

Immigrant Health in the United States: A Trajectory Toward Change

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Abstract

Introduction: Immigrants have a negative health trajectory due to interactions between immigration policies and the totality of the immigration experience. Despite the enactment of the Patient Protection and Affordable Care Act in 2010, an association with the sociopolitical environment and its influence on chronic disease prevalence remains. The purpose of this review was to provide evidence for existing health disparities among immigrants based on ethnicity, immigration status, country of origin, duration in the United States. The sociopolitical environment affecting immigrant health and opportunities to change the course toward ameliorating health disparities is discussed. **Method:** Using PRISMA guidelines, the literature focused on immigrants, disease prevalence, health care access, and policy. Twenty-nine articles were selected for this review. **Results:** Chronic disease prevalence is associated with the restrictive immigration and health care policies among all immigrant groups. **Discussion:** Recent evidence and the current immigration debate signify an opportunity to explore strategies to improve health outcomes among immigrants.

Keywords

immigrants, chronic disease, health care policy, ACA

During colonialization of American more than 200 years ago colonialist set in motion the flow immigration into the United States (U.S.) from all around the world United States. Even in the United States' early foundation, informal laws and formal policies regarding immigration began to determine the demographic portrait of the population (Zolberg, 2006). In 2014 alone, roughly 1.7 million immigrants came to the United States predominantly from Mexico, China, India, and the Caribbean of whom one million obtained lawful permanent residents (LPRs) (U.S. Department of Homeland Security, 2016).

With the establishment of the U.S. constitution, immigration policies promulgated such statutes as *The Naturalization Act of 1790*, which set forth the parameters for membership and the countries from which this membership was permitted (Zolberg, 2006). In 1965, Congress passed the *Immigration and Nationality Act* (INA) which defined admittance into the United States legally, reformed the national origin quota system while focusing on family reunification, and provided the eligibility to apply for citizenship (Pew Research Center, 2015). Due to increasing concerns about illegal immigration, Congress passed the *Illegal Immigration Reform and Immigrant Responsibility Act* (1996) which included provisions for restrictions on employment eligibility and public benefits or assistance for illegal immigrants (Fortuny & Chaudry, 2011). Additional legislation in 1996 included the welfare reform law, *Personal Responsibility and Work*

Opportunity Reconciliation Act, which further restricted public assistance such as Medicaid/Chip, government subsidize nutritional program and welfare for immigrants who did not meet eligibility requirements (Fortuny & Chaudry, 2011). These legal statutes have not swayed foreigners from migrating to the United States. The long-term impact of immigration legislation along with contributing factors such as the immigration experience, stress associated with acculturation; marginalization; and political, socioeconomic, cultural, and language barriers influence immigrants' potential prosperity, well-being, and overall health status in the United States (Edberg, Cleary, & Vyas, 2011).

Following the enactment of the INA in 1965, a rapid wave of immigration ensued causing the foreign-born population to increase from 9.7 million in 1960 to 42.1 million in 2015, a 13.9% increase (A. Brown & Stepler, 2016; Camarota & Zeigler, 2015). Thirteen percent (69,933) of these new immigrants represent refugees or asylees (from Bhutan, Burma, Iraq, and Somalia; Mossaad, 2016). Moreover, an additional 11.3 million unauthorized immigrants made up 3.5% of the

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Table 1. Immigrant Status by Definition.

Category of immigrant status	Definition
Foreign-born	"Someone born outside the United States and its territories, except those born abroad to US-citizen parents. The foreign-born include those who have obtained US citizenship through naturalization and people in different immigration statuses. People born in the United States, Puerto Rico, and other territories, or born abroad to US-citizen parents, are native-born" (U.S. Census Bureau, 2016).
Lawful permanent resident	"Any person not a citizen of the United States who is living in the U.S. under legally recognized and lawfully recorded permanent residence as an immigrant. Also known as 'permanent resident alien,' 'resident alien permit holder,' and 'Green Card holder'" (U.S. Citizenship and Immigration Services, n.d.).
Naturalized citizens	"LPRs who have become U.S. citizens through the naturalization process. LPRs must reside in the U.S. for five years or can marry a U.S. citizen in order to qualify for naturalization. LPRs must pass the citizenship exam in English and pass a background check" (U.S. Citizenship and Immigration Services, n.d.).
Temporary migrant	"Designated non-immigrants because the visas are issued based on the fact that applicant will not intend to stay in the United States; permanently non-immigrants wanting to go for academic studies and/or language training programs such as students" (American Immigration Center, n.d.).
Refugee	"Any person who is outside any country of such person's nationality or, in the case of a person having no nationality, is outside any country in which such person last habitually resided, and who is unable or unwilling to return to, and is unable or unwilling to avail himself or herself of the protection of, that country because of persecution or a well-founded fear of persecution on account of race, religion, nationality, membership in a particular social group, or political opinion" (101(a)(42) of the Immigration and Nationality Act).
Asylee	"A foreign national in the United States or at a port of entry who is unable or unwilling to return to his or her country of nationality, or to seek the protection of that country because of persecution or a well-founded fear of persecution. Persecution or the fear thereof must be based on religion, nationality, membership in a particular social group or political opinion" (U.S. Citizenship and Immigration Services, n.d.).
Unauthorized immigrant (illegal alien)	"The unauthorized resident immigrant population is defined as all foreign-born non-citizens who are not legal residents. Most unauthorized residents either entered the United States without inspection or were admitted temporarily and stayed past the date they were required to leave . . ." (U.S. Department of Homeland Security, 2016).

total population in 2014, and almost half (49%) were from Mexico (Krogstad & Passel, 2015).

To understand the impact of these factors on immigrants, a perspective of the current portrait of the immigration population will provide the backdrop for this review. According to the U.S. Census Bureau (2013), the term "foreign-born," also known as immigrants, refers to individuals who lack U.S. citizenship at birth. Persons categorized as foreign-born include LPRs or immigrants, temporary migrants, naturalized U.S. citizens, migrants meeting humanitarian status to include refugees and asylees, and undocumented migrants in the United States (Table 1). Although the Pew Research Center (2015) reports that Hispanics make up 47% of the foreign-born population, researchers project that Asian immigrants will surpass Hispanics immigrants by 2055. In effect, immigrants are ethnically and racially diverse and continue to contribute to the pluralism of this country through all that cultural diversity brings ethnically, socially, and economically.

Major immigration policies and changing ethnic/racial composition of the foreign-born in the United States

establishes the background for examining the impact the migration experience has on this population. The migratory process in of itself is often delineated by the trauma of leaving one's country of origin where many have experienced brutality, genocide, extreme poverty, and religious persecution (Edberg et al., 2011). Furthermore, the additional social determinants which emerge in the host country, such as economic stability, social connectedness, cultural and language barriers, and health care access interact to become the trajectory for the development of health disparities and contribute to increased morbidity and mortality among this population (Edberg et al., 2011; U.S. Department of Health & Human Services, 2010).

This trajectory or *syndemic* among immigrants and undocumented immigrants, as described by Edberg et al. (2011), is a framework for examining the health disparities and explains the pathway to the development of chronic diseases trajectory analogous to *Healthy People 2020's* Social Determinates of Health (SDOH) framework. Both are useful to guide policy makers and health care practitioners in addressing increased morbidity and mortality among ethnic/

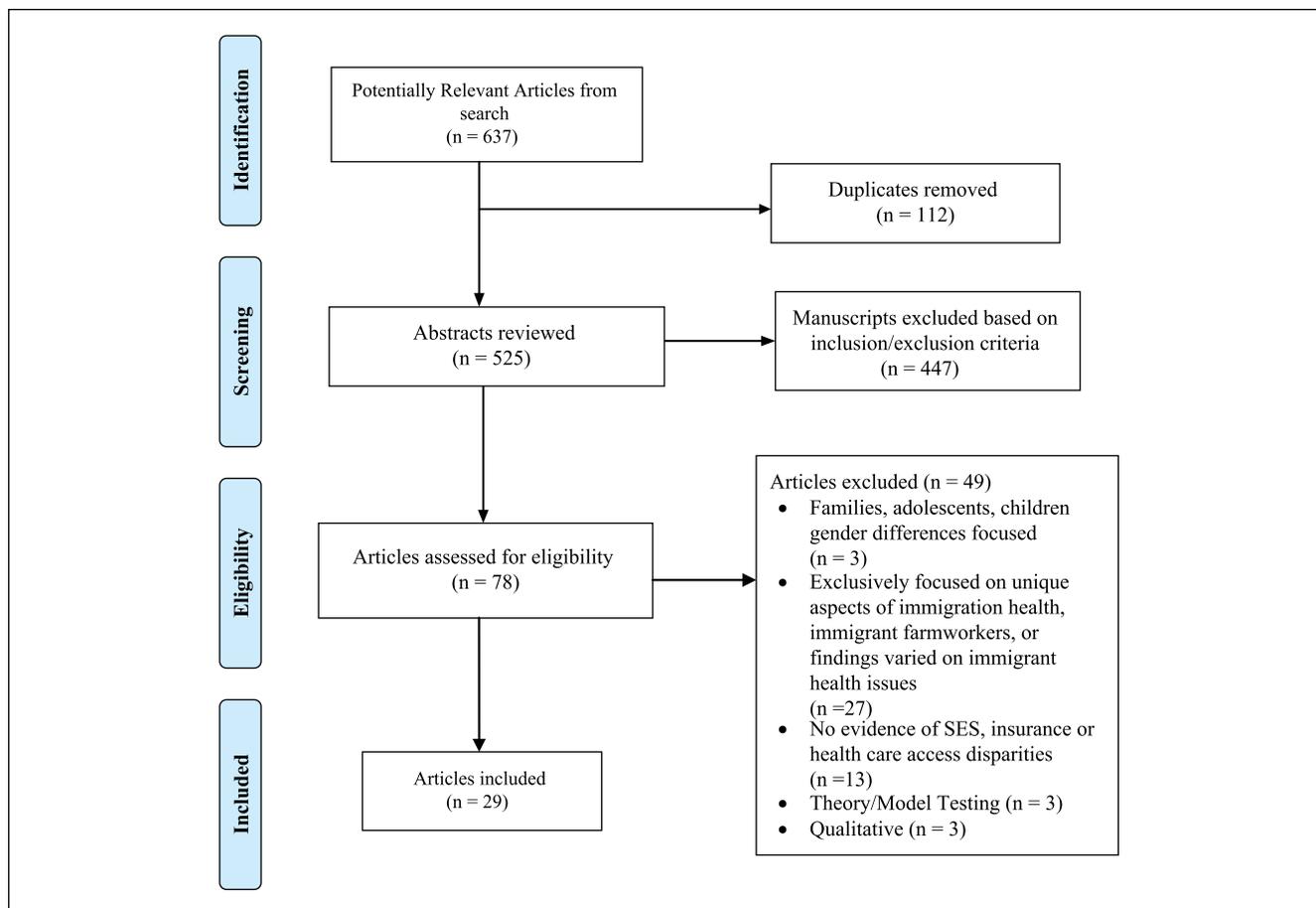


Figure 1. PRISMA flowchart of literature search.

racial minority groups and immigrants (U.S. Department of Health & Human Services, 2010; Rosenbaum, 2015). Numerous important studies focus on facets of the SDOH that become the trajectory for the development of chronic diseases across various at risk immigrant groups (Lassetter & Callister, 2009; Mehrotra, Gaur, & Petrova, 2012; Singh, Siahpush, Hiatt, & Timsina 2011; Yun et al., 2012).

The research question that guided the review is as follows: What is the current evidence in the past seven years on health disparities among immigrants related to the sociopolitical environment in the United States? Only recently has literature emerged exploring the potential health trajectory among this population within the current political climate and the implementation of the *Patient Protection and Affordable Care Act* (ACA; 2010; Agrawal & Venkatesh, 2015; H. Brown, Wilson, & Angel, 2015; Green, Hochhalter, Dereszowska, & Sabik, 2015; Hacker, Anies, Folb, & Zallman, 2015; Joseph, 2016). The purpose of this review was to provide evidence for existing health disparities among immigrants based on ethnicity, immigration status, country of origin, length of time in the United States, and access to health care. Further consideration of the current sociopolitical environment affecting immigrant health and the potential

to change course toward ameliorating immigrant health disparities in the United States will be presented. Areas of opportunity to address these disparities are examined. The PRISMA guideline will be used in the development of the article.

Method

For this literature review, research studies published between 2009 and 2016 in peer-reviewed journals from medical, public health, health care law, and social sciences was conducted using Ovid, Discover, JSTOR, ProQuest, and SpringerLink (Figure 1). Inclusion criteria were studies on immigrants into the United States who were (a) 18 years of age and older and (b) from Africa, Asia, Europe, and Latino/Hispanic countries. Exclusion criteria of the literature search were (a) studies that focused on infectious diseases among immigrants since mandatory screenings occur prior to entering the United States to identify prohibited health conditions (U.S. Department of Health & Human Services, 2016); (b) origin of immigration to the United States since the governing system differs from other countries in regard to public policy, regulation of the economy, and distributions of resources; (c)

theoretical modeling, theory testing, and pilot studies; (d) studies on family, children/adolescents, and gender differences; (e) qualitative studies; and (f) comparison studies between foreign-born immigrants and U.S.-born ethnic groups because no data were presented on demographics, insurance, health, or socioeconomic status (SES) disparities among foreign-born. Key words used to conduct the searches included a combination of the words *immigrants, refugees, asylees, undocumented, immigration, foreign-born, health and health status/disparities, chronic disease, ACA, access to care/insurance, policy, and African, Asian, European, and Hispanic*.

Results

Most of the studies published during this time frame were retrospective, correlational conducted using data from the National Health Interview Surveys (NIHS) and National Health and Nutrition Examination Surveys databases. Findings remain relevant despite significant changes in the immigrant characteristics, socioeconomic, and health care environment in the past 15 years (Kaushal, 2009; Stimpson, Wilson, Murillo, & Pagan, 2012). See Figure 1 for articles reviewed. The Table of Evidence is provided (see Table 2). Findings are focused around (a) U.S. Immigration and Access to Healthcare; (b) U.S. Immigration and Healthcare Insurance; (c) U.S. Immigration and Cost of Healthcare; (d) Healthy Immigrant Paradox and Acculturation; (e) Chronic Disease Trajectory; and (f) Immigration Policy, Politics, and the Future.

U.S. Immigration and Access to Health Care

Important to the discussion is understanding health care access barriers as spelled out in immigration legislation, in addition to the impact of the ACA. On entry into the United States, immigrants must meet specific criteria (qualified and nonqualified) as established in the INA (1965), to receive any form of federal assistance, while refugees may receive limited federal benefits such as Medicaid, but only for a period of time (Fortuny & Chaudry, 2011). With the enactment of *Personal Responsibility and Work Opportunity Reconciliation Act* in 1996, federal benefits were restricted for the first 5 years for LPRs immigrants and other qualified immigrants; however, children qualify for federal benefits within the first 5 years (Hall & Perrin, 2015). After 5 years, LPRs may begin receiving health insurance coverage either through public coverage or through the ACA's insurance exchanges ("Patient Protection," 2010). Added to legislation affecting both uninsured and underinsured, was the passage of the Emergency Medical Treatment and Active Labor Act of 1986 in which hospitals must treat all patients in an emergency and ensured equal access to health care regardless of one's ability to pay (Centers for Medicare & Medicaid Services, 2012). This legislation provides minimal, but

costly health care services for the uninsured, as well as the 11.3 million undocumented who do not qualify for any federally subsidized programs, and who are barred from health care coverage through the ACA (Wallace, Torres, Nobari, & Pourat, 2013; Zuber, 2012). Even so, Emergency Medical Treatment and Active Labor Act meets the emergency health care needs of uninsured individuals, but is inadequate as a useful and continuous source of care. Stimpson et al. (2012) examined data from the 1998-2008 National Health and Nutrition Examination Surveys and reported that Mexican immigrants were less likely to receive cholesterol screenings because of limited access to health care.

In 2014, the ACA began to allow for Emergency Medicaid for additional qualified undocumented immigrants. As well, the Federally Qualified Health Centers, one safety net for health care for undocumented immigrants, received additional funding to \$11 billion over a 5-year period. Unfortunately, the ACA cut funding to another safety net, Disproportionate-Share Hospitals, which are important in the administration of care to uninsured patients (Joseph, 2016; Sommers, 2013; Wallace et al., 2013).

To improve health care access for undocumented immigrants, 166 federally funded migrant health centers and the 700 associated satellite programs across the nation, provide comprehensive, quality health care services to migrant and seasonal farmworkers whether they can pay for those services (National Center for Farmworker Health, 2014).

Despite the services available, it is important to keep in mind that the accessibility to health care, and navigation of health care for immigrants regardless of entrance to the United States and immigration classification is complex, encumbered with barriers associated with understanding the insurance application process, eligibility rules, cultural, language and literacy obstacles, logistics and transportation issues, and generalized fear and mistrust (Perreira et al., 2012). These various aspects of the U.S. health care system affect whether immigrants possess health insurance, a de facto to individual health, or if they seek to use Federally Qualified Health Centers, both of which influence the access to preventive care, screenings, and chronic disease management.

Furthermore, a chasm exists between the effectiveness of care provided by safety net services and adequately meeting the health care needs of individuals who lack health insurance (Institute of Medicine, 2009).

Access to health care is affected by insurance availability. While 79% of U.S. citizens represent the uninsured, 21% of the uninsured represent LPR and undocumented immigrants (The Kaiser Commission on Medicaid and the Uninsured, 2015). According to Zong and Batalova (2016), 53% of immigrants in 2014 possessed private health insurance, 27% of immigrants possessed public health insurance, but more than 27% remained uninsured. The lack of insurance further correlates with inferior health care, diminished use of preventive care services, and is associated with higher mortality (Institute of Medicine, 2009; Wilper et al., 2009).

Table 2. Literature Review.

Authors	Design	Purpose	Findings
Afable et al. (2016)	Prospective, correlational	Explore the correlation between length of time in the United States and overweight/obesity among Filipino immigrants from a New York metropolitan area through survey data collected between 2008 and 2012.	Findings supported a significant and negative relationship between length of time in the United States and the risk of being overweight/obese.
Albrecht et al. (2016)	Longitudinal	Purpose was to explore whether Hispanic and Chinese foreign-born immigrants experienced a greater increase in body mass index (BMI) and waist circumference (WC) as compared with the U.S.-born with a follow-up at 5 years. Authors also examined if there was a difference among Hispanic subgroups.	This study found no significant differences in BMI and WC among Hispanics and Chinese. When these groups were compared with U.S.-born, there was no significant changes over time. However, Mexican Hispanics' WC had increased compare with U.S.-born participants. Authors suggest that health consequences due to the acculturation process may not be common among all immigrants.
Bostean (2013)	Retrospective, correlational	The purpose of this study was to explore the healthy migrant and salmon-bias' hypotheses as explanations for the health outcomes of U.S. Mexican immigrants ages 18 and older. Using the 2002 Mexican Family Life Survey and the 2001-2003 U.S. NHIS, recent and longer term Mexican immigrants' health in the United States was examined on activity limitations, self-rated health, and chronic diseases.	Findings from this study asserted that both suggest that there are both the healthy migrant and salmon-bias effects are affected by activity limitations, but not for self-rated health or chronic disease.
Bustamante, Chen, Fang, Rizzo, and Ortega (2014)	Cross-sectional, self-reported data	Authors used a cross-cohort analysis of immigrant documentation status to explore the likelihood of having health insurance among the U.S. foreign-born population.	Undocumented immigrants in the U.S. longer than 10 years are more likely to be uninsured and status of immigration is the primary reason for not having insurance coverage.
Fang, Ayala, and Loustalot (2012)	Retrospective, correlational	Purpose was to examine the prevalence of hypertension (HTN) among foreign-born adults from South America, Asia, Europe, and Africa using NHIS data from 2006 to 2010.	Immigration status is the primary barrier to obtaining health insurance as well as affordability.
Finkelstein et al. (2011)	Randomized controlled design	To explore the impact on health care utilization and cost to newly insured low-income individuals through the Oregon lottery as compared with a control group who did not receive insurance.	Although HTN prevalence was higher among U.S.-born adults as compared with foreign-born adults, the risk of HTN among foreign-born adults increased in relation to the length of time in the United States. HTN prevalence among Asians varied based on time in the United States.
Holmes, Driscoll, and Heron (2015)	Retrospective, correlational	Purpose was to explore the relationship between age of immigration and duration in the United States on mortality among foreign-born Hispanics as compared with U.S.-born Hispanics ages 25 and older.	A year after having obtained insurance through the Oregon lottery, the treatment group (lottery group) was 25% more likely to have insurance than the control group (not selected group). Treatment group increased its use of primary and preventive care, decreased out-of-pocket medical costs and debt. The treatment group reported better physical and mental health as compared with the control group. Findings suggest a mortality advantage for Hispanic immigrants as compared with U.S.-born Hispanics for those immigrants who entered the United States after age 24. However, Hispanic immigrants who entered the United States as youths, <18, did not experience a different risk for mortality from U.S.-born, regardless of duration in the United States rather than duration of residence, drive differences in mortality between Hispanic immigrants and U.S.-born Hispanic population. Authors concluded that the age of immigration is a greater predictor of mortality than duration.
John, de Castro, Martin, Duran, and Takeuchi (2012)	Retrospective, correlational	Purpose was to examine a number of variables (occupation, self-rated physical health, and 12-month <i>Diagnostic and Statistical Manual of Mental Disorders-Fourth edition</i>) based on Asian Americans' nativity status to determine if an association existed in order to determine the presence of the healthy immigrant effect (epidemiologic paradox). Data obtained from the National Latino and Asian American Study.	Findings suggest that foreign-born Asians experience a strong health-protective effect for mental disorder and anxiety; however, the authors did not find an association between economic class and several other outcome variables.

(continued)

Table 2. (continued)

Authors	Design	Purpose	Findings
Kaushal (2009)	Retrospective, correlational	The aim of this study was to explore the prevalence of obesity among an ethnically diverse group of immigrants compared with U.S.-born immigrants, based on duration of residence in the United States. Use data from the NHIS 1990-2004.	Researcher found no change in obesity prevalence based on the type of degree held, but did find with increased duration immigrants without an advanced degree did experience an increase in obesity. Furthermore, risk for obesity occurred within the first 5 years as well as age of arrival (younger age), were more likely to develop obesity.
Lassetter and Callister (2009)	Systematic review	Purpose was to explore the research pertaining to the health of immigrants and factors that influence their health status. The authors examined factors associated with mortality rates, life expectancy, birth outcomes, potential to develop illness, episodes of declining health, cardiovascular disease, BMI, HTN, and depression.	From the literature, findings suggest the presence of both good and poor health among immigrants here in the United States. The authors noted that with time, it is probably that the "healthy immigrant effect" diminishes over time.
Lee, O'Neill, Park, Scully, and Shenassa (2012)	Cross-sectional	To examine whether health insurance moderates the length of time in the United States and self-reported changes in health (examining health status before and after immigration). Studied LPR immigrants from May and November 2003 from the National Immigrant Survey.	Immigrants who were insured were twice as likely as uninsured immigrants to participate in preventive screenings, such as a Pap smear or prostate exam.
Le-Scherban et al. (2016)	Longitudinal, correlational	Using data from the Multiethnic Study of Atherosclerosis over 11 years, the purpose was to determine if foreign-born immigrants experienced better cardiovascular health (CVH) and less cardiovascular events over time. Furthermore, the purpose was to determine if recent immigrants, over time, experienced a faster decline in CVH as compared with U.S.-born.	Findings supported the hypothesis that recent immigrants would experience a greater decline in CVH over time.
Martinez et al. (2015)	Systematic review of the literature	To explore and understand how immigration policies and laws influence undocumented immigrants' ability to access health services and health outcomes.	From the systematic review, there was a direct association between the ability of immigrants to access health services and anti-immigrant policies. Additionally, immigrants' mental health, and the incidence of depression, anxiety, and posttraumatic stress were related to these policies.
Mehrotra et al. (2012)	Cross-sectional correlational	Purpose of the study was to evaluate health-related practices, self-health perception, and satisfaction with medical care among foreign-born Asian Indians' in relation to the demographic and socioeconomic characteristics.	Authors found that Asian Indians reported satisfaction with medical care, adherence to healthy behavior and annual checkups that the majority reported healthy behavior, and high self-health perception was associated with income. Findings also included an underutilization of specific preventive screenings and increase report of chronic conditions. In participants with chronic medical conditions, their self-health perception and satisfaction with medical was diminished.
Miller, Robinson, and Cibula (2016)	Secondary analysis	Purpose of the study was to determine if the incidence of preterm births found in birth records, were greater among U.S.-born mothers as compared with foreign-born mothers. Researcher hypothesized that the phenomenon of the healthy immigrant effect would be the reason for reduced preterm births among foreign-born mothers.	The risk of preterm birth among foreign-born and refugee mothers was lower when compared with U.S. mothers. Findings supported a healthy immigrant effect.
Oza-Frank and Cunningham (2010)	Narrative review	Purpose was to examine existing literature on the health immigrant advantage among foreign-born in the United States in regard to cardiometabolic health using existing data sets available to researchers interested in immigrant health.	Literature revealed that several sources may be of use in understanding the importance of migration and cardiovascular disease among U.S. immigrants, and that several data sources provide helpful data for researchers to understand immigrants' risks for disease.

(continued)

Table 2. (continued)

Authors	Design	Purpose	Findings
Oza-Frank and Venkat Narayan (2009)	Cross-sectional, correlational	The aim of this study was to explore the relationship between duration in the United States and being overweight based on region of birth and age of arrival among immigrants from Africa, Europe, the Indian subcontinent, Mexico, Middle East Russia, South America, and Southeast Asia as analyze from data from the NHIS 1997-2005.	Findings found an association between overweight and the immigrants residing in the United States for more than 15 years from the regions of Africa, Europe, the Middle East, Russia, and South America, for as compared with those residing in the United States less than 5 years. However, immigrants from the Indian subcontinent and Southeast Asia regions demonstrated no relationship between overweight and duration in the United States. Both European and South American men arriving before age 18 had less odds of being overweight compared with Hispanic immigrants. Finally, women who were 24 to 44 years on arrival from the African and the Indian subcontinent had a greater odds of being overweight as compared with European women. Findings suggest the existence of an immigrant advantage for HTN and, not as strongly, obesity. There is also evidence of emigration selection and the salmon bias as related to height, HTN, and self-reported health for immigrants residing in the United States for less than 15 years, but no evidence of sociocultural protection.
Riosmean et al., (2012)	Retrospective, Correlational	The purpose was to explore the existence of the "Hispanic Health Paradox" and the "salmon bias," emigration selection, and sociocultural protection as related to the origin of immigrants (Mexican-born men aged 50 years and older as compared with U.S.-born Mexican Americans and non-Hispanic Whites) and the destination. Combining data from the Mexican Health and Aging Study in Mexico (2001) and the U.S. NHIS from 1997 to 2007 to compare self-reports of diabetes, HTN, current smoking, obesity, and self-rated health according to their previous U.S. migration experience.	Findings demonstrate that the pathways between duration of residence and BMI are complex, vary by gender and ethnicity, and emphasize the negative impact of acculturation theory. In addition, findings assert that duration of residence in the United States does not affect all groups' health as measured by BMI, indicating integration does not always lead to poor health outcomes.
Ro and Bostean (2015)	Cross-sectional, secondary analysis	Using path analysis, the purpose of this study was to explore the mediation as well as develop a path model between BMI and length of time in the United States that incorporated cultural and structural aspects of the immigrant integration processes. Data were used from the National Latino and Asian American Survey	Findings indicate that possessing insurance increased the odds of participating in preventative screenings such as, blood pressure, blood sugar, cholesterol screenings, and any preventative screening. Participants with incomes >\$40,000 had a higher rate of participating in screenings than those of lower incomes, but having insurances contributed to this difference.
Salinas, de Heer, Lapeyrouse, Heyman, and Balcázar (2015)	Secondary data analysis	The purpose of this study was to explore the relationship between income, insurance status, acculturation, and preventive screening for diabetes, high blood pressure, and cholesterol. Analysis occurred using data collected between November 2007 and May 2009 on Mexican American adults both foreign-born (43%) and U.S.-born (57).	The prevalence of overweight/obesity for the U.S. population increased from 1976 to 2008 for individuals greater than age 18. Even though immigrants did not experience higher overweight/obesity than U.S.-born, risk of overweight/obesity increased with longer duration in the U.S. Socioeconomic disparities did contribute to the increase in obesity among immigrants. However, despite lower education, income, and occupation levels in each period, socioeconomic rises and overweight/obesity diminished with time due to the fact that these conditions increased among individuals with higher socioeconomic status.
Singh et al. (2011)	Cross-sectional, correlational	The purpose of this study was to describe national shifts among immigrants based on social class inequalities and the prevalence of obesity and overweight using data from the 1976-2008 NHIS, as well as determine socioeconomic disparities in obesity and overweight prevalence. Thirty major immigrant groups were stratified by race/ethnicity and duration of immigration, education, occupation, and income.	

(continued)

Table 2. (continued)

Authors	Design	Purpose	Findings
Shi et al. (2015)	Retrospective Correlational	Using data from the 2005 and 2007 Los Angeles County Health Survey, the aim was to understand the existence of an interaction of factors such as median household income, diversity of the immigrant population (community factors), and linguistic acculturation and the relationship with obesity and physical inactivity. Perception of community safety was included to determine if language acculturation and health comes were affected.	Finding support the existence of an association with physical inactivity, sense of feeling safe, and obesity with preference of language used at home and median household income. In other words, participants who spoke English at home and had a better median income were less likely to feel unsafe, have obesity, and participated in physical activity.
Stella, Efiassy, Gupta, Myers, and Kerker (2014)	Retrospective, correlational	Purpose was to determine the association between self-reported HTN, place of birth, language spoken at home, and duration in the United States using the 2005-2008 data set from the NYC Community Health Survey.	Researchers found that race/ethnicity modified the relationship between place of birth, language spoken at home, duration in the United States and self-reported health, but among Blacks, Hispanics, or Asians. In addition, the use of English at home as opposed to Spanish was not associated with self-rate health.
Stimpson et al. (2012)	Retrospective, correlational	The purpose of study was to examine differences in cholesterol screening among Mexican immigrants and U.S.-born natives to determine if improved access to health care reduced differences in screenings based on nativity. Data collected from the NHNES 2005-2008 consisting of self-reported cholesterol screening for adults.	There were persistent disparities in cholesterol screening for Mexican immigrants such that the odds of participating in cholesterol screenings did not improve after 2004.
Tarraf, Vega, and González (2014)	Retrospective, correlational	The aim of this study was to compare the use of emergency departments (ED) among foreign-born noncitizens, naturalized citizens, and U.S.-born using the Medical Expenditures Panel Survey (2000-2008).	The authors found that immigrants lacking citizenship were less likely to use the ED in comparison with both U.S.-born and naturalized citizens. The need for health care and possession of insurance contributed to the increased use of the ED by both U.S.-born and naturalized citizens.
Ursua et al. (2014)	Cross-sectional, correlational	Purpose was to determine HTN prevalence and risk factors (sociodemographics, age, gender, state of residence, time in the United States, language spoken, health insurance status, self-rated health status, family history of HTN, physical activity) and clinical measurements (glucose, cholesterol, BMI) among Filipino Americans.	Findings revealed associations with the existence of HTN, which included a poorer self-rated health status, family history of HTN, possessing health insurance, increased physical activity, higher BMI, and glucose readings which denotes a risk of diabetes.
Wilper et al. (2009)	Retrospective, correlational	The purpose of this study was to update 1993 the Third National Health and Nutrition Examination Survey data through 2000 by conducting a survival analysis and exploring the relationship between uninsurance and mortality rate.	Findings suggest that adults lacking insurance have a higher mortality rate are more likely to go without needed care than insured.
Yeh, Viladrich, Bruning, and Roye (2009)	Literature review	The purpose of this literature review was to understand the relationship between acculturation, obesity, and health behaviors among Hispanic women using literature from 1985 through January 2006. A conceptual framework for the examination of selective acculturation for obesity was also completed.	Findings from this literature review suggest that Hispanic women continue to integrate older health-related behaviors while acquiring new ones from the host country.
Yi et al. (2016)	Retrospective, correlational	This population-based study sought to examine the differences in HTN among Chinese and South Asian immigrants compared with non-Hispanic Whites. Using demographic, clinical characteristics, and life-style behaviors the purpose included the identification of specific factors such as diet, cholesterol, diabetes, and BMI to determine prevalence and need for improvement in HTN management among the immigrant groups.	Profiles of Chinese and South Asian adults with HTN included lower SES, lack of private health insurance, but the BMI compared to non-Hispanic Whites was lower. South Asians demonstrated a higher prevalence of self-reported diabetes than non-Hispanic Whites.
Yun et al. (2012)	Retrospective, correlational	Using the 2003 New Immigrant Survey, the purpose of this study was to describe chronic disease prevalence and insurance coverage for refugees living in the United States past the immediate postarrival period. In addition, the authors conducted tests on the hypothesis that refugees have higher disease prevalence and poorer insurance coverage.	Findings from this study suggest that those adult refugees with a preexisting chronic disease (arthritis, heart disease, stroke, and limited activity due to pain) would benefit from increased insurance coverage.

U.S. Immigration and Health Care

The consequences of minimal coverage or no insurance includes lack of screening, prevention, and knowledge of health among families and communities. The likelihood of receiving chronic disease management from clinicians (i.e., cardiovascular disease, diabetes, stroke, etc.), failure to receive screenings (mammographies, colorectal screenings, etc.), and high out-of-pocket prescription expenditures is unlikely in those that are uninsured (Chen, 2013; McWilliams, 2009).

Evidence demonstrates that health care-seeking behavior and positive health outcomes among immigrants is augmented by the possession of health insurance. For example, Ursua et al.'s (2014) cross-sectional study found that the lack of availability of health insurance among Filipino immigrants predicted hypertension (HTN) control in that insured immigrants' rate of HTN control was two times greater than individuals without insurance. Additional retrospective, correlational research supports the influence of uninsurance on adult refugees from Africa, Asia, the Middle East, and Latin America who require medical support due to the presence of chronic diseases on arrival to the United States among adult refugees (Yun et al., 2012). Moreover, Lee et al. (2012) conducted a cross-sectional study using 2003 NHIS data to examine effect of length of stay on health status and use of preventive screenings among insured and uninsured immigrants. The authors found poorer health status and use of preventive services among immigrants who lacked insurance. Similar findings were reported in that length of residence in the United States did not improve cholesterol screenings among this population (Stimpson et al., 2012). Finally, Salinas et al. (2015) explored the influence of insurance status from 2007 to 2009 data from the Household Survey to Explore Health Disparities Domains on the U.S.–Mexico Border on participation in chronic disease screening among participants of Mexican origin (both U.S.-born and foreign-born). Findings from the study demonstrated that those with insurance coverage were more likely to participate in chronic disease screenings (blood pressure, blood sugar, and cholesterol).

Coughlin, Holahan, Caswell, and McGrath (2013) added to the understanding of health care expenditures emphasizing that immigrant expenditures are generally lower than for U.S. citizens, and recent immigrants account for even less health care spending. The inference then, is that the uninsured report use of less health care, and consequentially, pose less of a financial burden on the health care system because they are generally healthy on arrival to the United States. Furthermore, this report may appear as a contradiction to policy makers who appeal for the need to expand health care insurance for uninsured immigrants, but research demonstrates that uninsurance does place a financial burden on the health care industry and indirectly affects those with insurance.

U.S. Immigration and Cost of Health Care

Recent studies found that the uninsured are more likely to delay treatment, postpone care, forego purchasing needed prescriptions, and reported no usual source of care, which leads to severe disease symptoms and increased complications (Finkelstein et al., 2011; Tarraf et al., 2014; The Kaiser Commission on Medicaid and the Uninsured, 2015). For immigrants who are either undocumented or whose presence is less than 5 years, the likelihood of an uncompensated health care visit is higher than for U.S. citizens, and the result is a greater cost to providers for uncompensated care (Coughlin et al., 2013).

Estimated costs associated with uncompensated care for the uninsured was roughly \$84.9 billion in 2013, and out-of-pocket health care expenses for the uninsured reached \$25.8 billion. Similarly, U.S. citizens spent over \$1 trillion on health care annually, while annual health care spending for naturalized and undocumented immigrants totaled \$96.5 billion annually (Stimpson, Wilson, & Su, 2013). These economic analyses of health care spending appear diametrically opposed to one another. Yet these figures represent underlying political, social, and economic causes which affect immigrants' willingness to seek health care due to experiences with marginalization, inability to pay for services, geography, as well as other physical and social obstacles (Messias, McEwen, & Clark, 2015). Ultimately, the implication is that by providing health care while immigrants are healthy through preventive and primary care service, chronic disease development is stalled and potentially reduces uncompensated and unnecessary health care spending (Coughlin et al., 2013).

Healthy Immigrant Paradox and Acculturation

When considering U.S. immigration and health care access, research supports the theory of the "healthy immigrant effect," a phenomenon in which immigrants have superior health and health outcomes for the foreign-born as compared with U.S. citizens (Miller et al., 2016). Factors associated with lack of insurance and access to health care services juxtaposed to the experience of immigration and additional SDOH hurdles portend future health disparities among immigrants. Even though research is well-documented and supports the theory of the "healthy immigrant effect," "immigrant paradox," or "immigrant advantage," such that immigrants are generally healthy on entering the United States, a vast amount of the literature also suggest that with time in the United States, the adaptation process becomes the trajectory for deteriorating health and chronic disease development (Fang, Ayala, & Loustalot, 2012; Holmes et al., 2015; John et al., 2012; Miller et al., 2016; Osypuk, Alonso, & Bates, 2015; Shi, Zhang, van Meijgaard, MacLeod, & Fielding, 2015).

Counterintuitive to what is known about the influence of SES, that is ethnicity/race, availability of economic resources,

education level, and access to health care on health outcomes, the selective health advantage of immigrants with lower SES is viewed as a paradox (Riosmena, Wong, & Palloni, 2013). However, Riosmena et al. (2013) explained that the cross-sectional design of many of the studies, the use of self-report methods from data sources such as the NHIS, measurement data collection tools, and failure to completely examine the sociocultural protection effect may influence the notion of the healthy immigrant effect (specifically among Mexican immigrants). An additional perspective is the theory of emigration selection or “salmon bias,” such that immigrants return to their home country when they become ill or disabled and healthier immigrants remain in the host country. The interesting feature of this study is the inclusion of an often ignored element of immigration behavior, which is the inclusion of the multiple mechanisms of the migration journey and its effect on the understanding of the healthy immigrant advantage or potential health deterioration impact of adapting to the United States.

To understand this issue further, in a cross-sectional study, Bostean (2013) used self-report data from the 2002 Mexican Family Life Survey and from the 2001-2003 NHIS, to test both the healthy immigrant effect and the salmon bias, which corroborated both the healthy immigrant and acculturation theories. In support of the healthy immigrant effect, Mexicans born in the United States self-reported worse health than first-generation immigrants, as well as recent Mexican immigrants. The results were mixed for salmon bias in regard to the measures of self-reported health and chronic disease, but return immigrants reported higher activity limitations than Mexican immigrants indicating that the subsequent development of an activity limitation in the United States possibly prompted individuals to return to Mexico (Bostean, 2013). Recommendations from the studies encourage the need for more understanding of immigrant health from time of entrance into the United States to include the multiple migratory patterns, and urges policy makers and researchers to seek strategies to advocate for preventive health services before immigrants develop health disparities (Bostean, 2013; Fang et al., 2012; Miller et al., 2016; Riosmena et al., 2013).

With an understanding of the healthy immigrant effect in mind, further research demonstrates the negative health impact and physical decline among immigrants as the result of acculturation as originally theorized by Redfield, Linton, and Herskovits (1936). Duration or length of residency in the United States, acts as a proxy to the concept of acculturation in many studies and appears to counteract the immigrant advantage. However, as emphasized by Ro and Bostean (2015), Schwartz, de Heer, Lapeyrouse, Heyman, and Balcázar's (2010) model of acculturation better integrates the cultural (beliefs, values, language), social (cultural practices, traditions, social affiliations, receptivity of the host country), and economic (access to work, economic stability) characteristics of immigrants as complex factors contributing to the development of disease and negative health outcomes.

Multiple studies reinforce the influence of culture, SES, and the adoption of unhealthy behaviors in relation to duration in the United States and the development of overweight/obesity, a well-known precursors for diabetes, and cardiovascular disease—associated conditions such as HTN and atherosclerosis (Afable et al., 2016; Albrecht et al., 2013; Kaushal, 2009; Lê-Scherban et al., 2016; Okafor, Carter-Pokras, & Zhan, 2014; Oza-Frank & Cunningham, 2010; Oza-Frank & Venkat Narayan, 2009; Ro & Bostean, 2015; Singh et al., 2011; Stella et al., 2014; Yeh et al., 2009; Yi et al., 2016). Acculturation is a complex process that affects all immigrants on some level, socially and economically, despite immigrant nationality or immigration category, which adds to the difficulty of pinpointing areas to intervene in the development of chronic diseases and resulting negative health outcomes.

Chronic Disease Trajectory

Interestingly, as deduced from multiple studies on the phenomenon of acculturation, the length of time in the United States intermingled with various SDOH becomes the trajectory for subsequent negative health outcomes among many immigrants. Of the research discussed thus far, the multiethnic immigrant populations studied along with immigration status (immigrants without permanent residency, LPR, and undocumented immigrants) and study designs vary. Therefore, the studies lack the ability to derive any causal conclusions regarding effect of acculturation on the process of chronic disease development.

Overweight/obesity does appear to be a consistent development among many immigrant groups, which as a precursor to other chronic diseases, has been explored. In particular, Singh et al. (2011) used data from the NHIS to examine trends in overweight/obesity, SES, duration of residence, demographic and behavioral characteristics among both U.S. and foreign-born participants 18 years and older from the 1976 and 1991-2008 self-report data. The ethnic/racial diversity of the immigrants included Chinese, Filipinos, Asian Indians, Other Asians and Pacific Islanders, Mexicans, Puerto Ricans, and Cubans. Findings from this study revealed that the prevalence of obesity increased over time among long-term immigrants, but also the U.S.-born population. Singh et al. (2011) further found overweight/obesity prevalence disparities associated with SES among all ethnic/racial immigrant groups, and contended that duration in the United States along with social inequalities propel them along the health disparity trajectory toward chronic disease development.

Employing a cross-sectional design, Oza-Frank and Venkat Narayan (2009) explored the association between overweight and length of residence among Mexican, South American, European, Russian, African, and Middle Eastern immigrants. For all immigrant groups except Asians, there was a positive association between length of residence and overweight status with Mexican immigrants demonstrating

higher poverty level, as well as body mass index. Additional studies across multiple ethnicities by Albrecht et al. (2013), Afable et al. (2016), Lê-Scherban et al. (2016), Okafor et al. (2014), and Stella et al. (2014) employed longitudinal, prospective, and retrospective designs to examine not only overweight/obesity but also HTN, atherosclerosis, and changes in dietary practices which occur over time in the United States.

A subcategory often studied within the broader category of immigrants includes undocumented or unauthorized immigrants, whose migration experience in of itself predisposes them to the risk of negative health outcomes (Martinez et al., 2015). The 11.3 million undocumented immigrants make up 3.5% of the U.S. population, of whom 71% are from Mexico and Central America, 58% are from 25 to 44 years in age, mostly male (58%), and predominately from Mexico (Baker & Rytina, 2012; Rosenblum & Soto, 2015). Research supports the healthy immigrant effect among immigrants; however, the magnitude of obstacles associated with the SDOH are amplified across gender and age due to lower education levels, higher poverty rates, linguistic barriers, marginalization, and lack of insurance (71%; Capps, Bachmeier, Fix, & Van Hook, 2013).

Despite the predisposition to health disparities among undocumented immigrants, Pourat, Wallace, Hadler, and Ponce (2014) found that when compared with the U.S. population, undocumented adults had lower rates of emergency department (ED) visits and fewer visits to the doctor. This study along with several others indicate less health care utilization among undocumented immigrants negating the political debate that undocumented immigrants misuse the ED for primary care (Stimpson et al., 2013). However, the authors found that most are less likely to adhere to important health screenings such as mammograms and colorectal screenings and receive less primary care, which increases the risk of and severity of disease resulting in greater uncompensated health care spending or increased use of public money.

Even so, the controversy over the health care costs associated with caring for uninsured immigrants and inappropriate use of the ED for health care does not represent irrefutable evidence that the presence of immigrants create a burden on the U.S. health care system. In fact, undocumented immigrants in particular, but immigrants as a whole, may be unaware or lack knowledge of the long-term effects of comorbid conditions such as overweight/obesity, HTN, diabetes, cardiovascular disease, and therefore, late detection of disease (Stimpson et al., 2013). Seeking health care in the later stages of disease development is often associated with increased health care costs, and makes a compelling argument for exploring feasible strategies to improve health care access.

Immigration Policy, Politics, and the Future

Immigration policies vary by country, such that countries like Australia, Denmark, and Japan have the strictest immigration policies, while Sweden and Portugal remain on the top

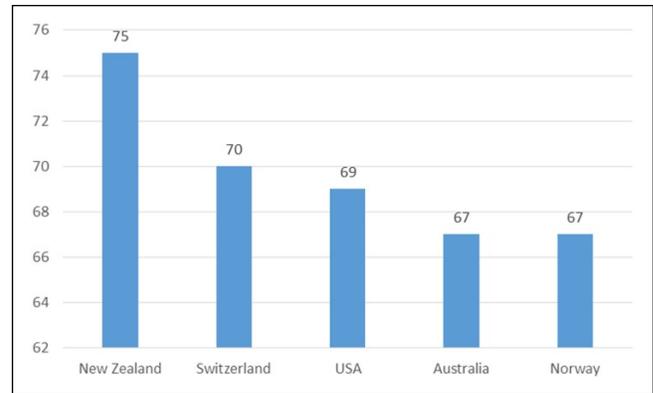


Figure 2. Migrant Integration Policy Index overall health scores for policy integration the top five countries.

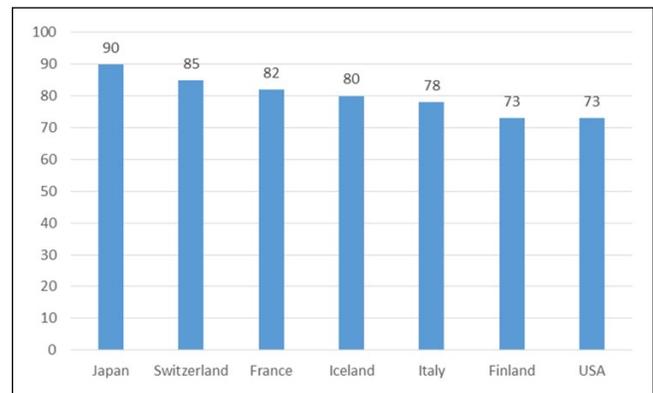


Figure 3. Migrant Integration Policy Index scores for policies that facilitate access for the top seven countries.

as countries with more lenient immigration policies (Line & Poon, 2013; Huddleston et al., 2015). An interesting tool to understand how the U.S. immigration policies compare other countries on the promotion of integration of immigrants on eight key areas is known as the Migrant Integration Policy Index, which provides information on how well 38 European Union and several non-European Union countries are doing in enactment of integration of immigrants policies (Huddleston et al., 2015). MIPEX uses the following eight policy areas of integration of immigrants of labor market mobility; education; family reunification; health; political participation; long-term residence; access to nationality; and antidiscrimination laws, and collect data on 167 key indicators (Huddleston et al., 2015).

In 2014, the United States ranked ninth of the 38 countries on integration of migrants while Cyprus, Latvia, and Turkey ranked 24 to 36 (Huddleston et al., 2015). In regard to the specific indicator, “Overall Health,” the United States ranked third (Figure 2) and seventh on “Policies to Facilities Access” (Figure 3). However, with the health indicator “Health Entitlements for Undocumented Migrants,” the United States

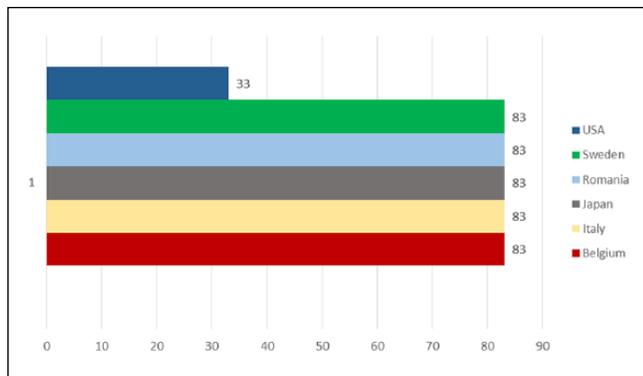


Figure 4. Migrant Integration Policy Index scores for the top five countries and the United States on health entitlements for undocumented migrants.

received a MIPEX score of 33 (Figure 4). Finally, when compared on the health indicator, “Health Care Coverage for Undocumented Migrants,” the United States was among 25 other countries who received a MIPEX score of zero indicating these countries did not provide health coverage for undocumented migrants.

Based on these indicators, the U.S. immigration integration policies in general are more favorable than for some countries, but the United States is only “slightly favorable” in regard to health policy. Obviously correlations of the MIPEX findings are not reflected in U.S. immigrant policy and societal changes, but what can be drawn from these data is how health policies and immigrant integration as a whole, is being addressed globally. Nations with a stronger gross domestic product and tax base have more effective migrant health policies. The current U.S. gross domestic product or measure of the economy’s output is 1.2, much lower than it has been in previous years (Bureau of Economic Analysis, 2016). The economic outlook also remains tenuous with 35% of the nation’s population working, 95 million people who are not in the labor force, and another 15 million who are unemployed or underemployed (Vollmer, 2016).

Understanding these economic conditions are equally important to the discussion of immigrant health because financial resources to pay for health care come from individual productivity and personal spending. A delicate balance of resources occurs when exploring strategies to provide some form of public health care to uninsured immigrants, and policy makers have been wise as to how to allocate the scarce financial resources. In reality, justifying an overhaul of the current immigration policy so as to include public financing of health care is in the best interest of all human beings despite anticipated costs. Furthermore, the benefit will be to the society because even the most vulnerable populations will have an opportunity to enjoy life and flourish (Berlinger & Gusmano, 2014). Finally, economists cannot accurately measure the long-term financial impact of the provision of health care to immigrants. As healthy integrated

participants in the society, immigrants have an opportunity to be prosperous, which results in stronger communities and positive relationships with members of the community (American Immigration Council, 2011).

In so far as the literature gives evidence to the various SDOH factors that contribute to poor health among immigrants, the nature of cross-sectional, correlational, and retrospective designs do not establish causality. On the other hand, the few recent longitudinal, prospective studies may offer clarity on how immigrants move along the trajectory toward health inequalities. Additionally, more rigorous research included several systematic reviews and secondary analyses (Lassetter & Callister, 2009; Martinez et al., 2015; Salinas et al., 2015). The one randomized control trial (RCT), the Oregon study, presented rigorous evidence by examining the relationship between the availability of health insurance and increased health care utilization based on the Oregon lottery (Finkelstein et al., 2011). Low-income, uninsured adults became insured with Medicaid through the lottery becoming the experimental group, and nonlottery winners were in the control group. The lottery provided a convenient opportunity to implement the RCT because of the attributes of lotteries which allowed random assignment to occur naturally. Otherwise, implementing a RCT in which one group received the benefit of health insurance and another group denied insurance to determine health care utilization or health outcomes would be unethical (Finkelstein et al., 2011). Therefore, conducting studies using cross-sectional, correlational, retrospective, or longitudinal designs reviews on immigrant health, albeit less robust, offer strong support on the issue of immigrant health, and also protect potential participants from being deprived an opportunity to improve health.

Conclusion

Immense, valid research exploring various SDOH factors that influence immigrant health outcomes share similar conclusions: Access to health care and availability of health insurance improve immigrant health and slow the trajectory of chronic disease development. Within body of immigrant health literature, conjectures about the healthy immigrant effect, the economic impact of uninsurance, as well as the impact of acculturation on poor health outcomes should spur leaders on to find reasonable and rational solutions. Although these studies are not precedents in regard to legal parlance, policy makers at the state and federal level have an opportunity to build their case or argument for innovative strategies that include immigrants into the current health care system.

Extending public health insurance to undocumented immigrants, immigrants who have not acquired LPR, or through amnesty as sought after by President Obama, provokes acrimonious debate and mixed emotions on both sides of the political aisle. However, the current political environment is enmeshed in a quagmire over the welfare of the 11.3

million undocumented immigrants and many politicians use their plight as a narrative as a means to advance self-promoting political agendas. Even the argument for social justice on this matter is politically charged and mired with underlying motives not fully dedicated to the pursuit of immigrant equality. On the other hand, health care practitioners are the purveyors of authentic, compassionate care regardless of immigration status, while legislative action often becomes entangled in endless debates.

Although not among the top priorities in the United States, MIPEX does find that the United States scores very high on “Support for Research on Migrant Health” (100), and reports improvement on “Measures to Achieve Change” (79) and “Policies to Facilitate Access” (73). Therefore, future opportunities exist in an environment of the forthcoming presidential election in the fall. An opportunity to improve efficiency in health care while reducing costs through early detection, screenings, and education on management of diseases exists within the ACA (Tarraf et al., 2014). Title IV of the ACA called for the establishment of the National Prevention, Health Promotion and Public Health Council, who worked together to establish the National Prevention Strategy (U.S. Department of Health & Human Services, 2015). The National Prevention Strategy aims to improve overall health and save lives using a prevention-oriented strategy based on evidence-based models and advanced approaches to integrate health promotion and disease prevention. Tarraf et al. (2014) articulated the opportunities for improved health among immigrants through the National Prevention Strategy by utilizing churches, workplaces, and schools as venues to support and following immigrants newly arrived in the United States. In addition, by incorporating culturally appropriate education on specific health care practices in media and other community resources can improve awareness of healthy lifestyles and disease prevention. Finally, Pourat et al. (2014) recommend that health care policy should allow for undocumented immigrants to purchase health care in the ACA exchanges to improve access to preventive care and early detection of disease.

In the end, studies support the prevalence of chronic diseases and the trajectory toward health disparities associated with the existing restrictive health care policies for all ethnic immigrant groups. Researchers agree that improvement in immigration policies, and providing a path to citizenship for undocumented immigrants will create opportunities for immigrants to access programs such as Medicare and Medicaid or obtain insurance through the ACA exchanges (Pourat et al., 2014). Berlinger and Gusmano (2014) furnished a reasonable perspective by articulating that “a prudent argument would suggest that avoiding health care investments on behalf of undocumented immigrants unless and until they are sick enough to need emergency treatment and possible inpatient care is not a sound economic strategy” (p. 1626). Although limited financial resources dominate the

immigration policy debate, recognition of the value of human beings, regardless of immigration status, ethnicity/race, religion, or beliefs, emerges as moral reasoning that undergirds most health care practitioners’ commitment to provide health care to the most vulnerable.

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