



Original Research

An Overview of the Health Profile of Syrian Refugees Arriving in Kentucky from 2012-2017

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Abstract

Background: The civil unrest in Syria has led to millions of displaced Syrians. The United States has relocated over 15,000 Syrian refugees, mostly arriving since 2015. Little is known about the health of Syrian refugees entering the United States.

Methods: Syrian refugees in Kentucky who had a medical screening and documented RHA from October 2012 to September 2017 were included in the study. The information is collected and stored in the Arriving Refugee Informatics Surveillance and Epidemiology (ARIVE) database. This study is a retrospective review of the ARIVE database to describe the general health of the Syrian refugees arriving to Kentucky which can be generalized to those arriving to other states.

Results: A total of 521 Syrian refugees had a complete RHA from October 2012 to September 2017. The top diagnosed conditions in Syrian refugee adults included dental conditions, elevated BMI, hematuria, vision changes and anemia. The top diagnosed conditions in Syrian refugee children included low BMI, dental conditions, hematuria, vision changes and anemia. Adult Syrian males had significantly higher cardiovascular risk factors compared to adult females.

Conclusions: Syrian refugees often have chronic conditions that require long term management, aggressive risk stratification and preventative health measures. Effective primary and preventative care is therefore essential to limit the long-term tertiary complications as they integrate into the local community

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Background

Due to the civil unrest in Syria, an estimated 11 million Syrians have been displaced and 4.9 million have left their country seeking refuge since 2011 [1, 2]. By the end of 2016, 18,007 Syrian refugees had been resettled in the United States (US) [2]. Interestingly, from 2011 to 2015, the US had taken in less than 1,500 Syrian refugees [3]. Despite opposition from many US states to resettle Syrian refugees following the Paris attacks in 2015, Kentucky remained one of the 19 states to welcome Syrian refugees [2]. In 2016, Syrian refugees were the second largest origin group resettled in the US and Kentucky was the 6th highest state in Syrian refugees resettled per capita [4].

The State Department strives to provide resettlement services within the first 90 days of arrival in the US. These services include an initial health screening/assessment, specialty and mental health referrals, and the establishment of a primary care clinic (CDC) [5]. The goals of the Refugee Health Assessment (RHA) are to follow up previous diagnoses from overseas medical exams, identify individuals with communicable diseases of public health importance, and identify health conditions that could affect the resettlement process. The RHA also serves as an introduction to the US healthcare system and establishes a primary care location for the individual.

The Kentucky Office for Refugees and the University of Louisville Global Health Center makes RHA available to all Kentucky's newly arrived refugees and maintain the information in a secured database (Arriving Refugee Informatics Surveillance and Epidemiology (ARIVE) [6]. In Kentucky, refugees can receive an RHA at one of seven designated clinics throughout the state. Based on the Center for Disease Control (CDC) guidelines, RHAs, in addition to a review of overseas medical information, include a complete medical and socio-ethnographic history, a physical exam, and laboratory testing [6]. Little research exists regarding the health of US Syrian refugees.

The primary objective of this study is to identify the common health conditions that affect the incoming Syrian population in the state of Kentucky identified via completed RHA visits. The secondary objectives are to further classify the identified conditions by age (adult or pediatric) and gender so focused programs can be developed to improve the overall health of this population.

Methods

In 2012, the Kentucky Office of Refugees, in collaboration with

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Table 1 Percentage of Syrian refugees in each BMI category subdivided by age and gender

Syrian Refugee Demographics	
Gender (n=521)	
Female	239 (45.9%)
Male	282 (54.1%)
Resettlement Agency (n=517)	
Catholic Charities	86 (16.6%)
KRM-Louisville	308 (59.6%)
KRM-Lexington	120 (23.2%)
IC-BG	3 (0.6%)
Age (n=521)	
≥ 18	237 (45.5%)
< 18	284 (54.5%)
Country of Departure (n=519)	
Jordan	387 (74.6%)
Turkey	89 (17.1%)
Egypt	26 (5%)
Lebanon	8 (1.5%)
Iraq	6 (1.2%)
Syria	3 (0.6%)
Language (n=521)	
Arabic	100%

the University of Louisville Global Health Center, created a secure database (ARIVE) which stores the information from the RHA of all newly arriving refugees in the state of Kentucky. This database is kept in the REDCap™ platform (Developed at Vanderbilt University Institute for Clinical and Translational Research; Nashville, TN) and maintained by the University of Louisville Global Health Center. Public health clinics throughout the state, which are overseen by the Kentucky Office of Refugees, perform all the RHAs and operate according to established screening protocols. The investigators received permission from the University of Louisville Institutional Review Board (IRB) to review charts from the ARIVE REDCap™ database for this study.

This is a retrospective, descriptive study including Syrian refugee patient charts from the REDCap™ database from October 2012 to September 2017. Based on the data elements suggested by the CDC and Office of Refugee Resettlement (ORR), a secondary data analysis of the Refugee Health database was conducted. Data collected from the seven clinical sites performing RHA were entered into the ARIVE database maintained in REDCap™. Basic demographic data for each patient chart, including age, gender, language, and country of departure, was used to describe the population. Health data, including medical diagnoses and subspecialist referrals, was reviewed. The documented screening data included vital signs, body mass index (BMI), complete blood count (CBC), complete metabolic panel (CMP), lipid panel, Human Immunodeficiency Virus (HIV) status, Hepatitis C, Syphilis, Hepatitis B exposure/ vaccination status, tuberculosis and stool studies for parasites. Behavioral risk factors included self-reported history of tobacco use and/or exposure and the results of the mental health evaluation. Mental health evaluation was done using the Refugee Health Screener-15 (RHS-15), a tool developed by Pathways to Wellness to sensitively detect the range of emotional distress common across refugee groups [7]. The data was grouped into adult and pediatric (age <18) refugees for analysis. The adult population was further divided into male and female refugees. All data was

analyzed using SPSS version 24 to create a description of the health status of Kentucky Syrian refugees.

Results

A total of 521 Syrian refugees had a documented RHA from October 2012 to September 2017. There were 54.5% under 18 years of age, 45.9% that were female, and 74.6% who came through Jordan (**Table 1**). The Kentucky Refugee Ministries (KRM) resettled 82.2% and Catholic Charities (CC) resettled 16.6% of the included refugees. The top abnormal findings during the RHA in the adult Syrian refugees included dental conditions (80.8%), BMI >25 (69.4%), hematuria (33.3%), vision changes (25.9%) and anemia (22.9%) (**Table 2**). The top abnormal findings during the RHA in the pediatric Syrian refugees included BMI <19 (70.2%), dental conditions (60.6%), hematuria (34.3%), vision changes (28.1%) and anemia (19.2%) (**Table 3**). The most interesting difference between pediatric and adult population was the distribution of BMI. There were 69.4% of adults with a BMI >25 while 8% of children with the same BMI. In contrast, 70.2% of children were underweight (BMI <19), compared to only 0.9% of adults (**Figure 1**).

When the adult population was divided into males and females, additional variables including smoking, total cholesterol, high density lipoproteins (HDL), and systolic blood pressure (SBP) were evaluated (**Tables 4 & 5**). There were 43.4% of males who reported smoking regularly compared to only 14.3% of females. In addition, 49% of males had elevated total cholesterol (>200) and 96.4% had decreased HDL (<59) compared to 16.7% and 78.9% of females respectively (**Figures 2 & 3**). There were 58.3% of male Syrian refugees and 3.1% of female Syrian refugees with an elevated blood pressure (SBP >140). There were 42.6% of adult females with anemia and 48% were noted to have hematuria while only 3% of males had anemia and 18.8% had hematuria (**Tables 4 & 5**).

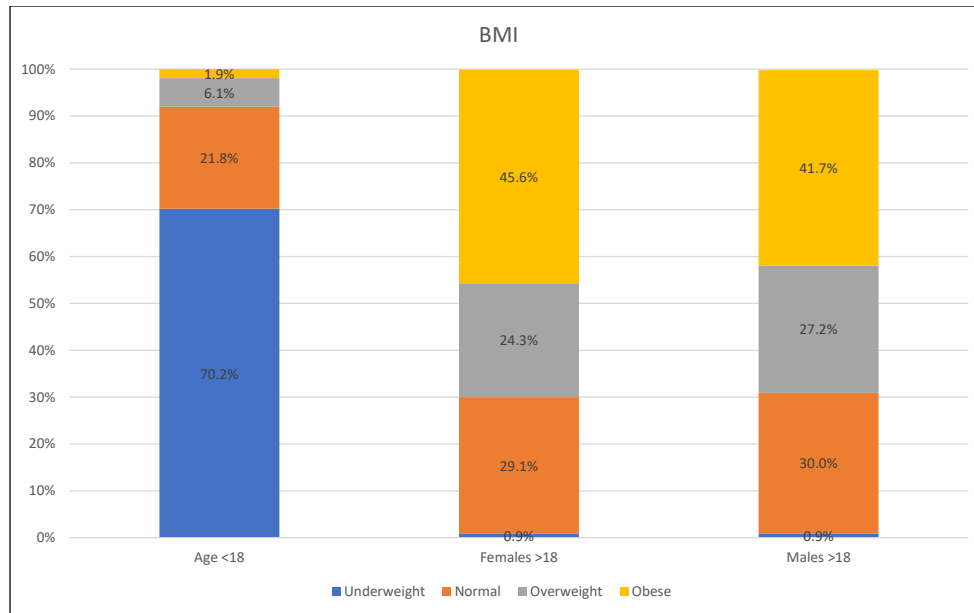


Figure 1 Percentage of Syrian refugees in each BMI category subdivided by age and gender

Table 2 Results of the screening and evaluation tests for all new adult Syrian refugees (age ≥18)

Evaluation (n=237)	N (%)
Vision (n=181)	
Abnormal	47 (25.9%)
Normal	134 (74%)
Dental (n=167)	
Abnormal	135 (80.8%)
Normal	32 (19.2%)
Urinalysis (n=201)	
Glucose	3 (1.5%)
Protein	22 (10.9%)
Blood	67 (33.3%)
TSPOT/QFT-Plus (n=183)	
Positive	25 (13.7%)
Negative	158 (86.3%)
Borderline	0
TST (n=0)	
CMP (n=127)	
Glucose > 120	6 (4.7%)
Glucose > 200	2 (1.6%)
Creatinine > 1	6 (4.7%)
BUN ≥ 20	2 (1.6%)
BMI (n=206)	
Underweight	2 (0.9%)
Normal	61 (29.6%)
Overweight	53 (25.7%)
Obese	90 (43.7%)
Lead (n=0)	
Hemoglobin (n=201)	
Anemia	46 (22.9%)
Normal	155 (77.1%)

Table 3 Results of the screening and evaluation tests for all new pediatric Syrian refugees (age <18)

Evaluation (n=284)	N (%)
Vision (n=178)	
Abnormal	50 (28.1%)
Normal	128 (71.9%)
Dental (n=241)	
Abnormal	146 (60.6%)
Normal	95 (39.4%)
Urinalysis (n=230)	
Glucose	0
Protein	40 (17.4%)
Blood	79 (34.3%)
TSPOT/QFT-Plus (n=204)	
Positive	7 (3.4%)
Negative	196 (96.1%)
Borderline	1 (0.4%)
TST (n=45)	
Reactive	9 (0.2%)
Non-reactive	32 (71.1%)
Did not return	4 (8.9%)
CMP (n=19)	
Glucose > 120	1 (5.6%)
Glucose > 200	0
Creatinine > 1	0
BUN ≥ 20	0
BMI (n=262)	
Underweight	184 (70.2%)
Normal	57 (21.8%)
Overweight	16 (6.1%)
Obese	5 (1.9%)
Lead (n=240)	
Abnormal	3 (1.2%)
Normal	237 (98.8%)
Hemoglobin (n=261)	
Anemia	50 (19.2%)
Normal	211 (80.8%)

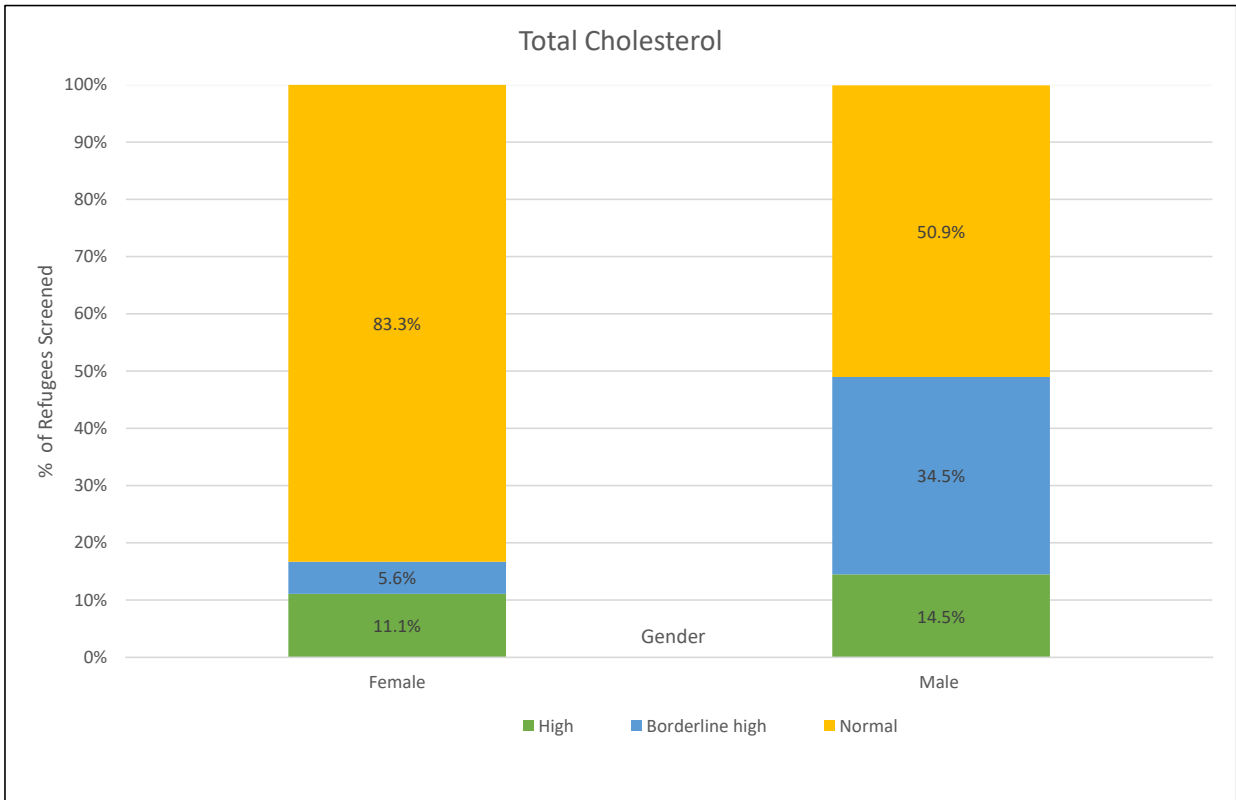


Figure 2 Total cholesterol of adult Syrian refugees subdivided by gender

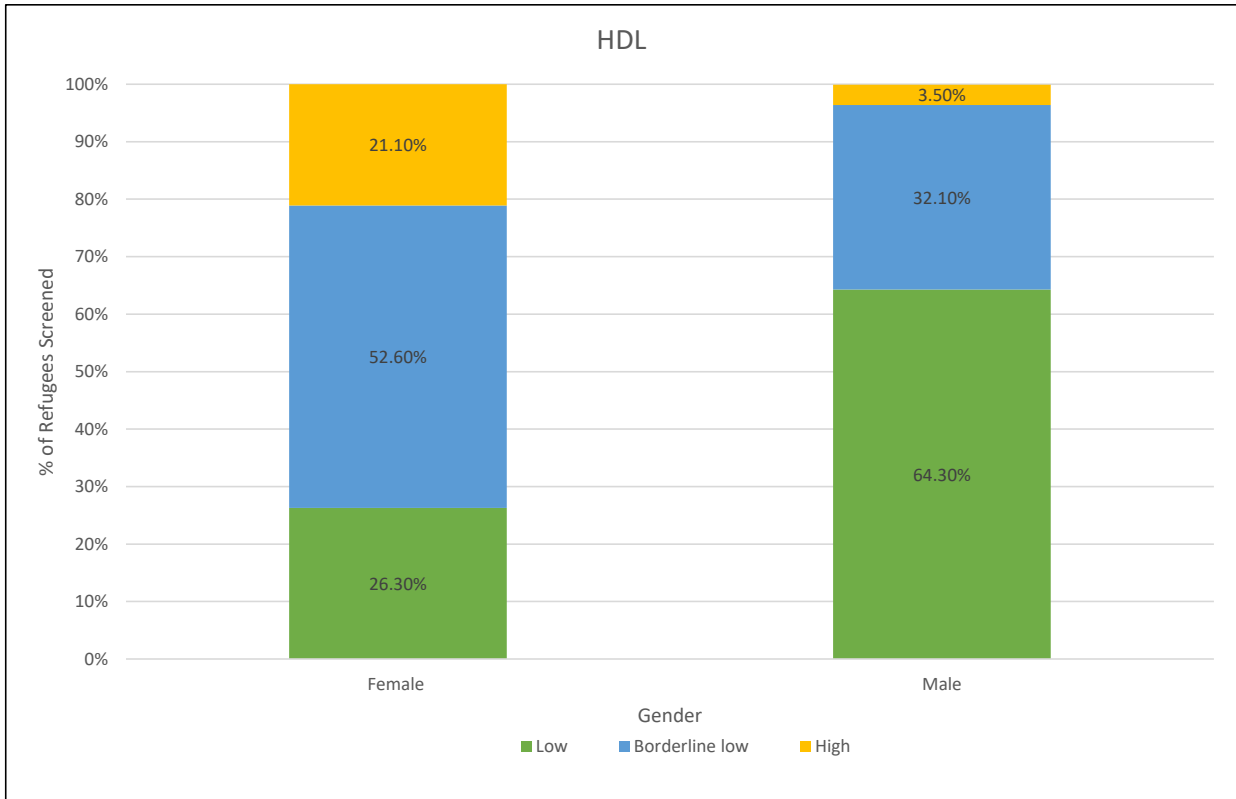


Figure 3 HDL of adult Syrian refugees subdivided by gender

Table 4 Results of the screening and evaluation tests for all new adult male Syrian refugees

Evaluation	N (%)
Vision (n=91)	
Abnormal	19 (20.9%)
Normal	72 (79.1%)
Dental (n=86)	
Abnormal	72 (83.7%)
Normal	14 (16.2%)
Urinalysis (n=101)	
Glucose	2 (2%)
Protein	7 (6.9%)
Blood	19 (18.8%)
CMP (n=57)	
Glucose > 120	4 (7%)
Glucose > 200	2 (3.5%)
Creatinine > 1	6 (10.5%)
BUN ≥ 20	1 (1.8%)
BMI (n=103)	
Underweight	1 (0.9%)
Normal	31 (30%)
Overweight	28 (27.2%)
Obese	43 (41.7%)
Smoking (n=60)	
Yes	26 (43.3%)
No	34 (56.7%)
Hemoglobin (n=100)	
Anemia	3 (3%)
Normal	97 (97%)
Total Cholesterol (n=55)	
High	8 (14.5%)
Borderline high	19 (34.5%)
Normal	28 (50.9%)
HDL (n=56)	
Low	36 (64.3%)
Borderline low	18 (32.1%)
High	2 (3.5%)
Systolic Blood Pressure (n=60)	
≤ 120	20 (33.3%)
>120	5 (8.3%)
>140	35 (58.3%)

Table 5 Results of the screening and evaluation tests for all new adult female Syrian refugees

Evaluation	N (%)
Vision (n=90)	
Abnormal	28 (31.1%)
Normal	62 (68.9%)
Dental (n=81)	
Abnormal	63 (77.8%)
Normal	18 (22.2%)
Urinalysis (n=100)	
Glucose	1 (1%)
Protein	15 (15%)
Blood	48 (48%)
CMP (n=149)	
Glucose > 120	2 (1.3%)
Glucose > 200	0
Creatinine > 1	0
BUN ≥ 20	1 (0.6%)
BMI (n=103)	
Underweight	1 (0.9%)
Normal	30 (29.1%)
Overweight	25 (24.3%)
Obese	47 (45.6%)
Smoking (n=56)	
Yes	8 (14.3%)
No	48 (85.7%)
Hemoglobin (n=101)	
Anemia	43 (42.6%)
Normal	58 (57.4%)
Total Cholesterol (n=18)	
High	2 (11.1%)
Borderline high	1 (5.6%)
Normal	15 (83.3%)
HDL (n=19)	
Low	5 (26.3%)
Borderline low	10 (52.6%)
High	4 (21.1%)
Systolic Blood Pressure (n=64)	
≤ 120	52 (81.2%)
>120	10 (15.6%)
>140	2 (3.1%)

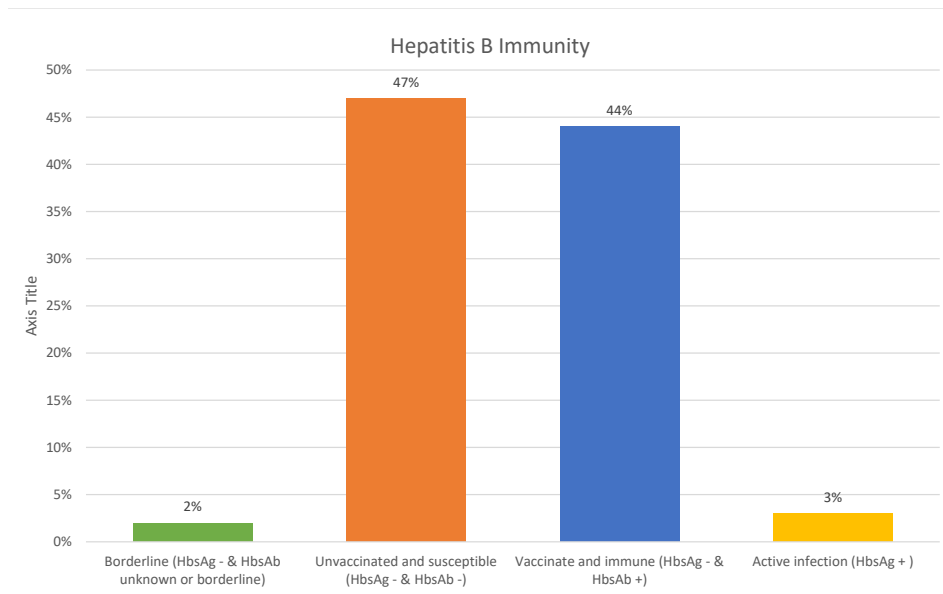


Figure 4 Percentage of Syrian refugees screened for Hepatitis B Immunity

When screened for reportable public health diseases, there were 3% of refugees with active Hepatitis B and many more who were unvaccinated and susceptible (**Figure 4**). The hepatitis B surface antigen (HbsAg) and the Hepatitis B surface antibody (HbsAb) were tested to determine infection, susceptibility and immunity. There were no screened refugees who tested positive for HIV, Hepatitis C or Syphilis. There were 8.7% of refugees who tested positive for Tuberculosis through blood assay (e.g., T-SPOT, QuantiFERON-TB Gold Plus [QFT-Plus]) test.

There were 33% of screened Syrian refugees who tested positive for parasites. The stool studies were positive for Blastocystis (47), Giardia (10), Dientamoeba (9), Endolimax nana (9), and Hymenolepis (1). The latter three are considered non-pathogenic parasites while the pathogenicity of blastocystis and giardia is still debatable and decisions to treat rely on symptoms and exposures. But more importantly, there were no patients with roundworms, Schistosomiasis, or Strongyloides. The relationship between anemia and parasites to determine if those with parasites are more likely to be anemic was not significant for refugees with all parasites, giardia or blastocystis.

Of the 244 pediatric patients asked, there were 53 (21.7%) who had experienced imprisonment, torture or violence. A RHS-15 score was only completed on 35 of the 244 patients. Fifteen were positive and only 4 accepted a mental health referral.

In adult males, 23 of the 103 who responded had experienced imprisonment, torture or violence. There were 55 who had a positive RHS-15 score; however only 10 accepted a mental health referral. There were 24 total patients with any response for “accept referral” so it is not clear if those without a response did not accept a referral or if there is incomplete documentation. In adult females, 5 of the 86 who responded had experienced imprisonment, torture, or violence. There were 51 who had a positive RHS-15 score. There were 30 refugees with a documented response for the mental health referral and only 15 of those accepted it.

Discussion

Abnormal dental exams were frequently documented for both adult (80.8%) and pediatric (60.6%) Syrian refugees arriving in Kentucky. According to the World Health Organization (WHO), oral disease is one of the most prevalent health problems in refugee populations [8]. While many studies show immigrant populations have higher incidences of dental disease compared to native populations, this has not been specifically documented for Syrian refugees in the United States [9,10]. A study by Riatto and colleagues focused on the oral health status of Syrian children in the refugee center in Melilla, Spain where the prevalence of caries in 6-12 year olds was 75% and 50% in permanent and deciduous dentition respectively [11]. Dashash and colleagues studied children in Damascus, Syria in 2012 prior to the increased turmoil and found a high proportion of 5-year-old Syrian children have dental caries [12]. Our study did not document the previous dental care of Syrian refugees arriving in Kentucky, therefore it cannot be said whether their access to dental care was feasible in their home country before the political and social turmoil but the results are consistent with the previous studies in Spain and Damascus. Medical providers should encourage all Syrian refugees, particularly children, to establish care with a dentist and have regular dental evaluations and preventative education.

Visual impairment is a public health burden and can impact one’s quality of life and productiveness in society [13,14]. Abnormal eye exams were one of the most commonly encountered medical problem in both adult (25.9%) and pediatric (28.1%) Syrian refugees arriving in Kentucky. The RHA does not specify which components of the eye exam were abnormal making it difficult to understand the severity and complexity of eye health in Syrian refugees. However, these statistics are consistent with a systematic review of the optometric/ophthalmic needs of refugees which found poor eye health across all groups [15]. The resettlement process should not delay eye care and resettlement agencies along with refugee clinic physicians should conduct a full eye and vision exam to ensure proper follow up.

Cardiovascular disease is the leading cause of death in the US with men more commonly affected than women [16]. One of the goals of the WHO is to decrease the morbidity and mortality associated with cardiovascular disease. As the US implements different strategies to combat this problem, it is important to consider the health of the newly arriving refugee populations. Interestingly this study illustrates differences in cardiovascular risk factors (blood pressure, cholesterol, obesity and smoking) between adult Syrian refugee males and females.

When asked about smoking, almost 3 times the number of adult Syrian males responded “yes” compared to females. While this is consistent with the native population in the US where males (15.8%) are more likely to smoke than females (12.2%), smoking is more prevalent in newly arrived male Syrian refugees compared to the native population which increases their risk to other associated conditions [17]. Idris and colleagues report a positive relationship between smoking and the (Syrian) war in university students, with an increase in the mean number of daily cigarettes following the start of the war [18]. This is similar to findings in the American population showing that persons who experience significant psychological stress are more likely to smoke [17]. Knowing the increased stress levels of Syrian refugees, information and resources for smoking cessation should be communicated with this population during the initial health screening and at follow up evaluations.

The total cholesterol level (> 200 mg/dl) was higher in adult Syrian males (49%) compared to adult Syrian females. Concurrently, low HDL (< 59) was found more frequently in adult Syrian males compared to adult Syrian females. According to the Centers for Disease Control and Prevention (CDC), 12.4% of US adults had high total cholesterol and 18% of adults had low HDL in 2015-2016 [19]. In the US, like their Syrian counterparts, males more frequently have low HDL (28.5%) than females (8.9%); however Kentucky Syrian refugees have a higher overall and gender specific abnormalities in cholesterol levels. It is important that these patients all be screened and provided with appropriate education, prevention, and treatment to possibly augment the negative cardiovascular effects [19].

In a study of cardiovascular disease by Maziak and colleagues among adults in Syria, hypertension was detected in 40.6% of participants, specifically 47.7% of men and 34.9% of women [20]. This is higher than the percentage of people in the US with hypertension which is estimated to be 29%, but rising [16]. The proportion of Kentucky adult Syrian refugees with elevated systolic blood pressure was higher in males (58.3%) compared to females (3.1%). This is consistent with previous gender specific studies done on the US population [21].

According to the WHO, anemia affects 25% of the world's population and is found mostly in women and children [22,23]. Anemia was a commonly encountered diagnosis in the newly arrived Kentucky Syrian refugee population, with almost half of adult females and a fifth of children affected by this condition. Anemia is prevalent in Syrian children, which can be caused by a variety of factors, including malnutrition, iron deficiency, helminth infections, and blood loss [24]. There were no patients with roundworms, Schistosomiasis, or Strongyloides in this group and there was no relationship between anemia and those with intestinal parasites so this is unlikely the cause. The consequences of untreated iron deficiency anemia could be devastating in child development and growth [25] so iron studies are warranted and iron supplementation should be

initiated in newly arrived pediatric Syrian refugees.

Dysmenorrhea is a common cause of anemia in women and this should be considered in newly arrived Syrian females and appropriate evaluation and follow up by a gynecologist is warranted. Hematuria was found in about a third of Syrian refugee children. Similarly, almost half of adult females also had hematuria on screening urinalysis. Although this could be due to specimen collection from menstruating females, a kidney condition resulting in chronic blood loss needs to be excluded with repeated urinary studies.

The BMI range for adult and pediatric Syrian refugees was very different. There were 69.4% of adult Syrian refugees with a BMI above 25, which is considered overweight, compared to 70.2% of pediatric Syrian refugees with a BMI under 19, which is considered underweight. According to the Food and Agriculture Organization of the United Nations, 821 million people were undernourished in 2017; in western Asia, the prevalence of undernourishment was projected to be 11.3% [26]. The war has made food security a challenge for Syrian refugees where undernutrition, anemia and low breastfeeding rates were a known problem in Syria before the war [27]. Although undernutrition was reported in Syria pre-war, obesity was also been found to be prevalent and has been attributed to socioeconomic status, education level and location [28,27,29].

A review of primary surveys in Syria in 2012 found the prevalence of obesity in Syrians over 20 years old to be 38.2% and in Syrian women 45-65 years old a striking 81%; obesity analysis showed crossover from younger males to older females [28]. Now due to the war, more recent studies have found Syrian refugee females who have relocated to Turkey to have iron, B12, and folic acid deficiencies and those relocated in Jordan to have a high prevalence of anemia [30,31]. It can be assumed that the nutrition status of adult Syrian females has been compromised due to the war and although our study shows 69.9% of adult Syrian female refugees with a BMI above 25, their overall nutrition may still be deficient. Although food vouchers and cash assistance are available for registered refugees, lack of income and transportation barriers leads to limited access to healthy foods and poor food choices. This results in a high prevalence of anemia and poor nutrition in Syrian refugees, despite elevated BMI [30].

Although pediatric refugees are at risk for malnutrition due to displacement, studies in pediatric Syrian refugees have found that acute malnutrition is low despite the war [30,32,27]. However, the high number of underweight pediatric Syrian refugees in Kentucky is concerning for malnutrition and micronutrient deficiencies; further evaluation of vitamins and minerals by pediatricians is warranted and nutrition supplementation should be considered. Refugee children are at risk of rapid weight gain and increased BMI after resettlement in the US [33,34,35]. Pediatricians and resettlement agencies should provide nutrition education to patients and families to prevent obesity in refugee children. Education and guidance should be given regarding new foods they may have not had access to in their home countries or refugee camps, like fast food and foods high in sugar. Pediatricians are encouraged to trend BMI in pediatric Syrian refugees and regularly assess their vitamin and nutrient levels to assure proper growth and development.

The Syrian war has caused a threat to countries taking in Syrian

refugees due to the prevalence of infectious diseases [36]. There were no screened Syrian refugees who tested positive to HIV, Hepatitis C virus (HCV), or Syphilis, but 3% of Syrian refugees had active Hepatitis B virus (HBV) and many were unvaccinated. A study in Syrian refugee children in Turkey found many were unvaccinated against HBV and Hepatitis A virus [37]. It is important that they receive the proper hepatitis B vaccinations upon resettlement. There were 8.7% of Syrian refugees who tested positive for Tuberculosis (TB) through blood assay T-SPOT or QFT-Plus test. This may be due to previous TB infection or refugees who received the bacille Calmette-Guerin (BCG) TB vaccine.

The Syrian war has caused a cascade of unfortunate events affecting the mental health and psychosocial well-being of millions of Syrians who have been displaced, experienced violence and loss, and have had to live in refugee camps [38]. Syrian refugees in Kentucky have the added stress of resettlement in a new country. Syrians and Syrian refugees have a wide range of mental health problems including but not limited to post traumatic stress disorder (PTSD), anxiety, depression, exacerbation of pre-existing mental health disorders, and experiencing violence, and tremendous loss [39,38,40,41,42].

A RHS-15 was done in only 35 pediatric Syrian refugees, 97 adult Syrian males and 87 adult Syrian females. A low number of Syrian refugees accepted mental health referrals: 4 pediatric, 10 adult males, and 15 adult females. While the RHA included the RHS-15, it was not conducted on all patients and the prevalence of anxiety, depression and PTSD were not specially assessed. Improved screening is crucial to the identification of Syrian refugees with mental health disorders so that proper referrals can be made. Language and cultural differences could be barriers to obtaining the RHS-15. Mental health disease has a social stigma in the Syrian culture which could have prevented Syrian refugees from disclosing their symptoms during the RHS-15 and the RHA overall [38]. Although it is assumed that the Syrian refugees had access to an Arabic interpreter during the RHA, the cultural upbringing and country of origin of the Arabic interpreter is not known. This could have also been a deterrent for disclosure of mental health symptoms.

A study of Syrian refugees in Atlanta found only 20% of their participants saw a mental health professional [38]. Mental health referrals should be followed to ensure Syrian refugees are seeing mental health professionals and to ensure their adjustment in the US is going well. It is especially important for pediatricians to note that while refugee children have been found to be resilient despite the trauma they have undergone, they are also at risk for harassment, discrimination, bullying, and social isolation [43,44].

Limitations

This retrospective study relied on information gathered in the RHA. Language and cultural barriers, human error in electronic data input, and incomplete data entry are all limitations of this type of study.

Conclusions

Syrian refugees often have chronic conditions that require long term management, aggressive risk stratification and preventative health measures. Early identification of these

chronic diseases and effective primary and preventative care is therefore essential to limit the long-term tertiary complications as they integrate into the local community. Dental and visual preventative health should be promoted and resources provided to the refugees during their intake exams and through their primary care providers. Adults should have regular follow up to control and/or prevent further cardiovascular disease. Nutrition education should be strongly advocated in the Syrian community, particularly the effect of diet on overall health and the appropriate growth and development of their children. Many Syrian refugees have mental health needs and they should all have a full mental health evaluation and appropriate intervention. Improved screening tools and follow up options could help facilitate mental health care. It is imperative that mental health referrals are followed to ensure appropriate adjustment of the Syrian refugees in their new environment. Pediatricians and teachers should closely monitor the Syrian refugee children for signs of adjustment problems, anxiety, post-traumatic stress disorder or other mental health conditions. In addition, they may also be at a higher risk of bullying and adjustment challenges in schools.

Resettling refugees is a community wide effort that requires patience, understanding and close follow up to ensure refugees' needs are met medically, socially and emotionally.

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Conflict of Interest

No authors have conflicts of interest to report.

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