Ashburner JM, Percac-Lima S. Long-term impact of a culturally tailored patient navigation program on disparities in breast cancer screening in Refugee Women after the program's end. Health Equity. 2019;3(1):205-210. doi:10.1089/heq.2018.0104
21. Gil S, Hooke MC, Niess D. The Limited English Proficiency Patient Family Advocate Role. Journal of Pediatric Oncology Nursing. 2015;33(3):190-198. doi:https://doi.org/10.1177/1043454215611082
22. Doherty M, Lynch-Godrei A, Azad T, et al. Using virtual learning to develop palliative care skills among humanitarian health workers in the Rohingya refugee response in Bangladesh. Journal of Medical Education and Curricular Development. 2022;9:238212052210960. doi:10.1177/23821205221096099
23. Pinheiro I, Jaff D. The role of palliative care in addressing the health needs of Syrian refugees in Jordan. Medicine, Conflict and Survival. 2018;34(1):19-38. doi:10.1080/13623699.2018.1437966
24. Saab R, Jeha S, Khalifeh H, et al. Displaced children with cancer in Lebanon: A sustained response to an unprecedented crisis. Cancer. 2018;124(7):1464-1472. doi:10.1002/cncr.31273
25. Sacca L, Markham C, Fares J. Using Intervention Mapping to Develop Health Education and Health Policy Components to Increase Breast Cancer Screening and Chemotherapy

Adherence Among Syrian and Iraqi Refugee Women in Beirut, Lebanon. Frontiers in Public Health. 2020;8. doi:https://doi.org/10.3389/fpubh.2020.00101

26. Shi LL, Bradford E, Depalo DE, Chen AY. Betel Quid Use and Oral Cancer in a High-Risk Refugee Community in the USA: The Effectiveness of an Awareness Initiative. Journal of Cancer Education. 2017;34(2):309-314. doi:https://doi.org/10.1007/s13187-017-1303-7
27. Tirado V, Chu J, Hanson C, Ekström AM, Kågesten A. Barriers and facilitators for the sexual and reproductive health and rights of young people in refugee contexts globally: A scoping review. Todd CS, ed. PLOS ONE. 2020;15(7):e0236316. doi:https://doi.org/10.1371/journal.pone.0236316
28. Non communicable diseases. www.who.int. https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases#:~:text=Risk%20factors
29. Global Initiative for Cancer Registries (GICR). UICC. Published 2022. https://www.uicc.org/who-we-work/networks/global-initiative-cancer-registries-gicr
30. Bray F, Laversanne M, Weiderpass E, Soerjomataram I. The ever-increasing importance of cancer as a leading cause of premature death worldwide. Cancer. 2021;127(16). doi:https://doi.org/10.1002/cncr.33587
31. Estimated Number of New Cancer Cases by World Area, 2018*.; 2018. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/global-cancer-facts-and-figures/global-cancer-facts-and-figures-4th-edition.pdf
32. Shah SC, Kayamba V, Peek RM, Heimburger D. Cancer Control in Low- and Middle-Income Countries: Is It Time to Consider Screening? Journal of Global Oncology. 2019;5(5):1-8. doi:https://doi.org/10.1200/jgo.18.00200

33. UNHCR. Global Trends Report 2021. UNHCR. Published 2021. https://www.unhcr.org/62a9d1494/global-trends-report-2021

34. Walker PF, Settgast A, DeSilva MB. Cancer Screening in Refugees and Immigrants: A Global Perspective. The American Journal of Tropical Medicine and Hygiene. Published online May 9, 2022. doi:https://doi.org/10.4269/ajtmh.21-0692

**Tables and Figures**

*Table 1. Participants, Interventions, Comparators, Outcomes (PICO) Table*

| | **Inclusion Criteria** | **Exclusion Criteria** |
|---|---|---|
| **Population** | Adults, adolescents, and children in global refugee populations within camps and resettled communities | Migrants without 'refugee' status, country citizens |
| **Intervention** | Existing primary/secondary/tertiary cancer interventions in refugee contexts | Other noncommunicable diseases and their interventions |
| **Comparison** | NA | NA |
| **Outcome** | Access to and outcomes of cancer care | NA |
| **Type of Study** | All | NA |
| **Human and/or Animal Studies** | Human | Animal |
| **Publication Type** | Peer-reviewed literature | Gray literature and conference proceedings |
| **Publication Years** | January 2000 to January 2023 | Years <2000 |

| | | |
|---|---|---|
| **Language(s)** | English | Non-English |

*Table 2. Primary prevention interventions for cancer among refugee populations by levels of the socioecological model*

| | Study | Population | Country | Cancer Type | Intervention |
|---|---|---|---|---|---|
| **Individual** | 2, 6, 11, 14, 18, 19, 26 | Afghan, North/East/West African, Iraqi, Karen-Burmese, Nepali-Bhutanese, Syrian, Somali, South/Southeast Asian refugees | United States, Australia | Breast, Cervical, Oral | Education, Awareness |
| **Social Setting and Community** | 2, 3, 6, 7, 9, 16, 19 | Afghan, North/East/West African, Turkish, Albanian, Nigerian, Palestinian, and Somali refugees | United States, Australia | Breast, Cervical | Education, Awareness |
| **Institutions and Health Systems** | 2, 6, 13, 16, 21 | Afghan, Somalian, Palestinian and Bosnian refugees | United States, Jordan | Breast, Cervical | Education, Awareness, Patient Navigation |
| **Structural** | 3, 6, 9, 16, | Somali, Albanian, Palestinian and Bosnian refugees | United States, Jordan | Breast, Cervical | Education, Awareness, Patient Navigation |

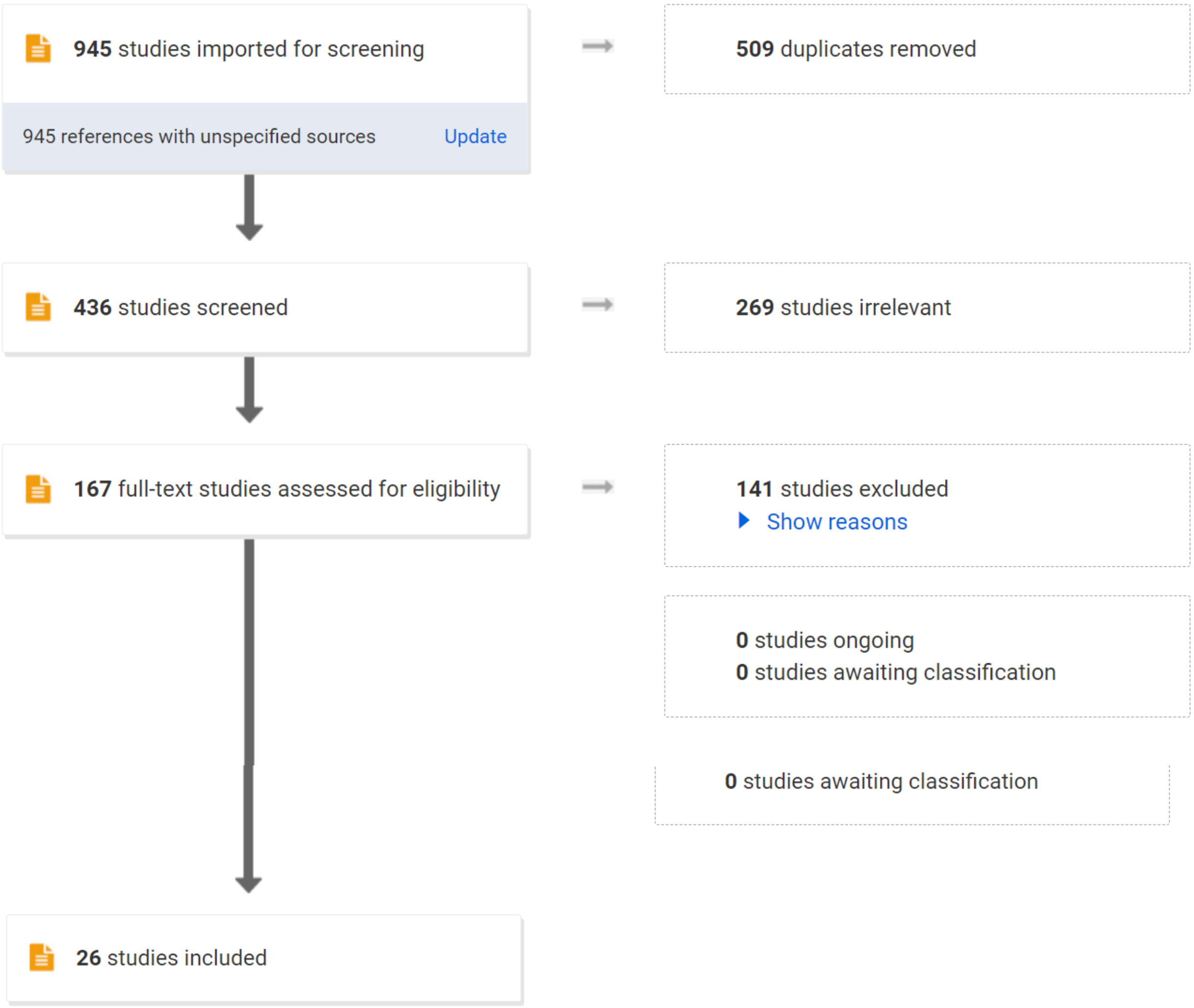
*Table 3. Secondary Prevention Matrix*

| | **Study** | **Population** | **Country** | **Cancer Type** | **Intervention** |
|---|---|---|---|---|---|
| **Individual** | 1, 2, 6, 7, 8, 9, 11, 13, 16, 18, 25 | Afghan, Burmese, Karen-Burmese, Thai, Nepali, Nepali-Bhutanese, North/East/West African, Middle Eastern, Spanish and Latin American refugees | US, Australia, Jordan and Lebanon | Breast, Cervical | Screening Education, Patient Navigation, Screening Services |
| **Social Setting and Community** | 2, 6, 7, 9, 17 | Afghan, Albanian, Turkish, Somali, Nigerian, Palestinian and Bhutanese refugees | US, Australia | Breast, Cervical | Screening Education, Patient Navigation, Screening Services |
| **Institutions and Health Systems** | 1, 5, 6, 7, 9, 12, 13, 15, 16, 17, 18, 20 | Middle Eastern, Burmese, Thai, Bhutanese, Spanish, Latin/Central American, North/East/West African, Afghani, Bosnian, Albanian, and Turkish refugees | US, Canada, Australia, Jordan | Breast, Cervical, Gastric | Screening Education, Patient Navigation, Screening Services, Health Worker Training |
| **Structural** | 1, 8, 9, 13, 16, 25 | Middle Eastern, Burmese, Thai, Spanish, Latin/Central American, North/East/West African, Bosnian, and Albanian refugees | US, Australia, Lebanon | Breast, Cervical | Transportation, Financial Support, Screening Education, Screening Services, Policy Recommendations, Mobile Screening Services |

*Table 4: Tertiary Prevention Matrix*

| | **Study** | **Population** | **Country** | **Cancer Type** | **Intervention** |
|---|---|---|---|---|---|
| **Individual** | 25 | Syrian and Iraqi refugees | Lebanon | NA | Treatment Adherence Education |
| **Social Setting and Community** | NA | NA | NA | NA | NA |
| **Institutions and Health Systems** | 10, 22, 23, 25 | Syrian, Rohingya and Iraqi refugees | Jordan, Bangladesh, Lebanon | NA | Palliative Care, Palliative Care Training, Timely Diagnosis |
| **Structural** | 22, 23, 24, 25 | Syrian, Rohingya, Iraqi and Palestinian refugees | Jordan, Bangladesh, Lebanon | NA | Palliative Care, International/National Agency Funding, Refugee Legal Protections |

*Figure 1. Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Study Flow Chart*



**945** studies imported for screening

945 references with unspecified sources

**509** duplicates removed

**436** studies screened

**269** studies irrelevant

**167** full-text studies assessed for eligibility

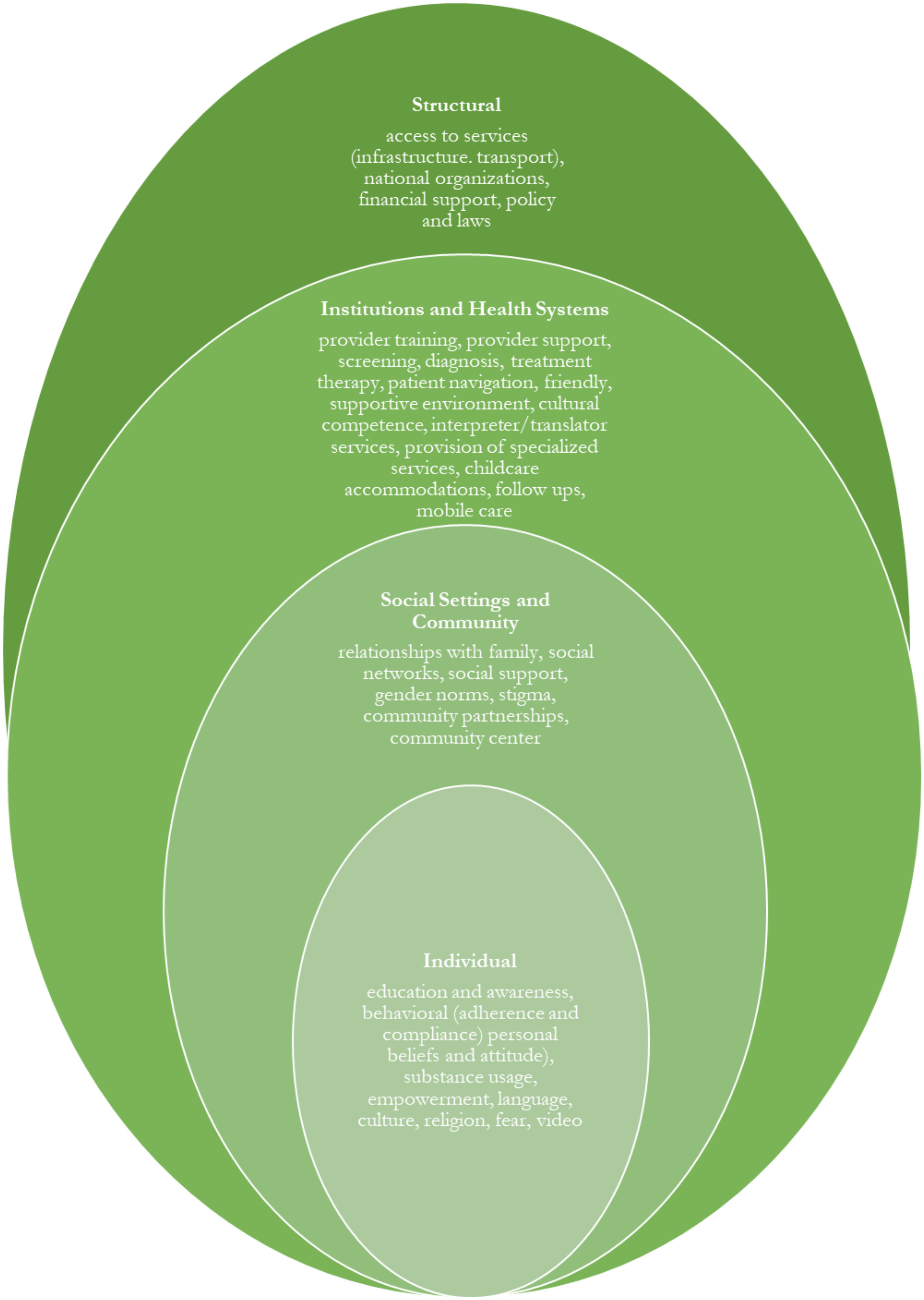
**141** studies excluded

**0** studies ongoing
**0** studies awaiting classification

**0** studies awaiting classification

**26** studies included

*Figure 2. Types of cancer care intervention in refugee populations by levels of the socioecological model*



# Chapter 4: Discussion and Recommendations

## Discussion

The objective of this scoping review was to identify the current cancer care interventions available to refugee populations worldwide and evaluate the remaining gaps in cancer care for this population. To achieve this, the scoping review utilized the socio ecological model framework to examine primary, secondary, and tertiary interventions aimed at addressing cancer barriers across various levels, including individual, social and community, institutions and health systems, and structural levels.

The significance of culturally appropriate patient care was highlighted across all levels of prevention, including primary, secondary, and tertiary, as well as across all socioecological levels. Patient navigation and cancer education programs were the most beneficial when tailored to the cultural, religious, and linguistic backgrounds of refugee patients. This approach aided in improving refugees' understanding of the importance of cancer prevention and risk-reducing behaviors and assisted them in navigating an unfamiliar healthcare system that often resulted in underutilization of resources. Another critical aspect of enhancing patient access to information and cancer care was training healthcare providers in trauma-informed care that is culturally sensitive. The positive outcomes of these interventions included improved knowledge, increased intention to screen, and higher rates of screening completion.

In primary prevention, the primary outcomes that were focused on in most interventions were health awareness and the intent to undergo cancer screening. However, interventions targeting behavioral changes for other risk factors or risky behaviors associated with various cancers were not widely implemented. A successful prevention program centered on raising awareness about the link between betel nut use and oral cancer was found to significantly improve the awareness of the targeted population regarding the risks associated with betel nut use[2]. However, the program lacked additional measures to reduce or interrupt the use of betel nut[2]. The literature revealed major gaps in the literature on interventions investigating other lifestyle factors associated with cancer risk such as diet, alcohol consumption, infectious agents, or environmental pollutants. Furthermore, research pertaining to urban and rural environments, as well as their respective living conditions, was absent in regards to other environmental factors that interventions could have addressed to improve cancer prognosis.

The majority of the cancers addressed in the review pertained to breast, cervical, gastric, Retinoblastoma, oral, or unspecified types. However, it is imperative to address cancer care interventions for common cancers such as prostate, colorectal, and lung cancers in refugee settings, as poor health outcomes associated with these cancers may be exacerbated. Furthermore, cancer care interventions primarily focused on refugee women, with only a few interventions geared towards refugee children as well. Men were rarely a subpopulation of focus and were typically included in breast and cervical cancer education or screening interventions to provide support for refugee women . Moreover, elderly refugee cancer patients were seldom considered a subpopulation of interest.

Many interventions shared common strategies that helped to remove barriers to accessing cancer care. These included providing transportation to the intervention site, childcare services, fostering community collaboration, and offering financial assistance. Transportation and childcare support were especially beneficial to refugee women by providing them with the necessary mobility and time to participate in cancer screening and education programs. Involving the community in intervention planning helped create a supportive environment and build trust with refugee participants. Financial assistance often took the form of aiding in insurance navigation, compensating participants for their involvement in the study, or receiving funding from international or national organizations to support large-scale implementation of interventions.

The literature frequently discussed the use of mobile screening, virtual education, and video-based educational programs as means of providing care or cancer education to refugees. Such interventions improve accessibility for individuals who may not have the freedom to travel for care. Moreover, video-based education was an effective tool for delivering information about cancer and cancer care to refugees with low literacy rates.

There was a significant gap in research in the area of tertiary care interventions, particularly with respect to palliative care. Only two relevant studies were found, one emphasizing the need to train health workers in palliative care, while the other described a mobile palliative unit serving refugees in Jordanian camps. Palliative care is crucial for refugee populations, given the high incidence of advanced-stage cancer presentations.

There was a significant gap in policy interventions that could contribute to improving cancer care among refugee populations, including the provision of healthcare infrastructure, funding for cancer care interventions, financial access to treatment-based care, political protections for refugees seeking cancer care, and widespread screening messaging. Despite their critical importance, these policy interventions were virtually nonexistent in the literature. It is recommended that international and national bodies, such as the UNHCR, work with healthcare structures to improve cancer care access and disease outcomes for refugees. Until large-scale policy shifts occur, many interventions may only provide short-term solutions to the deeply embedded problem of healthcare disparity within refugee contexts.

Ultimately the best interventions are those that can be multifaceted and address multiple barriers within a given program. A breast health knowledge and screening intervention among Palestinian refugee women in Jordan did just that by conveying culturally tailored health information through home visits and also providing select at-risk women free mammography vouchers [1]. By accounting for cultural values in the health messaging, removing geographic access through the home visits and dissolving the financial barrier of screening costs, the intervention was able to successfully improve retention of breast health knowledge, improve self-efficacy and increase screening rates among the participants[1]. Programs that focus on solely one aspect of cancer care such as education are missing the opportunity to leverage that new knowledge to improve health behaviors and thus health outcomes.

The need for a multifaceted approach is not limited to primary prevention interventions, as secondary and tertiary interventions also require multiple strategies due to the various barriers faced by refugee populations.

The strength of this review is its comprehensive approach, which did not limit interventions by type, location, or refugee population, resulting in a broad range of interventions studied across various factors such as ethnicity, gender, age, and intervention methods. This breadth of literature will provide valuable insights for future research and programming in the field of cancer care for refugees. Additionally, the use of the socioecological model helped to identify gaps in current interventions and guide future improvements across multiple levels, including individual, social and community, institutions and health systems, and structural levels.

However, this review has some limitations. Firstly, the papers were all in English, which may have excluded relevant interventions reported in other languages. The time frame was also limited to 2000-2023, which may have overlooked important works from earlier years.

Additionally, while the search term was designed to be comprehensive, there is a possibility that some relevant works may have been missed.

## Recommendations

This paper serves as a valuable resource for informing and guiding future interventions in refugee cancer care across various contexts.

Interventions would do well to expand upon the limited tertiary care options for refugee populations. Palliative care is critical in refugee contexts as they present at later stages of cancer. Additionally, chemotherapy, radiotherapy and treatment-based interventions face financial, logistic and political barriers. Future interventions should prioritize addressing this gap to ensure that refugees receive the necessary support and comprehensive care at the end of life.
Policies that would protect the right for refugees to seek this care under international and national policy would be a major facilitator in improving access and care outcomes.

It is recommended that policy changes be made to protect the rights of refugees seeking cancer care, in addition to implementing interventions such as mobile screening clinics and video-based education to improve screening rates. Funding should be directed towards health infrastructure, with an emphasis on training healthcare workers in trauma-informed and culturally sensitive care models. Investment into specialized care, such as palliative services, is also necessary for the improvement of health outcomes for refugee oncology patients. To achieve this, action must be taken across all levels of the socioecological model, for all levels of prevention.

Future interventions should address the gaps in subpopulation focus and include refugee men and elderly patients. Men, in particular, are susceptible to prostate cancer and play a vital role in eliminating stigmas associated with certain cancer care interventions, making it imperative for future cancer care interventions to target them. Additionally, investigating other cancers, especially colorectal, prostate and lung cancer, is essential to develop a wider range of interventions for the various kinds of cancer burdens that may exist in refugee populations.

It is also crucial that interventions continue to use the principles of community-based participatory research to inform the design of interventions. This ensures that interventions are culturally tailored and are specialized to fit specific community needs. Maintaining prioritization of faith, culture and linguistic access is crucial across all levels of care. In addition, finding ways to incorporate faith-based frameworks would also complement the cultural tailoring of intervention messaging and implementation even further.

Interventions should not shy away from tapping into social networks and using community as a means of promoting health seeking behaviors with regard to cancer care. Depending on the refugee community, collectivism is definitely something that future program planners and researchers should incorporate into interventions. This could look like group based screening, community health workshops designed to dismantle or address stigma, or even support groups for post treatment patients who would like to speak about their experiences among familiar faces.

As mentioned before, interventions of any kind targeting refugee populations need to be multipronged in order to address the numerous barriers that prevent favorable health outcomes for refugees with cancer.

## References

1. Taha H, Nyström L, Al-Qutob R, Berggren V, Esmaily H, Wahlström R. Home visits to improve breast health knowledge and screening practices in a less privileged area in Jordan. BMC Public Health. 2014;14(1). doi:https://doi.org/10.1186/1471-2458-14-428
2. Shi LL, Bradford E, Depalo DE, Chen AY. Betel Quid Use and Oral Cancer in a High-Risk Refugee Community in the USA: The Effectiveness of an Awareness Initiative. Journal of Cancer Education. 2017;34(2):309-314. doi:https://doi.org/10.1007/s13187-017-1303-7

# Appendix

## *Extraction Matrix*

| Study | Study Location+Refugee Population | Sub-Population | Prevention Level | Issue in Cancer Care Being Addressed | Intervention/Study Design | Main Findings |
|---|---|---|---|---|---|---|
| Engaging Immigrant and Refugee Women in Breast Health Education. | Refugee women (broad) + Buffalo, NY | Women | Secondary prevention | Health Literacy | BC Health Education Program/Project Assessment | The Burmese/Thai not only represent the largest increase in knowledge (baseline <20 % correct) but also demonstrated the highest percentage of women completing mammograms after the sessions. In Thailand and Burma, families and villages are linked through matriarchal ties and include traditional practices such as men moving into their wife's parents' households until the couple is economically independent. The Burmese/Thai experience contrasts with women from Middle Eastern countries (e.g., Yemen, Iraq, Iran, Afghanistan, and Lebanon) who were less likely to obtain mammograms following the educational program. This low screening response may be reflective of a patriarchal family structure among Muslim and Middle Eastern cultures in which women rely on their husbands or male relatives for decision-making regarding medical care and/or women subordinating their individual health needs to family needs [2]. This suggests that additional educational tailoring or program design revisions may be important for addressing the needs, understanding, and cultural values of women emigrating from the Middle East. Acculturation, based on time in the USA, has been associated with increased rates of preventive care and screening [20]. We observed this as well as program participants who reported having been in the USA for >5 years were more likely to be up-to-date with mammograms and CBE than women in the USA for shorter times.<br>Access to the mobile mammography unit appeared to increase accessibility to breast screening services and was used by 60 % of women who reported completing mammograms. Moreover, the program appeared to be successful in motivating 20 of 58 women who were never previously screened to complete this screening. |
| Developing a culturally competent faith-based framework to promote breast cancer screening among Afghan immigrant women. | Afghan refugees+Northern Californa, US | Women | Primary and secondary prevention | Barriers to screening | culturally appropriate, faith-based (CBPR) intervention program (plan) | In 2007, with funding from University of California's Breast Cancer Research Program, the **authors conducted a pilot study known as "Breast Health Behaviors of Afghan Immigrant Women in Northern California." This study provided a preliminary understanding of how Afghan women in Northern California view their breast health**. The specific aims of the study were: (1) to identify what Afghan community members believe to be their greatest concerns and barriers to breast health care, including both cultural and religious attitudes that may facilitate or hinder their seeking care; and (2) to identify the women's knowledge about and attitudes toward breast health care. Using **Community Based Participatory Research (CBPR), the researchers worked collaboratively with Afghan community members to frame the inquiry and distill the information gathered.** Study **results indicated a very low level of knowledge about breast cancer in this group, low screening rates, and a lack of awareness of symptoms, risk factors, and screening procedures. Major barriers to screening included: an absence of culturally and linguistically appropriate breast health education information and programs, language difficulties, lack of transportation, low health literacy, embarrassment and modesty**. In-depth interviews **also highlighted the centrality of spiritual and Islamic beliefs in the lives of Afghan women.** The pilot study's results produced the **following recommendations: (1) Training of "grass roots" bilingual members of the community in all aspects of the program including planning, design, implementation, and evaluation; (2) incorporation of male-specific educational sessions led by male health advisors; (3) use of narrative communication consistent with the Afghan oral culture where storytelling is used to relate information and cultural/religious values; and (4) inclusion of Islamic faith components that are inspirational and relevant to the lives of the women and their male gatekeepers (e.g. husbands, brothers) and that will influence these men to understand the women's needs and support them.** |
| Cancer Community Education in Somali Refugees in Nebraska. | Somali Refugees+Nebraska, US | Women | Primary prevention | Health literacy | education program conducted through a collaboration among public health, academia, and community entities | Five Somali women attended the focus group. Fifty-two people attended the educational session. The majority were of Somali ethnicity (94%) and between the ages of 31–40 years old The participants were from different literacy levels, with 21% having no formal schooling and (38%) having a middle school education. **Topics that resonated with the audience the most included cervical cancer screening and the high rate of cervical cancer in Somalia.** Although none of the interviewees reported to her health provider for cancer screening after the sessions, t**hey all expressed that the session motivated them to talk to their health provider about cancer screening**. T**he literacy level of the educational material was thought to be appropriate to most women.** One younger woman stated that she was familiar with most of the information provided, but it was interesting to hear it in her local language. Somali women mostly liked that the education was done in their language and at their community center |
| The Effect of Health Education Given to Syrian Refugee Women in Their Own Language on Awareness of Breast and Cervical Cancer, in Turkey: a Randomized Controlled Trial | Syrian refugees + Turkey | Women | Primary and secondary prevention | Health Literacy | Health education/Randomized Control Trial | The first reason for the effective results in our study is that women were educated in their own language. The second reason is that more than one education method/tool were used in this study. In fact, it has been shown that educational materials such as videos and brochures used during theoretical health education increase the ability to perform breast self-examination and increase the frequency of Pap smear testing [17]. Also, in our study, it was observed that the awareness of women in the control group towards breast and cervical cancer was slightly increased. This result was thought to be due to the fact that the women included in the study were refugee women living in the same region and that the women in the experimental group might have shared the information they learned with the control group. |
| Cervical Cancer Screening by Refugee Category in a Refugee Health Primary Care Clinic in Calgary, Canada, 2011-2016 | Refugee women (broad)+Calgary, Canada | Women; govt assisted refugees; privately sponsored refugees | Primary and secondary prevention | Low screening rates | specialized interdsicplinary refugee clinic/retrospective cohort study | The objective of our study was to determine how many eligible patients were offered, and subsequently received CCS, and whether this was impacted by refugee category during a time of cuts to health care coverage for refugees. We found that most eligible refugee patients were routinely both offered (88%) and received (77%) CCS at a dedicated interdisciplinary refugee primary care clinic. Unadjusted results suggested that claimants were offered screening less frequently than PSRs or GARs. However, after adjusting for factors known to influence CCS rates, the analysis revealed no significant difference in screening test offers between refugee categories. With regards to completion rates, PSRs had increased odds (1.6, 95% CI 1.02–2.49) of completing CCS compared with GARs, with no difference for claimants. No cases of cervical cancer were identified in our study, however those with low- or high-grade findings would have been flagged for further follow up appropriate to their result. These findings suggest that despite uncertainty for both patients and providers due to limitations to the IFHP, refugee claimants still had access to effective CCS at a dedicated refugee clinic. Our results also suggest that a dedicated interdisciplinary refugee clinic achieves high CCS rates, with a seemingly higher CCS completion rate higher than both the Alberta provincial average from 2011 to 2016 (67%) as well as WHO's 70% screening target for all women by 2030 [5, 34, 35]. High CCS rates have also been reported at specialized refugee clinics in Toronto and Philadelphia [16, 27, 36, 37], suggesting that despite known barriers to care for refugees, dedicated interdisciplinary refugee clinics can provide effective screening in a traditionally underserved population. |
| Co-designed, culturally tailored cervical screening education with migrant and refugee women in Australia: a feasibility study. | Refugee women (broad) + Australia | Women | Primary prevention | Health Literacy | Co-designed, culturally tailored screening education/non-randomized feasibility study | The co-design and co-delivery of cervical screening health promotion forums was time and resource intensive however allowed for deeper cultural tailoring resulting in engagement with 'hard to reach' culturally and linguistically diverse (CALD) women, improved health literacy and intention to screen. Flexibility in the intervention implementation was crucial to ensure forums were responsive to community interests and needs. Online delivery of the forums in response to the COVID-19 pandemic was acceptable to most groups. Women described the forums as "fun", "empowering", "effective" and "informative". Women's enjoyment of the forums was evident in their engagement during the sessions. Participants reported that the content and delivery format of the forums resulted in them learning "a lot of new things" and that "now I'm aware to do something, you know? That's why for me it was very inspiring" [West African, young women's group]. One participant told us how she found the content of the forums to be accessible; "you simplify the words...it is very complicated, but then the way you've delivered the session with the simple way and the translation way, because [of this] it was very straightforward...I understood it properly" [Middle Eastern group].Women's engagement with the forum content extended beyond the immediate forum, with many saying that they felt enlightened and empowered to now "spread the awareness" and "pass the message around". This included telling family and friends "you need to go to see your doctor to do this test" [West African, young women's group], "you need to get tested regularly to prevent cancer" and that "there is a vaccine to prevent the virus, HPV" [Multiethnic African group].When asked about their intention to have a cervical screening test in the future, 36 (92%) of women said that they intended to have the test, up from 32 (82%) at the beginning of the forums (Table 4). Only one woman said that she would not have a cervical screening test in the future, however, clarified that she was now aware that she was not eligible for the test due to absence of a cervix. |
| Community Breast Health Education for Immigrants and Refugees: Lessons Learned in Outreach Efforts to Reduce Cancer Disparities. | Refugees (broad) +Milwaukee, Wisconsin | Women | Primary and secondary prevention | Health Literacy | breast health education workshops+breast health education and clinical breast examinations | Acceptance and uptake of breast health education workshop materials was strongly bolstered by support from respected leaders within communities. Early identification of organizational representatives who can advocate for program participation, establish trust with health educators, and encourage adherence to recommendation is vital to program success. Stakeholder involvement and commitment of leadership teams from all sectors will be of utmost importance in helping communities with multiple barriers to health care. Support for community-academic partnerships with faith-based centers is evidenced by the deep commitment to health education as well as many cancer awareness programs in the city of Milwaukee. Continued engagement is critical to maintain the trust and relationships established during breast health education workshops. This program focused not only on breast health education, but also covered other disparities within immigrant and refugee communities such as: obesity, physical inactivity, low rates of cancer screening of all types, and lack of routine health care. Program participants expressed interest in expanding their knowledge to other health conditions in future interventions. Rates of colonoscopy and pap smears are exceptionally low in these communities, and we have created a promising opportunity to expand our breast health model into these topic areas. Planning for cost-effective, sustainable interventions remains a ubiquitous challenge across research efforts; however, continued conversations and workshops are necessary to leverage the existing trust built around breast health education to other cancer disparities and health issues. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Pap Smear and Mammogram Screening Rates in a Refugee and General OB/GYN Clinic: A Retrospective Review | Refugee (broad) +Boston, Massachussetts | NA | Secondary prevention | Low pap smear and mammography rates | retrospective chart review+refugee services at a refugee womens health clinic(trauma informed care) | This study suggests that patients seen at the RWHC had significantly higher pap smear screening rates than patients from the general YACC (90.60%, vs 73.83%, p < 0.009). Additionally, the RWHC patients had a higher rate of cervical cancer screening than the United States rate (81.1%) (calculated from women 21–65 years, from 1987 to 2018) [40]. It suggests that the focus on trauma-informed care and provision of resources to help address barriers to care may play a role in pap smear screening rates. The positive pap smear results are consistent with those in Wiedmeyer et al.'s study, suggesting that tailoring services to refugees' unique needs can improve pap smear screening rates. RWHC patients still had higher rates of pap smears than general YACC patients. This may be due to the RWHC's providers' focus on trauma-informed care [41]. Trauma-informed care principles include: patient empowerment, letting patients choose their treatment options, provider/patient collaboration, care settings and activities focused on ensuring patients physical and emotional safety, and clear patient expectations about what a proposed treatment entails and who will provide those services. In order to facilitate such trauma-informed care, RWHC annual visits are longer than general YACC visits (40 vs 30 min for new patients) and patients are offered the option of completing history-taking during the first visit and their pap smear during a later return visit. Additionally, RWHC patients with multiple visits typically see the same provider each time (continuity that can be challenging in the YACC due to high patient volume). All RWHC providers are also well-versed in assessing and caring for patients with female genital cutting, a condition associated with a lower likelihood of seeking OB/GYN care. BMC's vast interpreter service network likely empowered patients and helped them communicate more effectively with their provider. Additionally, during the study period, the RWHC offered free UberHealth rides to any patient coming to the clinic for gynecologic care, decreasing no-show rates for patients with transportation concerns. Finally, RWHC providers and staff closely monitored when established patients were due for screening visits. When such screenings neared, the RWHC scheduler reached out to the patient by phone, calling multiple times if needed and with an interpreter as needed, to remind them of the appointment and try to schedule a visit. |
| Increasing Mammography Uptake Through Academic-Community Partnerships Targeting Immigrant and Refugee Communities in Milwaukee | Refugees (broad) +Milwaukee, Wisconsin | NA | Primary+Secondary prevention | Low mammography rates | culturally tailored breast health education+mobile screening unit | Our pilot initiative demonstrates the effectiveness of a culturally tailored community-academic partnership in facilitating the delivery of a comprehensive breast health education and screening program for culturally diverse women of southeastern Wisconsin. Despite the ethnic diversity of our sample, participants expressed similar concerns and perceptions regarding screening mammography including access, transportation challenges, busy schedules, fear of disease, and difficulties in language proficiency and scheduling a mammogram. Breast health education workshops, navigation, and access to screening provided at trusted faith- or community-based organizations by culturally and linguistically relevant community health workers contributed to increased mammography uptake in both insured and uninsured women. Mobile mammography was critical to improving access to screening among participants.Mammography was a top priority for this intervention; however, education, clinical breast examinations, and culturally appropriate support were seen as pathways to promoting future screening adherence. Our breast health education workshops targeted underserved women from minority, immigrant, and refugee communities. In addition, trusted and culturally acceptable navigators and community health workers served as liaisons to assist women in overcomingbarriers to attendance such as fear of spousal disapproval, language barriers, and transportation difficulties. Translators also played a key role in facilitating women's participation. Overall satisfaction was high and participants valued the group learning opportunity. In addition to facilitating initial workshops and screening access, our community-academic partnership is playing a key role in sustaining these efforts. Participating organizations continue to provide messaging around the importance of breast health knowledge and adherence to regular screening recommendations on an ongoing basis. |
| Presentation and management outcomes of Retinoblastoma among Syrian refugees in Jordan | Syrian refugees+Jordan | those with Rb | Secondary prevention | Lack of timely screening and diagnosis | Timely screening+diagnosis+conservative therapy/retrospective comparative study | Furthermore, the increased awareness of the disease, easy accessibility to health care, and the presence of the screening program for Rb in Jordan contributed to the difference in the promptness of diagnosis and starting treatment among Jordanian patients (29). For example, five Jordanian patients in this series were diagnosed by screening, compared to only a single refugee patient who had a parent and sister diagnosed with bilateral Rb. The signs and symptoms of Rb depend on its size and location. |
| Results From a Pilot Video Intervention to Increase Cervical Cancer Screening in Refugee Women. | Karen-Burmese and Nepali-Bhutanese refugees+US | Women | Secondary prevention | Low screening rates | entertainment-education (narrative-based) video/behavioral model for vulnerable populations/qualitative survey | Our study was the first to evaluate the acceptability and efficacy of a video intervention to increase cervical cancer–related knowledge and screening intentions among Karen-Burmese and Nepali-Bhutanese refugee women. We found that women were more likely to report having heard of a test for cervical cancer after watching the video, and they indicated greater intentions to be screened. Their knowledge about cervical cancer and screening improved, and they reported high levels of acceptability for the video. Our findings suggest that educational videos may be an effective tool for promoting cervical cancer screening among refugee women. The videos we developed used a narrative approach in an effort to culturally tailor the content to the populations we were trying to reach. Examples of tailoring in our videos included making videos in their preferred language, using images from the refugees' country of origin, using characters across generations, and incorporating cultural traditions into the story. Theory suggests that cultural tailoring makes health education more effective because it helps overcome resistance to cancer screening and facilitates the processing of new information about cancer prevention. Women's survey responses about the video indicated that they identified with the characters portrayed and that the video accurately portrayed women from their community. Therefore, our findings provide support for previous studies showing that narrative approaches may be more effective than other approaches in reaching immigrant and racial/ethnic minority women. Our findings also suggest that women would be comfortable watching the video in a variety of settings and modalities. For example, all women agreed that the video should be shown by refugee resettlement organizations and community organizations. Almost all reported that it should be used during clinic visits and they would be comfortable watching the video on their mobile phone. Women also expressed they would be comfortable watching the video in groups. Our previous research with health and social service providers serving refugee populations suggested that cervical cancer screening information should be offered early and often during the resettlement period. Frequent and consistent messaging using a variety of modalities may help ensure that women receive pertinent health information during a time of many competing priorities. Women who have already been screened may still benefit from watching the video given that there are often misconceptions about screening in refugee populations, as well as the fact that all women in our study reported learning something new. |
| Using stool antigen to screen for Helicobacter pylori in immigrants and refugees from high prevalence countries is relatively cost effective in reducing the burden of gastric cancer and peptic ulceration. | Refugees (broad) +worldwide | Refugees who have or are at risk for H. pylori | Secondary prevention | Financial barriers/low screening | Screening and treatment of H. pylori /empiric treatment approach | Stool antigen testing with repeat testing after treatment was the most cost effective approach relative to others, for each prevalence value. The net cost per cancer prevented with this strategy was US$111,800 (assuming 75% prevalence), $132,300 (50%) and $193,900 (25%). A test and treat strategy using stool antigen remained relatively cost effective, even when the prevalence was 25%.In particular, the use of a cheap and easily available stool antigen test has the potential to significantly lower the overall costs of screening, and deserves consideration in populations with high prevalence's of H. pylori. Notably the number of cancers and ulcers prevented is similar with stool antigen testing and retesting, breath test and retesting or any strategy involving gastroscopy and retesting. This indicates that the additional cost of more expensive screening strategies does not confer any significant additional benefit and reflects the similar sensitivity and specificity of these testing modalities. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Home visits to improve breast health knowledge and screening practices in a less privileged area in Jordan | Palestinian refugee women+Jordan | Women | Primary and secondary prevention | Low health literacy | culturally appropriate home-based breast health educational session; and referral of women aged 40 years or older, who met the inclusion criteria, to a free-of-charge mammography screening at a nearby mammography unit+Pre- and post-test questionnaires | This home visits intervention significantly improved women's breast health knowledge, their perceived BSE knowledge, BSE practice and mammography screening. At first visit a low proportion of women reported practicing breast health examinations. Their previous mammography screening was significantly associated with being aged 40 years or older, having higher breast health knowledge and having attended a previous lecture about breast cancer. Women who received a free voucher and had a pre-set follow up visit were more likely to have mammography screening. Being busy and having other priorities was the most reported barrier for women's breast health practices in the post-test, followed by not feeling at risk. In this intervention, the post-test showed a significant improvement in women's retained breast health knowledge, perceived BSE self-efficacy, reported BSE practice and mammography screening. Due to the increase in availability of and quantity of health promotion messages, women might be selective in the messages they receive and retain in their minds. Thus, health communication interventions should be more tailored and responsive to the targeted audience [16]. In a review of the specific challenges and proven interventions to improve attendance in female cancer screening in lower socioeconomic groups, it was found that consistently successful strategies were to offer free tests, eliminate geographical barriers, and to adopt an individually tailored pro-active communication addressing the specific barriers [17]. Thus, home visits by local outreach workers, as in our study, has been proposed to be more effective within this specific context in changing beliefs and practices than other breast health promotion strategies [17], as individual concerns and barriers can be addressed directly. Our results demonstrated a higher use of the free mammography screening vouchers among the women who received the pre-set follow-up visit from the LCOW. The effectiveness of communication is enhanced since these outreach workers might share similar socio-cultural context with the women [19, 20]. Our findings are also consistent with other studies, which have used local lay community workers to conduct educational sessions about breast cancer [21, 22] and cervical cancer [23, 24], which have shown significant increases in women's screening participation rates.Our study showed that receiving a voucher for free mammography screening increased the utilization of the screening facility. Out-of-pocket payments have been reported in literature as a barrier to screening [25]. |
| Refugee Women's Receptiveness for Virtual Engagement on Reproductive Health During the COVID-19 Pandemic. | Refugees (broad) +California, US | Women | Primary prevention | Access to healthcare resources | virtual, culturally sensitive virtual education/semi-structured interviews | This study aimed to assess the potential of using virtual group meetings as a forum for refugee women to learn about and discuss reproductive health concerns such as cervical cancer screening, family planning, childbirth, and postpartum care. Openness to engage in virtual platforms varied by refugee community, women's demographic, and life experience. The women's involvement with local refugee groups facilitated their engagement with virtual platforms. Furthermore, individuals' family structure and marital relationship, along with literacy and English proficiency, and access to and familiarity with technology impacted engagement. Virtual groups needed to mirror confidentiality and women expressed a strong preference that groups were all-women. This study is novel since it is one of the first studies to explore the utilization of virtual platforms among refugee women living in the USA and community stakeholders. Since the study included very practical questions regarding access to technology and receptiveness to virtual patient educational groups, this information could be rapidly utilized to help address technology barriers. The participants from this study ranged from women who were familiar and comfortable using technology to women who needed family or program manager support to enter the virtual interview. The participants also reported challenges and reluctance of using telehealth services. This reluctance to use telehealth services among low-income and minority communities has also been observed in other studies [31, 32]. This reluctance may result in delayed preventive health care for refugee women and their families.The future implications of this study's findings include informing a refugee readiness assessment checklist that can guide future transitions to virtual or hybrid virtual-in-person programs for refugee communities [22]. This checklist can be used by community organizations hoping to utilize virtual platforms among refugee communities and can be used to systematically assess the experiences, resources, and limitations of using technologies with refugee groups and to elicit details that contribute to culturally appropriate planning and implementation of refugee virtual group meetings. This toolkit can enable program planners and community leaders to efficiently identify strengths and gaps in refugee communities and initiate a dialogue with the community. |
| Decreasing disparities in breast cancer screening in refugee women using culturally tailored patient navigation. | Bosnian, Somali and Arab refugee women+Chelsea, Massachussetts | Women | Secondary prevention | Low screening and health literacy | Culturally Tailored Patient Navigation/Retrospective program evaluation | Over the first 3 years of this program, mammography rates improved in refugee women from Somalia, the Middle East and Bosnia, and we significantly decreased disparities in screening rates between these refugees and English-speaking and Spanish-speaking women receiving care at the same health center. Our program seemed to have a larger impact on younger refugee women, but this may have reflected higher baseline screening rates in refugee women over 50. Mammography screening rates increased after the start of the PN program for all women, both younger and older. However, in older women mammography screening rates decreased between 2010 and 2011 (Table 2). This decrease is reflected by lower screening rates in Bosnian refugees in the last year of the program (Fig. 2). At the end of the second year of the program, there was no Serbo-Croatian (Bosnian) speaking PN for a 5-month period. This likely decreased the impact of the program and highlights the ongoing challenge of retaining skilled bilingual PNs in health center positions.In contrast, we observed a large increase in screening rates in Somali women in the last year of the program. For this group, the hiring and training of a new Somali PN midway through the program may have delayed building the trusting relationships needed to provide more intense and prolonged education that facilitate screening acceptance. Somali speaking refugees are mostly Bantu, poor, illiterate in their own language, and with little or no prior knowledge of breast cancer. |
| Patient navigation to improve breast cancer screening in Bosnian refugees and immigrants. | Bosnian refugees+Chelsea, Massachussetts | Women | Secondary prevention | Low screening rates | culturally-tailored, language-concordant navigator program | Despite the fact that many Serbo-Croatian speaking women in the study had been in the country and receiving care at MGH Chelsea for over 5 years, baseline data showed that only 44% had received a mammogram within the last year. Therefore it was critical that the first patient contacts made over the phone or in person, begin to develop a trusting relationship. Of particular note is that the process of convincing patients to go for a mammogram often took several navigator phone calls, consisting of encouragement and reassurance, allaying the patient's fears, highlighting the quality of the US medical system and stressing the importance of taking care of their own and their families' health and well-being. To further reach out to women, the navigator organized breast health educational group sessions in community settings, particularly the church attended by many of the patients (and the navigator), and even made home visits. Using this approach, patient navigation improved mammography rates in refugees and immigrants from the former Yugoslavia. Women responded favorably to the intensive attention given them by the navigator who shared their culture and language and whose sincerity and genuineness helped form trusting relationships. During only one year with this program we were able to raise screening rates and eliminate the disparity that existed between these women and English and Spanish speaking patients at the health center. To be successful the patient navigator program has to be culturally tailored to the population served. One of the key cultural components of this program was that the navigator was a woman who not only spoke the language, but was born in the same country and displaced because of the Bosnian war just like the women she worked with. In addition, some studies have suggested the importance of the navigator's her (him)self as being critical to success in this role [10], and this navigator was like a "member of the family" to participants. |
| Best practice models recommended by Bhutanese refugee women for cervical and breast cancer screening in Australia: A qualitative study | Bhutanese Refugees+Australia | Women | Secondary prevention | Low screening rates | Qualitative Study | Two practice models were identified by refugee women: a doctor-initiated model involving opportunistic screening during consultations for other purposes; and a group screening model. Participants emphasised the need for a supportive environment with culturally appropriate services, community education and peer networks to encourage and facilitate their participation in cervical and breast cancer screening services. General practitioners can provide guidance, opportunistic screening that includes education, and advice about follow-up. The need for the routine use of professional interpreter services was reinforced. The suggestions by the Bhutanese refugee women to actively involve GPs in the initiation and education of cancer screening demonstrates clearly the high status of doctors in that community, which may be intensified by their years in refugee camps and related health conditions from that period.25 The women clearly indicated their willingness to follow their doctor's instructions, even if they had no understanding about the reasons behind them.There were other suggestions for improving the uptake of screening services that involve GPs, including making better use of existing language services and improving service coordination are other ways to enhance. The group screening model that was suggested in interviews originated from experiences in the early resettlement period, where the strategy was probably used by a resettlement worker to manage large groups of refugees resettling at the same time. Alongside the models of care, women spoke clearly that theirneed for ongoing education to address their lack of knowledge about the importance of a ttending screening services and the potential adverse effects of failing to diagnose cancer early. Our findings, like other studies, further demonstrate that women prefer to be actively taught, not merely told about services. |
| Provider perspectives on promoting cervical cancer screening among refugee women | Healthcare providers+Washington, USA | Providers from voluntary resettlement agencies (VOLAGs), community based organizations (CBOs), and primary care clinics (PCCs) | Secondary prevention | Low screening rates | Culturally tailored health education+videos/Qualitative study | To our knowledge, this study was the first to describe providers' perspectives on promoting cervical cancer screening among recently resettled refugee women. Providers in our study identified several factors that contribute to low rates of cervical cancer screening in this population, including unfamiliarity with cervical cancer screening among refugee women and some providers. However, they also recommended specific strategies for promoting screening, including providing culturally tailored health education in multiple settings.Specifically, providers noted the need for materials that include basic information about female anatomy and reproductive health so women can better understand both the importance of screening and cervical cancer screening procedures. Providers also emphasized that health education materials should be in the women's native language, and appropriate for women with varying levels of health literacy. They thought videos may be particularly effective in communicating with this population about health topics. Previous studies have found that culturally tailored videos can be effective in increasing knowledge and changing screening behaviors among immigrant women (21-23). Videos have been used effectively for providing prenatal education among Somali refugee women (24). Healthcare providers could use the video at an initial or other early visit and then encourage women to return for cervical cancer screening. Similarly, VOLAGs and CBOs could show the video to women when providing other services and then offer to help them schedule a cervical cancer screening appointment Providers suggested that early and frequent messaging about cervical cancer screening could help ensure that women receive screening before losing their initial health insurance benefits. First, participants emphasized the importance of female clinicians and interpreters when providing cervical cancer education or screening to refugee women. This is consistent with previous studies that have found limited English proficiency and having a male provider are barriers to cervical cancer screening for other refugee and immigrant women (27, 28). Organizations serving refugees should offer female providers and interpreters for cervical cancer screening appointments whenever possible. Participants noted the benefits of having reminder systems that flag both the providers and patients when they are due for screening. Such systems could be used to remind providers that a woman has not been screened for cervical cancer at each clinic visit. Healthcare systems may benefit from tracking systems in electronic medical records which also flag patients' language and gender preferences for clinicians and interpreters. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Effectiveness of breast cancer screening interventions in improving screening rates and preventive activities in Muslim refugee and immigrant women: A systematic review and meta-analysis. | Muslim Refugees/Immigrant women+NA | Muslims; women | Secondary prevention | Low screening rates | Faith based and culturally relevant screening intervention/Systematic review and Meta-analysis | The Health Belief Model (HBM) was selected because it provides a theoretical framework to predict promotive and preventive health behaviors. The HBM provided the theoretical assumptions for the data analysis.Our review supports the usefulness of the HBM in providing the theoretical framework to analyze our findings while guiding the development of future interventions among Muslim refugee and immigrant women. Barriers and benefits of BC screening represent major concepts on which to derive nursing interventions. In alignment with the HBM, our systematic review and meta analysis describe education-based, access-focused, and cultural and faith-based interventions where barriers must be decreased and benefits to actions increased. For example, Muslim refugee and immigrant women who believe BC screening practices will prevent BC are more likely to adhere to the BC screening recommended behaviors than Muslim women who do not believe that adhering to the BC recommendations will prevent BC. The HBM provides the theoretical basis for exploring Muslim refugee and immigrant women's individual predictors of BC screening and preventive activities aligning with our review question and the state of nursing and health science. Results show that receiving BC information from community educators sharing the same ethnocultural groups as the refugees reduces linguistic and health system barriers. Although effective, access-focused interventions may not specifically address cultural and religious beliefs. |
| Long-Term Impact of a Culturally Tailored Patient Navigation Program on Disparities in Breast Cancer Screening in Refugee Women After the Program's End. | Refugees (broad) +Chelsea, Massachussetts | Women | Secondary Prevention | Low screening rates | Culturally Tailored Patient Navigation Program/Program Evaluation | We evaluated the persistence of reductions in disparities in breast cancer screening among refugee women for 5 years after a PN program's termination. We generally found decreases in screening completion for previously navigated refugee women in each year after the PN program ended, as is expected for periods after a PN program's end.45 However, in the fifth year after the PN program ended (2016), screening completion prevalence for refugee women was comparable with that of English-speaking primary care patients, and remained well above the prevalence of screening for refugee women before the PN program (76% vs. 64%).43 Screening rates for English-speaking women remained relatively stable over time, ranging from 77–82% in 2008–2011,43 and ranging from 81–85% for the years 2012–2016 after the refugee PN program's end. Our results suggest that even short-term PN interventions can have lasting effects. The culturally and language-tailored PN program designed to reduce disparities in breast cancer screening among refugees appeared to have some lasting effect. Refugee women maintained higher prevalence of mammography completion compared with before PN and had screening rates similar to English-speaking women 5 years after the PN program's completion. The study revealed interesting trends in screening after the end of a PN program that could inform future program designs. These insights into trends after PN program termination are important, particularly since one-time or limited duration interventions tend to be considerably less expensive than more involved continuous interventions. PN may have persistent benefits due to increased patient knowledge about the importance of screening and familiarity with the mammography screening process. In addition, once patients receive a mammogram, radiology facilities at our site send letters to remind women when they are due for another mammogram, which may increase screening utilization. |
| The Limited English Proficiency Patient Family Advocate Role: Fostering Respectful and Effective Care Across Language and Culture in a Pediatric Oncology Setting | Refugees and Immigrants (broad) | Non-english speaking, children and parents | Primary prevention | Linguistic barriers | LEP linguistic access/Mixed Methods | The LEP Patient Family Advocate is an innovative role that was created in response to the need to address gaps in communication that run deeper than language in order to better support patients and families with LEP throughout the trajectory of their treatment. Feedback collected through surveys and open-ended questions demonstrates a high level of satisfaction with the role and a positive impact on the quality of care provided to this population of families.In this study, repeated interaction appeared to build parents' trust in the faithfulness of the advocate's interpretation, and they reported feeling comfortable, as opposed to fearful, in his or her presence and expressed satisfaction with the delivery of the information. Yet with the culturally and linguistically sensitive assistance of the LEP Patient Family Advocate, the parents in our study reported high levels of confidence that they were correctly administering their children's medications. This confidence was echoed in staff responses. |
| Using Virtual Learning to Develop Palliative Care Skills Among Humanitarian Health Workers in the Rohingya Refugee Response in Bangladesh. | Humanitarian Health workers+Bangladesh | NA | Tertiary care | Lack of palliative services | Virtual palliative skill building program+pre and post survey | We successfully developed, piloted and implemented a virtual palliative care training program for humanitarian healthcare providers in Bangladesh, using the Project ECHO model.The program is a partnership between Two Worlds Cancer Collaboration (TWCC), Palliative Care in Humanitarian Aid Situations and Emergencies (PallCHASE), and the Fasiuddin Khan Research Foundation (FKRF). Clinicians found this online learning to be a valuable and supportive learning experience that they would recommend to their colleagues. Participants reported improvements in their knowledge, comfort, and attitudes towards palliative care after participation in the program.The most frequent barriers to program participation included time (n = 23, 45%) and technical barriers (n = 30, 59%), with language noted by 9 participants (18%). Despite such challenges, participants reported a high level of course satisfaction, as indicated by their willingness to recommend the ECHO to colleagues (n = 50, 98%), and that they found the ECHO to be a valuable experience for them (n = 49, 96%).We found the Project ECHO model to be successful in providing palliative care education to humanitarian healthcare providers in a remote region of Bangladesh, with more than 94% of participants agreeing that the program introduced them to best practices for providing care to individuals with serious illness. Most participants found the program valuable and would recommend it to their colleagues. Increased awareness and interest in the program was observed over the course of the study, with increased participant registration in subsequent cohorts, and sustained participation in ongoing mentoring sessions. Our findings provide evidence of the feasibility and value of delivering virtual palliative care education to address the continued gap in services for individuals with serious illnesses in humanitarian settings |
| The role of palliative care in addressing the health needs of Syrian refugees in Jordan | Syrian refugees+Jordan | Elderly, youth | Tertiary Care | Lack of palliative services | Mobile medical unti/Semi-structured interviews | The mobile medical unit in Za'atari camp is a model of how palliative care can be integrated into existing health care services. The clinician in the mobile medical unit was certified to deliver palliative care after enrolling in a short course provided by the Jordan Palliative Care Society. This course gave the clinician the skills and motivation to offer spiritual therapy sessions and higher doses of pain medication to cancer patients enrolled in the pilot palliative care programme. Mandating or offering incentives for primary care physicians and humanitarian aid teams to pursue training in palliative care would build the palliative care capacity of generalists working in communities and camps. Including palliative care in standard medical school curricula would achieve a similar result. Two general recommendations are derived from this study. Training courses in palliative care need to be developed and delivered to providers working in the public sector and with humanitarian aid teams; and palliative care programmes should be designed as part of a comprehensive course of treatment for patients with life-limiting conditions. |
| Displaced children with cancer in Lebanon: A sustained response to an unprecedented crisis | Refugee children+Lebanon | Children | Tertiary Care | Financial barriers; general barriers to cancer care | study reviewed the experience of the authors over the past 6 years in Lebanon | The American University of Beirut Medical Center and the Children's Cancer Center of Lebanon Foundation, in partnership with St. Jude Children's Research Hospital and the American Lebanese Syrian Associated Charities, established 3 successive funding programs to treat displaced children with cancer along with a continuous assessment of resource utilization. Between 2011 and 2017, 575 non-Lebanese children suspected to have cancer were evaluated. Of those, 311 received direct medical support, with 107 receiving full-treatment coverage and 204 receiving limited-workup/specialty services; the remaining 264 patients received medical consultations. Between January 1, 2011, and May 31, 2017, the CCI provided cancer care to 630 Lebanese patients (508 received full treatment and 122 received partial support for specific diagnostic or therapeutic procedures), with another 239 Lebanese patients receiving consultations/opinions only. During this period, care was also provided for 311 non-Lebanese patients (107 received full treatment, and 204 received partial treatment), and an additional 264 patients received consultations/opinions only (Fig. 1A). Figure 1B shows the distribution of non-Lebanese patients accepted via the different funding programs, by year, with the total number of patients assisted per year as well as the total number of those who were declined because of either a lack of eligibility or unavailable funds and, therefore, received only consultation. The percentage of non-Lebanese patients accepted for treatment at the CCI was 18% at the beginning of the crisis in 2011, and it increased progressively to stabilize at 55% to 60% from 2015 to the date of this report. Of presenting non-Lebanese patients, 54% were accepted for treatment (19% for full therapy and 35% for specific procedures), whereas 72% of Lebanese patients were (58% for full therapy and 14% for specific procedures). We obtained follow-up information for all patients who had received treatment or were continuing on active first-line therapy. Of a total of 275 patients, 159 (58%) were in remission at the most recent follow-up, with an additional 56 (20%) continuing first-line treatment. In addition, 3 patients (1%) died of toxicity, 35 (13%) had relapse/disease progression, and 22 (8%) left before treatment completion. Only 5 of these 22 patients abandoned treatment, whereas 9 (8 Syrians and 1 Palestinian) relocated to another country where they were presumed to be continuing therapy, and 8 (all Iraqis) traveled back to their home country to continue treatment. The disease status follow-up for these patients was not available. |
| Using Intervention Mapping to Develop Health Education and Health Policy Components to Increase Breast Cancer Screening and Chemotherapy Adherence Among Syrian and Iraqi Refugee Women in Beirut, Lebanon. | Syrian and Iraqi refugee women+Beirut, Lebanon | Women | Primary and secondary prevention | Low screening and chemotherapy | health education and health policy intervention/Intervention mapping, a systematic approach which guides researchers and public health experts in the development of comprehensive evidence-based interventions (EBIs) | This article delineates an intervention plan to increase breast cancer screening and chemotherapy adherence among Syrian and Iraqi refugee women residing in refugee camps in Beirut. It also provides future public health workers and research experts with an intervention plan for a concerning health issue in Lebanon that is disproportionately affecting disadvantaged populations in the country, specifically refugees. High incidence and prevalence rates of metastatic breast cancer among Iraqi and Syrian refugee women should be urgently addressed in camp settings since the limited funds allocated for the management of chronic diseases among asylum seekers in Lebanon renders the diagnosis of breast cancer at an early stage currently impossible.The developed "My Right, My Fight" (MRMF) program targeted one primary behavioral and three environmental outcomes which were deemed most effective in addressing high rates of breast cancer. Both mammography and self-examination of nodules contribute to the early detection of cases and to increasing positive response rates to treatment (46–48). The interpersonal and organizational environmental outcomes will play a crucial role in ensuring the overall success of the intervention and in attainment of the desired health behaviors (63). Having UNHCR support diagnostic and treatment measures through an increase in the allocation of funds for refugee chronic disease management and creation of supportive and trustworthy patient-physician relationships which take into account the cultural norms of the refugee population will be an essential factor in ensuring the sustainability of the program and the targeted health outcomes based on previous research studies and intervention projects (12, 19, 49, 50). Moreover, the creation and execution of a comprehensive policy at the societal level which protects the rights of refugees in accessing chronic disease screening and treatment services and encompasses the options as depicted by the internationally recognized resource-stratified guidelines is also a major key factor in determining the long-term success of the intervention. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Betel Quid Use and Oral Cancer in a High-Risk Refugee Community in the USA: The Effectiveness of an Awareness Initiative | Refugees (broad) +Clarkston, GA | Betel nut users and non-users | Primary prevention | Betel nut use | reness campaign+healtheducation/community needs assessm | Of the 133 patients who were approached for this study, 59 patients reported familiarity with BN usage while 74 patients denied familiarity with BN usage. Seventy-three patients provided verbal consent to continue onwards with the investigation. Within this cohort of participants, 48 individuals reported familiarity with BN while 25 denied familiarity. The most common reason to decline the survey was lack of familiarity with BN. Among the familiar cohort, South and Southeast Asians comprised 91%. At baseline, 75% of the familiar cohort believed BN was "harmful for health" compared to 8% among the unfamiliar cohort ($p < 0.0001$). Among both cohorts, the most common reasons cited were teeth discoloration (29.26%), cancer (29.26%), tobacco contents (14.6%), and addiction (14.6%). However, answers ran the gamut from "kidney stones" to "thins the blood." In the familiar cohort, 52.3% of participants believed BN alone could cause cancer compared to 4% among the unfamiliar cohort. Following the educational intervention, participants' knowledge that BN mastication is "harmful to health" improved significantly for both cohorts (familiar cohort, 100%, $p = 0.011$; unfamiliar cohort, 100%, $p < 0.0001$) (Fig. 2). Post-intervention participants in the familiar cohort were more likely to recognize that BN alone could cause cancer (87.5%, $p = 0.0005$) and more capable of identifying oral cancer in an image ($p = 0.011$). They were also more likely to identify cheek pain (95.8%, $p = 0.005$) and ear pain (66.7%, $p = 0.0004$) as signs of oropharyngeal cancer (Fig. 3). Post-intervention participants in the unfamiliar cohort also improved their ability to recognize oral cancer ($p = 0.0002$), as well as cancer symptoms like cheek and ear pain ($p < 0.0001$). Similarly, post-intervention subjects in the unfamiliar cohort were also more likely to recognize that BN alone could cause cancer (87.5%, $p < 0.0001$). They were also more adept at identifying signs of oropharyngeal cancer, specifically cheek pain (92%, $p < 0.0001$) and ear pain (and more likely to recognize an image of tongue cancer. |