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Research Article

# Demographic Factors Associated with Health in a Senior Refugee Population in Idaho

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**Abstract**

**Aims:** The aim of this study was to determine the relationship between demographic characteristics and health, and if demographic characteristics predicted health of refugees. A second aim was to determine the association between self-rated health and objective health of refugees.

**Design:** This study used a descriptive cross-sectional design.

**Methods:** Secondary Data Analysis.

**Results:** Refugees living in USA longer than two years reported better health than refugees who lived in the USA less than two years for whom data was available. Age was not found to predict health in senior refugees. Refugees that reported race as Asian, Black/African American, or Hispanic/Latino reported poorer self-rated health than refugees that reported race as White.

**Conclusion:** Prior studies focused on the general population of refugees, whereas this investigation focused only on senior refugees in Idaho. The study variables country of origin, ethnicity, and marital status, were not found to be associated with health.

**Impact:** Refugees in this study reported better health after living in the USA for two years or longer. There is an opportunity for nurses and other health care professionals to collaborate with individuals providing refugee community resources. Nurses working with refugee resettlement agencies can provide health screening and education to refugees after their resettlement period. Education should include information about the USA healthcare system, common conditions or diseases refugees may have, treatment options, and resources in the community that refugees can use to enhance their health.

**Keywords:** Refugee; Demographic Factors; Health, Nurses; Health Care Professionals

## Introduction

Refugees are individuals who have left their country of citizenship because they feared persecution due to their race, religion, nationality, social group, or political opinion and are unwilling or unable to appeal to their country of origin for protection due to fear . Research on refugee health [1] has focused on the resettlement period when refugees are settling into their new lives in their host country [2]. There is a lack of research on the health of refugees after the resettlement period. The purpose of this study was to examine demographic characteristics, number of years living in the USA, and relation to overall health status of senior refugees in Idaho.

## Materials and Methods

### Background

Health care is often neglected because of the challenges of moving and settling into a new country [3]. In addition, refugees that settle in the USA might neglect their health care because the refugees do not understand the healthcare system in the USA or mistrust the USA healthcare system [4]. There is a gap in research regarding refugee health after the resettlement period. However, it is known that refugees continue to have poor health outcomes even after establishing themselves into host country communities [5].

Madeline Leininger's Culture Care Diversity and Universality Theory [6], theorizes that while the concept of health is universal, the meaning of health is defined by a person's culture. Leininger's Sunrise Model helps envision a cultural world of different life influences to explore global factors that have the potential to influence culture and health [7]. Culture influences health and a person's idea of their own health. Because health is influenced by cultural and individual factors, there is a need to understand which factors influence health for refugees.

Leininger's theory helps guide healthcare professionals understanding of culture and health [7]. Culturally diverse communities can provide challenges to health care providers because the meaning of health and how someone feels about their health is influenced by their culture [8]. To understand refugee health, it is important for healthcare providers to recognize how cultural factors influence health.

### Aims

The aim of this study was to determine the relationships between demographic characteristics and health, and if demographic




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characteristics predicted health of refugees. A second aim was to determine the association between self-rated health and objective health of refugees.

### Design

A descriptive cross-sectional design was used. Secondary data was used to determine the association of demographic characteristics; age, gender, country of origin, race, ethnicity, marital status, number of year's refugees lived in USA, self-rated health and objective health of senior refugees.

### Sample

A convenient sample of previously collected data from the Idaho Senior Refugee Interprofessional Holistic Health Project was utilized for this study [9]. This secondary data analysis consisted of 110 senior refugees who participated in the Idaho Senior Refugee Project from September 2016 to February 2018 and were over age 50. Any individual who had never been considered a refugee or was younger than 50 was excluded.

A power analysis in G*Power was performed to determine an optimal sample size to determine a statistically significant result for Pearson Chi-Square test. A dependent variable with three categories, two degrees of freedom was used to measure the needed sample size. For the multiple independent variables, varying numbers of categories were evaluated. For independent variables with two categories, the needed sample size was determined to be N = 108 for an effect size of w = 0.3 with power = 0.80, and alpha set at 0.05.

### Data collection

Data for the main study was collected by health professional students with the use of a translator and supervised by preceptors during a home visit to senior refugees. The Research Electronic Data Capture (REDCap) program on study laptops was used to collect and store participants' information during home visits.

Measures included a demographic questionnaire covering age, gender, country of origin, race, ethnicity, marital status, years living in the USA, and the first question from the Health-Related Quality of Life (HRQOL) to measure self-rated health [10]. The first question from the HRQOL survey asks, "Would you say that in general your health is excellent, very good, good, fair, or poor" [10]. Refugees who rated their self-rated health as excellent, very good, or good were classified into good health, refugees who rated their health as fair were classified into fair health, and refugees who reported their health as poor were classified into poor health.

For the objective health measure, weight and height were obtained to calculate Body Mass Index (BMI), and blood pressure was recorded on a home visit. A BMI of 18.5-25 was categorized as good health. BMI 15-18.5 (underweight) or between 25-30 (overweight) was categorized as fair health. While a BMI under 15 (severely underweight) and above 30 (obese) was categorized as poor health [11]. Blood pressure was classified into categories of normal blood pressure, pre-hypertension, and hypertension [11], to determine the health of each refugee. Blood pressure of 120/80 and under was considered normal blood pressure and was categorized as good health. Pre-hypertension was classified as 121-139/81-89, and blood pressure in this range was categorized as fair health. Hypertension was classified as above 140/90. Blood pressures in this range were categorized as poor health [11].

### Ethical considerations

The Human Subjects Committee (IRB) at the University approved the study. After approval from the IRB and receipt of the REDCap de-identified data, the study was conducted.

### Data analysis

The statistical package SPSS 25.0 was used to analyze the data. Interval data such as age and number of years living in the country was converted into ordinal scale variables. The association of independent variables such as age, gender, country of origin, race, ethnicity, marital status and number of years living in the country, were assessed using Pearson Chi-Square Test of Independence. Cramer's phi or V were reported as the measure of association. Ordinal regression was utilized to examine the relationship of demographic variables, self-rated health, and objective health.

### Validity and reliability

Translators communicated in the refugee's language to provide understanding of the information. The first question from the Health-Related Quality of Life (HRQOL) has been used previously to measure self-rated health [10]. Standard calculations were used to calculate BMI from height and weight. Blood Pressure was obtained using standard arm cuff procedures.

## Results

Characteristics of the Sample Population. The ages of the refugees ranged from 50-96, with a mean age of 63. Age was broken into two categories based on a mean age of 63, (1) ages 50-63 and (2) ages 64 and older. Of the 83 refugees that reported country of origin, they reported originating from one of twelve different countries: Afghanistan (n = 5), Bhutan (n = 23), Democratic Republic of Congo (n = 4), Republic of Congo (n = 21), Palestine (n = 1), Iraq (n = 13), Burundi (n = 4), Myanmar (n = 7), Somalia (n = 2), Rwanda (n = 1), Pakistan (n = 1), and Armenia (n = 1). Country of origin was categorized into two categories (1) Eurasia and (2) Africa. All the refugees completed the question regarding race, and that they identified with one of four races, white (n = 27), Hispanic or Latino (n = 1), Asian (n = 43), or Black or African American (n = 39). For this study race was separated into two categories, (1) White and (2) Other.

Of the 67 refugees that reported ethnicity, they identified with one of four ethic groups, Congo (n = 2), Bembe (n = 1), Afghani (n = 1), Not Hispanic or Latino (n = 63). For this study ethnicity was separated into two categories (1) Not Hispanic or Latino and (2) Other. Of the 85 refugees that reported marital status, single (n = 10), married (n = 58), divorced (n = 1), widowed (n = 16). Two categories, (1) Married and (2) Single (single, divorced, and widowed) were used.

Of the 80 refugees that reported the number of years they had lived in the USA, (n = 38) lived in the USA under two years and (n = 42) lived in the USA 2 years or longer. The two-year cut off point was created to distinguish between newly arrived refuges and established refugees. The longest a refugee reported living in the USA was 14 years, while four refugees reported living in the USA less than one month.

**Table 1:** Demographic Variables and Health.

| Variable | Frequency |
|---|---|
| Age | 110 |
| 50-63 years old | 64 (58.2%) |
| 64 years and older | 46 (41.8%) |
| Gender | 110 |
| Male | 40 (36.4%) |
| Female | 70 (63.6%) |
| Country of Origin | 83 |
| Eurasia | 52 (47.3%) |
| Africa | 31 (28.2%) |
| Race | 110 |
| White | 27 (24.5%) |
| Other | 83 (57.5%) |
| Ethnicity | 67 |
| Not Hispanic or Latino | 63 (57.3%) |
| Other | 4 (3.6%) |
| Marital Status | 85 |
| Married | 58 (52.7%) |
| Single | 27 (24.5%) |
| Number of years in the USA | 80 |
| Under 2 years | 38 (34.5%) |
| 2 years and longer | 42 (38.2%) |
| Self-Rated Heath | 105 |
| Good | 21 (19.1%) |
| Fair | 41 (37.3%) |
| Poor | 43 (39.1%) |
| Objective Health | 110 |
| Good | 7 (6.4%) |
| Fair | 27 (24.5%) |
| Poor | 76 (69.1%) |

All refugees in the sample completed self-rated health and objective health indicators. Of the 110 refugees that completed self-rated health, they reported one of six responses, excellent (n = 4), very good (n = 6), good (n = 11), fair (n = 41), poor (n = 43), didn't know (n = 4), and refused to answer (n = 1). Refugees that refused or did not know their self-rated health were not classified.

Refugees BMI varied from 15.6 to 49.4, with M = 28, and SD = 6. Refugees Systolic Blood Pressure (SBP) varied from 102 to 238, with M = 142 and SD = 22. Refugees Diastolic Blood Pressure (DBP) varied from 50 to 120, with M = 85, and SD = 13. Table 1 presents demographic variables and health variables for refugees. Not all refugees responded to all questions, therefore the frequency varies according to the number that answered each question.

Separate Chi-Square test of independence was calculated for gender, ethnicity, country of origin, marital status, self-rated health and objective health. There was no association between health and gender, ethnicity, country of origin, and marital status. Separate ordinal regression analyses was calculated for gender, ethnicity, country of origin, and marital, for health. Gender, ethnicity, country of origin, or marital status did not explain either self-rated health or objective health in the refugee population.

Health. A Chi-Square test of independence was calculated comparing the self-rated health to the objective health of the refugees. There was no association between self-rated health and objective health, $X^2(4, n = 105) = 5.49$, $p = 0.25$ (Fisher's Exact Test), $V = 0.16$.

Number of Years Living in the USA. Table 2 presents the separate Chi-Square test of independence between the number of years in the USA, self-rated health and objective health. Fisher's Exact Test was reported for the Chi-Square Test of Independence between the number of years living in the USA and objective health, because there were cell counts less than five. Table 2 shows there was no statistically significant association between number of years in the host country and self-rated health and there was no statistically significant association between number of years in the host country and objective health indicators for refugees whom data were available.

Whereas the number of years living in the USA did explain objective health. The model was statistically significant, -2 Log Likelihood = 13.52, $X^2(2, n = 80) = 4.64$, $p = 0.03$. The Nagelkerke pseudo $R^2$ indicated that the model accounted for approximately 7% of the total variance. The odds of living in the USA two years or longer and having good indicators for objective health was 2.76 times, 95% CI [1.07, 7.06] times that of refugees living in the USA less than two years. The number of years a refugee lived in the USA did not explain self-rated health. The model was not statistically significant, -2 Log Likelihood = 17.04, $X^2(2, n = 79) = 0.07$, $p = 0.80$. The Nagelkerke pseudo $R^2$ indicated that the model accounted for approximately 0.1% of the total variance.

Age. Age as a predictor of self-rated health was analyzed with ordinal regression. The model was not statistically significant, -2 Log Likelihood = 16.71, $X^2(2, n = 105) = 0.22$, $p = 0.64$. The Nagelkerke pseudo $R^2$ indicated that the model accounted for approximately 0.2% of the total variance. Second, age as a predictor of objective health was analyzed with ordinal regression. This model was also not statistically significant, -2 Log Likelihood = 14.41, $X^2(2, n = 110) = 0.01$, $p = 0.94$. The Nagelkerke pseudo $R^2$ indicated that the model accounted for 0% of the total variance. Age did not explain or predict either refugees self-rated health or objective health.

Race. The relationship of race to self-rated health was analyzed with ordinal regression. The model was statistically significant, -2 Log Likelihood = 15.21, $X^2(2, n = 105) = 7.01$, $p = 0.008$. The Nagelkerke

**Table 2:** Association number of years living in the USA, self-rated health, objective health.

| | Number of Years in Host Country | | | | |
|---|---|---|---|---|---|
| Variable | Pearson $c^2$ | DF | p value | Cramer's f or V | Fisher's Exact Test p value |
| Self-rated health | 2.01 | 2 | 0.37 | 0.16 | 0.35 |
| Objective health | 4.91 | 2 | 0.09 | 0.25 | 0.09 |

pseudo $R^2$ indicated the model accounted for approximately 7.3% of the total variance. Race modestly predicted refugees self-rated health. The odds of refugees who reported race as other (Asian, Black or African American, and Hispanic or Latino) reporting good self-rated health was 0.31 times, 95% CI [0.13, 0.76], that of refugees who reported race as White, however, race did not explain objective health. The model was not statistically significant, -2 Log Likelihood = 13.67, $X^2(2, n = 110) = 3.19$, $p = 0.07$. The Nagelkerke pseudo $R^2$ indicated that the model accounted for approximately 3.6% of the total variance.

## Discussion

Previous studies have not assessed the association between self-rated health and objective health in refugee populations in the USA, but a research study did assess the association between self-rated health and objective health of seniors in Canada [12]. Mossey & Shapiro used one question with a five-point rating to assess self-rated health and used physician diagnosis through insurance claims and death registries to measure objective health. The one question asked was, "For your age would you say, in general, your health is excellent, good, fair, poor, or bad?" [12]. Objective health variables were identified through medical health claims using physician diagnosis, and mortality was assessed through death registries. Mossey & Shapiro found an association between reported poor self-rated health, health status, and death [12].

Self-rated health is often used as a proxy for objective health in health research in older populations [13]. Mossey and Shaprio have been cited often saying self-rated health can be used as a proxy for objective health due to the concordance they found between senior's poor health and their self-rated poor health [12].

The current study only looked at objective health as BMI and blood pressure. A high BMI and an elevated blood pressure are risk factors for multiple chronic conditions, but not a measure of disease condition. The difference in how objective health was measured in the two studies could be one reason for the different results.

Prior to the present study, there had not been a study of refugees which assessed the congruence of self-rated health and objective health. Either self-rated health or objective health variables were measured in research on refugees [14]. For the refugee population in this study, the self-rated health measure was not a good proxy for the objective health measure. This finding suggests health practitioners should be cautious when interpreting the findings from past studies of refugees that used self-rated health as a proxy for objective health.

This study also found that established refugees reported better objective health than newly arrived refugees, which is consistent with the Leininger Sunrise Model, that cultural factors influence people's health [7]. This study does align with previous research in finding a relationship between health and the number of years a refugee lived in the host country, but the difference is the direction of the relationship. Research conducted by Diaz et al., found that multimorbidity doubled for refugees who had lived in the host country more than five years [15]. Norredam et al., also found that while refugees' chronic disease rate was lower than Denmark on arrival to the country, within five years report chronic disease such as heart attack and ischemic stroke increased for refugees [16].

One reason for the differences in findings between this study and the previous studies conducted was the study population. Diaz et al, [15] and Norredam et al, [16] both used national registry data for refugees. These study populations were more representative of the refugee population in their country. Whereas this study only looked at senior refugees in Idaho.

## Limitations

There were several limitations in this study. One limitation was the use of secondary data. Only refugees in the main study were included and assessed at only one point in time. Independent variables were categorized into two variables because of the sample size. With only two categories, the variables country of origin and race were less specific. Refugees who participated in this study reported 12 different countries of origin. This study could not look at specific countries or regions. Instead of country of origin, this variable was classified to continent of origin. Health differs by country of origin and because multiple countries were grouped together, this study was unable to examine how each specific country of origin explains health. Another variable that was not specific in this study was race. Race was categorized into two variables. While this study found that race explained self-rated health; no specific race could be identified as explaining health.

Another limitation was using subjective data as the dependent variable. One question of a survey was used to assess self-rated health. The reliability of the first four questions of the HRQOL survey has a Cronbach's coefficient alpha of 0.71 [17]. However, the reliability of using only question one is unknown. Objective health data was measured by BMI and BP. BMI and BP values are risk factors for chronic diseases; however, individuals with high BMI and elevated BP readings may not be diagnosed with chronic diseases. Using indicators for objective health instead of actual disease diagnoses may have decreased the accuracy of the objective health variable in this study. Since this study began, new hypertension guidelines have been developed [18]. Future research may want to consider using the new guidelines when measuring blood pressure.

Another limitation was that the results were potentially biased due to the large amounts of missing data values. The results of this study can only be applied to the refugees in the sample that provided information regarding demographic variables.

## Conclusion

The Sunrise Model was a useful guide for this study. The results of this study showed that established refugees report better health than newly arrived refugees in this study sample. Established refugees had access to healthcare in the USA. Refugees in this study reported better health after living in the USA for two years or longer. There is an opportunity for nurses and health care professionals to collaborate with individuals in the community that provide community resources to meet the cultural needs of refugees. Refugees are screened before coming to the USA, and receive help initially, but after initial help has ended, refugees need to begin using healthcare in the USA. Health care professionals and nurses should work with refugee resettlement agencies to provide health screening and education to refugees after their resettlement period has ended. Education should include information about the USA healthcare system, common conditions

or diseases refugees may have, treatment options, and resources in the community that refugees can use.

It is important that education be specific to the refugee to address the differences in their perceived self-rated health and actual objective health. Health Care Professionals need to discuss health conditions and concerns that refugees have. Providing knowledge about disease conditions, treatment, and management may help to alieve the refugee's fear of poor health. This education may help refugees who identify race as other than white to align their self-rated health with their objective health.

The association of self-rated health and objective health needs to be explored further in Refugees in terms of disease diagnosis, condition, or death to provide a clearer understanding of the association between self-rated health and objective health. Assessing whether self-rated health can be used as a proxy for objective health in refugee populations will influence how refugee populations are studied going forward. Additional studies looking at the number of years living in the USA and health in refugees are needed that also consider use of health services. Additional larger studies that examine refugee health and demographic variables would be able to categorize variables into more than one category and provide a deeper understanding of how demographic variables explain health for refugees in Idaho.

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