



Published in final edited form as:

Popul Res Policy Rev. 2011 June 1; 30(3): 399–418. doi:10.1007/s11113-010-9194-x.

Region of Birth and Disability Among Recent U.S. Immigrants: Evidence from the 2000 Census

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Abstract

This study aimed to test the “healthy immigrant” hypothesis and assess health heterogeneity among newly arrived working-age immigrants (18–64 years) from various regions of origin. Using the 5% sample of the 2000 U.S. Census (PUMS), we found that, compared with their native-born counterparts, immigrants from all regions of the world were less likely to report mental disability and physical disability. Immigrants from selected regions of origin were, however, more likely to report work disability. Significant heterogeneity in disabilities exists among immigrants: Those from Eastern Europe and Southeast Asia reported the highest risk of mental and physical disability, and those from East Asia reported the lowest risk of physical disability. Furthermore, Mexican immigrants reported the lowest risk of mental disability, and Canadian immigrants reported the lowest risk of work disability. Socioeconomic status and English proficiency partially explained these differences. The health advantage of immigrants decreased with longer U.S. residence.

Keywords

Region of birth; Immigration; Health heterogeneity; Disability; Duration of U.S. residence

Introduction

Over the past 40 years, rapid growth has occurred in the number of immigrants to the United States. In 2002, more than 12% of U.S. residents were foreign born (32.5 million; Dey and Lucas 1998). The recent growth of the U.S. foreign-born population is characterized by large numbers of immigrants from resource-poor nations, a pattern distinct from the predominantly European immigration of the past. This novel pattern of immigration has resulted in a U.S. population that is more ethnically and culturally heterogeneous than in the past (Massey 1995).

The growing U.S. immigrant population has prompted researchers to investigate health disparities between the native born and immigrants, especially Hispanic and Asian immigrants (Acevedo-Garcia et al. 2005; Fuentes-Afflick and Hessol 1997; Singh and Siahpush 2002; Zsembik and Fennell 2005). Most of these studies documented a “healthy migrant” phenomenon with immigrants being healthier than the native born of similar ethnic backgrounds (Cunningham et al. 2008; Elo et al. in press). For example, foreign-born Hispanics have lower adult all-cause mortality (Becker et al. 1988; Liao et al. 1998; Novello et al. 1991; Rogers et al. 1996; Sorlie et al. 1993) and a lower prevalence of psychiatric disorders (Alderete et al. 2000) than their native-born counterparts. Similarly, Asian immigrants appear to have lower mortality and disability than non-Hispanic whites in the U.S. (Hayward and Heron 1999; Hummer et al. 1999; Lauderdale and Kestenbaum 2002; Waidmann and Liu 2000). This relative health advantage of immigrants has also been reported in other host countries, such as Canada, Australia, and the U.K. (Biddle et al. 2003; Chen et al. 1996).

Given that a significant proportion of immigrants are from poor countries and have lower socioeconomic status and less access to healthcare compared to the native born, this migrant health advantage appears to be an “epidemiological paradox” (Abraido-Lanza et al. 1999; Palloni and Morenoff 2001). Researchers have argued that this paradox is primarily a result of positive health selection of migrants because healthy individuals are more likely to migrate (Abraido-Lanza et al. 1999; Turra and Elo 2008; Palloni and Morenoff 2001). Another frequently cited explanation, often used in reference to Hispanic immigrants, is the “cultural buffering” hypothesis, which posits that immigrants benefit from normative values that promote healthy behaviors (e.g., diet) and strong familial and social support (Hummer et al. 1999; Scribner 1996). A third hypothesis is that the paradox may be partially explained by the “salmon bias” effect, the notion that migrants tend to return to their country of origin when they are ill (Pablos-Mendez 1994). The magnitude of this “salmon bias” effect has been questioned (Abraido-Lanza et al. 1999; Turra and Elo 2008), especially among non-Mexican immigrants (Palloni and Arias 2004).

Alongside the well-documented health advantages of U.S. immigrants in general, an emerging body of literature suggests considerable health heterogeneity among immigrants by place of birth. For example, the Hispanic mortality advantage is not uniform across Hispanic groups and seems to hold only for some Hispanic groups, including Mexicans (Palloni and Arias 2004). Similarly, Asian immigrants are highly dissimilar in health profiles, possibly because of differences in socioeconomic status, cultural characteristics, and circumstances in the sending country (Frisbie et al. 2001). For example, compared with Japanese immigrants, immigrants from Southeast Asia, including Laotian, Hmong, Cambodian, and Vietnamese immigrants, reported substantially higher risk of work, mobility, and self-care limitations (Cho and Hummer 2001).

Jasso et al. (2004) argued that health heterogeneity is a function of initial health selectivity and subsequent health trajectories of immigrants, which themselves are decided by numerous factors, such as differences in income between receiving and sending countries, the cost of migration, healthcare use, and adoption of health behaviors in the receiving country. These factors may generate enormous health heterogeneity among migrants from different regions (Jasso et al. 2004).

In this study, we aimed to test the “healthy migrant” hypotheses among recently arrived working-age immigrants and to quantify the potential health heterogeneity across immigrants from different regions of origin. We also investigated the roles of socioeconomic status and acculturation in patterning health disparities.

We focused on working-aged immigrants (ages 18–64 years) who arrived after the passage of the Immigration Act of 1990. Patterns of immigration to the U.S. have been shaped largely by policy (Jasso et al. 2004). The Immigration Act of 1990 increased annual immigration quotas, boosted employment-related immigration, and introduced diversity visas. In particular, the Act made a sizable impact on the composition of the working-aged immigrant population by increasing the number of working-aged immigrants from previously underrepresented countries and regions of the world (Greenwood and Ziel 1998). Compared with earlier waves, recent immigrants are less likely to achieve economic success, have lower levels of English proficiency, and are more likely to face obstacles in assimilating into the U.S. population because of their religious and cultural background (Borjas 1994; Espenshade and Calhoun 1993; Espenshade and Fu 1997; Jasso et al. 2004; Suarez-Orozco 2001). Little is known about the health of post-1990 immigrants in the U.S. because most prior studies were based on samples measured before 1990 or otherwise involved a relatively small proportion of post-1990 immigrants (e.g., Cho et al. 2004; Frisbie et al. 2001; Singh and Siahpush 2002). The few studies that have included a sufficient sample size of post-1990 immigrants have been limited to specific segments of the immigrant population. For example, Mutchler et al. (2007a) investigated heterogeneity in disability levels among older Asian immigrants and Elo et al. (in press) focused on Black immigrants. In contrast, we investigated health differences among post-1990 immigrants from all major regions of the world.

Furthermore, most prior studies on U.S. immigrant health have focused solely on a single indicator of health, such as mortality; we contributed to the literature by incorporating multiple measures of disability, including physical disability, mental disability, and work disability. The 2000 U.S. census contains an expanded set of disability questions compared to prior censuses. These measures have been shown to yield higher validity than prior censuses (Calsyn et al. 2001; Waldrop and Stern 2003). As the first comprehensive study on disability among recent working-aged immigrants, its findings can inform health-promoting policies aimed at immigrants in the U.S.

Data

We used the 5% Public Use Microdata Sample (PUMS) of the 2000 U.S. Census of Population (<http://usa.ipums.org/usa/>), limiting the sample to the working age population (ages 18–64) and to immigrants with fewer than 10 years of U.S. residence (since 1990). According to the 2000 Census, about 9 million working-age immigrants arrived in the U.S. after 1990, among whom Mexicans constituted the largest group (33.1%), followed by other Central and South Americans (21.2%), East Asians (9.1%), Southeast Asians (8.8%), Eastern Europeans (8.4%), and South Asians (7.1%). The other immigrant groups made up less than 5% of the immigrant pool.

The total foreign-born sample used in the analysis consisted of 451,147 respondents aged 18–64. We weighted the native-born resident sample down to 2% of its original size to reduce the disproportionate representation of this group (Mutchler et al. 2007a, b). Our final sample size of native-born residents was 147,771 individuals aged 18–64.

Measures

Dependent Variables

The new disability measurement in the 2000 census reflects the definition of *disability* in the 1990 Americans with Disabilities Act (ADA): “a physical or mental impairment that substantially limits one or more major life activities of such individual,” including “walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working.”

Physical disability, mental disability, and work disability were assessed based on the following questions:

1. Does this person have any of the following long-lasting conditions: a condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying?
2. Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in learning, remembering, or concentrating?
3. Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in working at a job or business? (Answer if this person is 16 years old or over.)

Each variable was coded 1 if the respondent reported yes to the question and 0 otherwise.

Country/Region of Birth

We divided the foreign-born population into the following 11 categories: Canada; Mexico; Central and South America (including the Caribbean but not Mexico); Western Europe (including Northern, Western, and Southern Europe as defined in the 2000 Census); Eastern Europe (including Central/Eastern Europe and the former USSR); East Asia; Southeast Asia; South Asia (India/Southwest Asia); Middle East, and Africa. Remaining areas were combined into an “Other” category, which comprised a small proportion of the sample.

Covariates

We adjusted for sex, age (in single years), marital status (single/never married, married and living with a spouse, and divorced/separated/windowed), educational attainment (less than high school, high school diploma or equivalent, some college or associate’s degree, and bachelor’s degree or above), employment status (employed, unemployed, and not in labor force), and a poverty index. Persons were considered employed if they worked at least 1 h with pay during the previous week (including temporary absence) or worked at least 15 h without pay. Unemployed persons were those currently looking for employment, and the rest were considered outside the labor force. The poverty index incorporated family income in the prior year, number of dependent children, and the age of the householder (under or over age 65), with lower values indicating greater poverty (<http://usa.ipums.org/>). This family income-to-needs ratio has been widely used in the literature (Farley 1996; Voydanoff 1990).

In analyses restricted to immigrants, we controlled for two additional immigration-related variables: duration of U.S. residence (<5 years and 5–10 years) and English proficiency. The

English proficiency measurement indicates whether the respondent speaks only English at home, and how well respondents who speak a language other than English at home speak English. Accordingly, we categorized English proficiency as follows: speaks only English, speaks English well/very well, and does not speak English/does not speak English well.

Analytical Strategy

In a first set of analyses, we compared disability levels between the native-born and immigrant subgroups ($n = 598,918$). We estimated a series of multiple logistic regressions to predict whether a respondent reported a disability. The baseline model (Model 1) provided age-sex-adjusted differences among groups. Model 2 builds on Model 1 by including education, poverty, employment status, and marital status simultaneously. Native-born Americans are the reference group in each model.

In a second set of analyses, we restricted the sample to the immigrant population ($n = 451,147$). Following the same strategy as above, we first examined patterns in self-reported disabilities, adjusting for age and sex; then we estimated a fully adjusted model that included the socio-demographic and acculturation-related variables (English proficiency and duration of residence). In a final model we added interactions between country/region of origin and duration of U.S. residence to test whether the association between duration of U.S. residence and self-reported disabilities varied by region of origin. Mexicans were the reference group in these models. All statistical analyses were conducted using SAS, version 9.1.

Results

Descriptive Statistics

As shown in Table 1, immigrants reported a lower prevalence of mental disability, ranging between 0.9% among immigrants from Western Europe to 3.9% among immigrants from Southeast Asia, compared to native-born Americans (4.2%). Similarly, immigrants reported a lower prevalence of physical disability, ranging from 1.2% (East Asia) to 3.9% (Southeast Asia), compared to native-born Americans (7.4%). Compared with native-born Americans, however, most immigrants had a higher prevalence of self-reported work disability except for immigrants from Canada, Western Europe, and East Asia. Significant differences appeared with regard to several other characteristics. Native-born Americans were more likely to be employed, compared to immigrants. Compared with Mexican immigrants, immigrants from all other regions were older, possessed a higher level of English proficiency, were more educated, and were less likely to live in poverty.

Disabilities Among Immigrants Compared to Native-Born Americans

The first two columns in Table 2 show the odds ratios of reporting mental disability. With adjustment for age and sex (Model 1), immigrants from all regions except Southeast Asia were less likely to report mental disability compared to native-born Americans; the age-sex-adjusted mental disability was particularly low for immigrants from Western Europe, among whom the odds of reporting mental disability is about one fourth that found among native-born Americans. With adjustment for marital status, educational attainment, employment status, and poverty status (Model 2), immigrants from all countries or regions reported significantly lower prevalence of mental disability than native-born Americans. All the covariates exhibited significant associations with mental disability (results not shown). Compared to married respondents, separated, widowed, and never married respondents reported higher mental disability. Both higher educational attainment and higher poverty index (higher family-based income level) were associated with a significantly lower probability of reporting a mental disability. Respondents who were unemployed or were not in the labor force reported higher mental disability than employed respondents.

Results from the self-reported physical disability analyses followed similar patterns. Immigrants from all regions reported a lower prevalence of physical disability compared to native-born Americans with and without adjustment for covariates. In contrast, immigrants generally reported *higher* levels of work disability compared to native-born Americans. The exceptions to this pattern were immigrants from Canada (OR = 0.47, CI: 0.42–0.52), Western Europe (OR = 0.66, 0.62–0.70), and East Asia (OR = 0.77, CI: 0.74–0.81).

Heterogeneity in Self-Reported Disabilities Among Immigrant Subgroups

Table 3 shows self-reported mental disability patterns among immigrants by region of origin. Compared to Mexican immigrants, immigrants from Eastern Europe (OR = 1.29, CI: 1.20–1.39) and Southeast Asia (OR = 1.68, CI: 1.58–1.80) reported higher levels of age-sex-adjusted mental disability, but immigrants from all other regions reported lower levels. (The differentials were not statistically significant for Central/South America and Middle East; Model 1.) In the fully adjusted Model 2, immigrants from all regions, reported higher levels of mental disability than Mexican immigrants. The differences were particularly strong for immigrants from Eastern Europe (OR = 3.43, CI: 3.16–3.73) and Southeast Asia (OR = 3.28, CI: 3.06–3.53).

In Table 3 we also present results of two covariates that are immigration related: duration of U.S. residence and English proficiency. Compared with immigrants who speak only English at home, immigrants who speak English well or very well reported a much lower level of mental disability (OR = 0.55, CI: 0.51–0.60). Compared with immigrants with fewer than 5 years of U.S. residence, those with 5 or more years of U.S. residence reported higher mental disability (OR = 1.42, CI: 1.36–1.49). Results from Model 3 also suggested that the association between duration of U.S. residence and mental disability existed among immigrants from all regions, but the magnitude varied by region of origin. For example, compared to Mexican immigrants with fewer than 5 years of U.S. residence, those with 5 or more years of U.S. residence reported a higher level of mental disability (OR = 1.19, *main effect*). The effect of duration of U.S. residence was particularly strong for immigrants from Eastern Europe (OR = 1.61; obtained by multiplying the main effect [OR = 1.19] and the interaction effect [OR = 1.45]).

Compared with Mexican immigrants, immigrants from Canada, central/south America, Western Europe, East Asia, South Asian, and Africa reported lower levels of age-sex-adjusted physical disability; and immigrants from Eastern Europe, Southeast Asia, and Middle East reported a similar level of physical disability (Table 4, Model 1). With further adjustment for English proficiency, duration of U.S. residence, education, employment status, poverty status, and marital status (Model 2), immigrants from East Asia reported less physical disability (OR = 0.60, CI: 0.55–0.67); but immigrants from all other regions reported a similar (Canada and Western Europe) or higher level of physical disability compared to Mexican immigrants. Longer duration of U.S. residence predicted higher physical disability, and immigrants who speak English well or very well reported lower risk of physical disability than those who speak only English at home, similar to the patterns observed for mental disability. Results of Model 3 suggest consistent associations between higher physical disability and longer duration of U.S. residence among immigrants from all regions with the magnitude varying by region of origin.

Finally, compared to Mexican immigrants, immigrants from all other regions of origin reported lower risk of age-sex-adjusted work disability (Table 5, Model 1) with odds ratio ranging from 0.25 (Canada) to 0.92 (Central/South America). With the full set of adjustments, immigrants from Canada (OR = 0.37, CI: 0.33–0.41), Western Europe (OR = 0.51, CI: 0.48–0.54), East Asia (OR = 0.59, CI: 0.56–0.61), and the Middle East (OR = 0.78, CI: 0.72–0.83) reported significantly lower work disability, but immigrants from other

regions, including Central/South America, Eastern Europe, and Southeast Asia, South Asia, and Africa, reported work disability at a level similar to that of Mexican immigrants (Model 2). Longer duration of U.S. residence predicted higher risk of reporting work disability (Model 2), but the magnitude was conditional on region of origin (Model 3) as was the case with physical disability and mental disability.

Discussion

The Immigration Act of 1990 altered the composition of the U.S. immigrant population by increasing the proportion of immigrants arriving under employment-based and diversity visas. It also greatly expanded the diversity of U.S. immigrants by increasing the number of immigrants from previously unrepresented regions. Prior studies have indicated that recent immigrants have had a greater difficulty integrating into U.S. labor markets, attaining English proficiency, and assimilating into U.S. society, compared to immigrants who came in the past (Borjas 1994; Espenshade and Calhoun 1993; Espenshade and Fu 1997). At the same time little is known about the health of post-1990 immigrants. Using data from the 2000 U.S. census, we documented that post-1990 immigrants from 11 major sending countries or regions reported lower levels of physical and mental disability, compared to native-born Americans' net of socioeconomic status and other sociodemographic correlates; however, immigrants from all regions, except for Canada, Western Europe, and East Asia, reported higher levels of work disability.

In addition we documented considerable heterogeneity in disabilities *among* the immigrant subgroups. Immigrants from Eastern Europe and Southeast Asia reported the highest levels of mental disability and physical disability, whereas immigrants from East Asia reported the lowest physical disability, and Canadian immigrants reported the lowest work disability. Socioeconomic status and English proficiency partially accounted for the disability heterogeneity among immigrants from different regions. Longer duration of U.S. residence was associated with an increased likelihood of reporting a mental disability, physical disability, and work disability among immigrants from all regions.

Why Do Immigrants Report Higher Work Disability Than the Native Born?

Our results suggest that despite their relatively low physical disability and mental disability compared to native-born Americans, immigrants were more likely to report work disability. (Exceptions include immigrants from Canada, Western Europe, and East Asia.¹)

Nagi (1991) conceptualized disability as a dynamic movement along three stages: pathology, limitation, and disability. We expected that in the census the measures of mental disability and physical disability captured the "limitation" concepts, which emphasize the inability to function as a result of *physiological or mental* abnormality; and work disability captured the "disability" concept, which emphasizes the inability to perform tasks that are *socially* expected. The relatively high work disability among immigrants may reflect the difficulty in integrating into the workforce because of language, cultural, and institutional barriers faced by most immigrants, problems that immigrants from Canada and Western Europe are more likely to overcome because of the greater similarity between their sending societies and the U.S.

¹Controlling for physical disability and mental disability revealed only immigrants from Canada and Western Europe reporting lower work disability than their native-born counterparts.

Explaining Heterogeneity Across Immigrants from Different Regions

Previous literature documented a “Hispanic paradox,” meaning that immigrants from Latin America, especially from Mexico, appear to have lower mortality than non-Hispanic Whites in the U.S. despite their lower socioeconomic status (Liao et al. 1998; Markides and Coreil 1986). Our study provided additional evidence for this health advantage among Mexican immigrants. In addition we show that working-age Mexican immigrants may also be healthier than immigrants from most other regions of the world. Cultural or social buffering may partially account for the observed health advantage, particularly for low risk of mental disability (Palloni and Arias 2004). Murphy (1977) argued that the size of the immigrant group may decrease mental health problems. As the largest immigrant group, Mexicans may have broader social networks and better opportunities to live in ethnic enclaves and consequently face less pressure to integrate with the host culture compared to other immigrants, which may in turn decrease the risk of mental disability.

East Asian immigrants exhibited a comprehensive health advantage over immigrants from other regions, reporting the lowest risk of physical disability and mental disability levels similar to that of Mexican immigrants. They also reported the third lowest risk of work disability, following immigrants from Canada and Western Europe. Previous studies found that traditional medicine, including acupuncture and Chinese herbal medicine, was commonly used as an alternative or complementary option among many Chinese and Korean immigrants, who faced language or cultural barriers in fully utilizing the healthcare in the U.S. (Kim et al. 2002; Wu et al. 2007). Evidence has suggested that traditional medicine is relatively more effective than Western medicine in management of many chronic diseases (Chi 1994). In addition this population, particularly Chinese and Japanese immigrants, has a long history of settlement in the U.S. and has experienced a positive social, economic, and political adaptation to the host society, which may translate into a health advantage (Frisbie et al. 2001).

In contrast, two regional groups appear relatively disadvantaged among the immigrant population—Southeast Asians and Eastern Europeans. Both groups are similar in that they contain a large proportion of refugees. Previous literature has suggested that refugees and family-preference immigrants were less likely to experience positive health selection than immigrant laborers with employment visas (Akresh and Frank 2008; Jasso et al. 2005). For Southeast Asians the poorest health is observed among immigrants from Vietnam, Laos, and Cambodia; and our finding of health disadvantage among Southeast Asian immigrants is mainly driven by these subgroups.² Many immigrants from these countries experienced the Vietnam War (1959–1975) as children or young adults, and the associated exposure to widely used chemical weapons, such as Agent Orange, during the conflict (Frumkin 2003; Verger et al. 1994) and possible disfigurement from mines and unexploded ordnance (Wells-Dang 2006) may have a long-term impact on their health. In addition exposure to conflicts may induce posttraumatic stress disorder (PTSD), which has been linked with cognitive problems, including difficulties with learning, memory, and attention (Neylan et al. 2004).

Immigrants from Eastern Europe also reported a relatively high risk of both physical and mental disabilities. The inferior health of immigrants from this region relative to the native born has also been identified in Germany (Ulrich Ronellenfisch and Razum 2004). A large proportion of Eastern Europeans were refugees from the former Soviet republics (FSR). Since 1970 approximately one million FSR immigrants entered the United States (author tabulations from various U.S. immigration sources). The poor health of this group relative to

²Additional analyses with the sample excluding immigrants from these three countries indicate that other Southeast Asian groups exhibit a slightly higher risk of mental disability and physical disability compared to Mexican immigrants. (Results are available upon request.)

other U.S. immigrants, which is also not well understood, may be attributable to a combination of factors, including exposure to stressful circumstances surrounding the collapse of the former communist regimes in the late 1980s and early 1990s (Blomstedt et al. 2007) and a high prevalence of risky behaviors (e.g., heavy smoking and drinking) (Nemtsov 2002).

Duration of the U.S. Residence and Reported Mental Disability

Previous researchers have suggested that recently arrived immigrants have better health than native-born Americans, but this health advantage may deteriorate with increased duration of U.S. residence (Alderete et al. 2000; Cunningham et al. 2008). Our findings suggest the same patterns for post-1990 immigrants, among whom positive associations between duration of U.S. residence and disabilities were observed. Postmigration stressors of integrating into American society, such as culture shock, loss of cultural identity, discrimination, and isolation, may contribute to deteriorating health condition among the foreign born (Bhugra and Becker 2005). For example, the accumulated risk for psychiatric disorder partially explained the increased mental disability with longer duration of U.S. residence (Breslau et al. 2007). This may be the case among immigrants from Eastern Europe and Southeast Asia, of whom a considerable proportion came to the U.S. as refugees (Ryan et al. 2007). Other factors, such as the adoption of poorer eating habits and the consequent increased risk of obesity (Goel et al. 2004; Kaplan et al. 2004) and diabetes (Oza-Frank et al. 2009), major risk factors for disabilities (Gregg et al. 2000; Nathan 1993; Verbrugge and Jette 1994; Weil et al. 2002), may partially account for the increases in disability with duration of U.S. residence.

It is worth noting that the foregoing argument about “duration effect” becomes valid only under the assumption that the initial health conditions of incoming immigrant cohorts are stable over time. The health of any immigrant cohort is shaped by the unique conditions and events of that year or preceding years, such as legislative changes, refugee crisis, and macro socioeconomic conditions of both sending and receiving countries, and they may, therefore, vary significantly across year of immigration (Jasso et al. 2004). It was found that the health of immigrants who arrived in the U.S. in the early 1990s was worse than that of those who came in the late 1980s, based on data from multiple cross sections of the National Health Interview Survey (Jasso et al. 2004). If this is the case, the estimation of the association between duration of U.S. residence and self-reported disability may be biased.

Limitations

Some limitations of this study must be acknowledged. First, our disability measures were self-reported or proxy-reported (the Census form may be filled out by any household member on behalf of others). A concern is that self-evaluations may be culturally sensitive such that immigrants from different countries may evaluate and report their health using different yardsticks (Blomstedt et al. 2007). Nevertheless, the disability measures used in this analysis were symptom-based and self-identifiable. Evidence suggests that self-report of specific health condition instead of general self-reported health is not so susceptible to the international differences in response threshold (Jasso et al. 2005). Second, we cannot directly test to what extent the observed health advantage of immigrants occurred because of the “healthy migrant effect” (Jasso et al. 2004) without information on their relative initial health condition compared to their nonmigrant counterparts in the sending countries. The National Health and Nutrition Examination Survey 2000 to 2002 suggested that at least for Mexican immigrants, positive health selection explains much of their health advantages (Akresh and Frank 2008). Third, our study was subject to the common drawbacks of cross-sectional data. For example, we were unable to tease out the possible effect of age at arrival from the effect of duration of residence in the U.S.. Previous studies revealed that

immigrants who moved to the U.S. late in life were more likely to suffer from isolation and loneliness because they had fewer opportunities to develop friendships or to improve their English language skills than immigrants who arrived at younger ages (Cunningham et al. 2008). However, additional analysis has suggested that the effect of age at arrival should be modest in our study.³ Nevertheless, further research with longitudinal datasets to disentangle effects of duration of residence and age at arrival on health among immigrants is desirable. Finally, we had no data on a number of critical explanatory variables, such as migration stress, diet and exercise, and social networks, which limited our examining the mechanisms underlying the observed heterogeneity among immigrants.

Conclusions

This nationally representative study adds new evidence for the “healthy migrants” hypothesis, showing that recently arrived working-age immigrants from all regions of the world reported lower levels of mental disability and physical disability compared to native-born Americans; however, considerable heterogeneity exists among immigrant subgroups. The distinct health profiles among different Asian ethnic groups also suggest that overarching expressions such as “healthy Asian and Pacific Islanders” are misleading (Cho and Hummer 2001). More information on the circumstances surrounding migration, including the reason for migration, the refugee status of individuals, and health trajectories following migration, is needed to improve understanding of health heterogeneity among immigrants. Finally, the relatively high risk of work disability among immigrants underscores the need to address the barriers confronting most immigrants and to better integrate immigrants into the workforce and into U.S. society.

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³In our sample the majority immigrants (86%) came to the U.S. in adulthood (18 years old), and the median age at arrival was 26. A test suggested a low correlation ($r = -0.3$) between the age at arrival and duration of U.S. residence. Analyses based on a sample including immigrants who arrived at age 26 or younger and a sample including immigrants who arrived after age 26 yielded similar results regarding duration effect.

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Table 1

Comparison of characteristics among working-age U.S. residents by place of birth

Characteristics	Native-born (147,771)	Mexico (155,263)	Canada (8,057)	Central/South America (94,601)	Western Europe (18,607)	Eastern Europe (36,739)	East Asia (39,972)	Southeast Asia (40,342)	South Asia (30,861)	Middle East (7,881)	Africa (16,058)	Other regions (3,306)
Mental disability (yes)	4.2	1.6	1.2	1.9	0.9	3.1	1.1	3.9	1.3	1.7	1.1	1.2
Physical disability (yes)	7.4	2.1	1.9	2.5	1.4	3.6	1.2	3.9	2.0	3.1	2.1	2.4
Work disability (yes)	11.8	18.3	5.6	17.5	7.7	14.1	8.7	16.9	12.7	11.9	14.9	10.1
Age (STD)	39.8 (12.7)	29.2 (9.2)	35.7 (10.5)	32.9 (10.7)	34.8 (10.0)	36.4 (11.8)	34.8 (10.6)	35.8 (12.0)	33.5 (10.2)	32.8 (10.2)	33.5 (9.9)	33.7 (10.4)
Sex												
Female	50.9	43.3	51.4	49.8	47.1	53.5	55.4	56.8	46.4	44.2	46.6	48.4
Male	49.1	56.7	48.6	50.2	52.9	46.5	44.6	43.3	53.6	55.8	53.4	51.6
Marital status												
Single/never married	25.9	37.5	27.5	38.8	30.7	23.8	30.1	34.3	25.7	31.3	35.8	32.4
Married, with spouse	55.7	44.4	62.0	40.3	59.1	61.8	57.1	50.9	63.2	56.9	44.2	55.4
Divorced/widowed	18.4	18.1	10.6	20.8	10.3	14.4	12.9	14.9	11.1	11.8	20.1	12.2
Education												
Less than high school	14.8	71.1	7.7	43.6	9.9	12.6	14.0	27.1	13.6	20.4	14.9	21.7
High school	30.9	18.0	12.6	24.4	18.5	25.4	16.1	19.7	12.4	21.7	22.1	24.2
Some college	31.9	7.5	32.3	19.1	25.8	24.0	22.2	25.3	14.5	22.9	30.4	24.8
Bachelor and above	22.4	3.4	47.4	12.9	45.9	38.1	47.7	28.0	59.5	35.0	32.7	29.3
Employment status												
Employed	72.1	56.1	69.0	59.2	68.2	64.4	55.5	61.5	62.5	53.0	64.6	66.2
Unemployed	3.9	6.1	2.2	6.7	2.7	4.2	3.2	4.0	3.2	3.6	5.3	4.0
Not in labor force	24.0	37.8	28.9	34.1	29.2	31.5	41.3	34.5	34.2	43.4	30.0	29.7
Poverty status index												
0–99	12.9	29.9	12.7	23.5	15.2	19.3	25.2	16.4	15.8	25.9	23.4	18.8
100–199	29.5	55.9	20.0	49.4	23.3	34.1	32.9	39.0	30.0	35.4	38.6	33.7
300–499	27.2	30.9	24.5	18.3	22.2	23.8	19.7	26.8	21.8	19.5	21.6	21.6
500+	30.5	3.3	42.8	8.9	39.3	22.8	22.3	17.8	32.4	19.2	16.4	26.0
U.S. residence												
0–4 years	N/A	45.0	53.8	41.5	53.7	44.9	48.6	30.9	51.9	47.3	54.6	54.6
5–10 years	N/A	55.0	46.2	58.5	46.3	55.2	51.4	69.1	48.1	52.7	45.4	45.4

Characteristics	Native-born (147,771)	Mexico (155,263)	Canada (8,057)	Central/South America (94,601)		Western Europe (18,607)		Eastern Europe (36,739)		East Asia (39,972)		Southeast Asia (40,342)		South Asia (30,861)		Middle East (7,881)		Africa (16,058)		Other regions (3,306)	
English speaking																					
Does not speak English/not well	NA	67.1	1.2	44.3	7.2	26.3	4.7	34.7	28.3	12.9	18.4	10.5	9.0								
Only speak English	N/A	5.6	76.8	15.6	43.8	6.4	4.7	5.3	5.2	5.3	5.9	16.5	48.9								
Speaks well/very well	N/A	27.3	22.0	40.1	49.0	67.3	60.6	66.5	81.8	75.7	73.0	42.1									

Note: Native-born Americans were weighted downward to 2% of its original sample, and immigrants were restricted to those who arrived since 1990, the number of cases in parentheses and sample characteristics are based on unweighted data. Data source: 5% sample of the U.S. 2000 census

Table 2

Odds ratio (95% confidence interval) of reporting mental disability and physical disability, working age (18–64 years) residents in the U.S. ($N = 598,918$)

Ref: Native-born Americans	Mental disability		Physical disability		Work disability	
	Basic model ^a	Full model ^b	Basic model	Full model	Basic model	Full model
Canada	0.34 (0.27–0.41)	0.42 (0.34–0.52)	0.34 (0.29–0.39)	0.36 (0.31–0.43)	0.47 (0.42–0.52)	0.57 (0.52–0.63)
Mexico	0.60 (0.57–0.63)	0.24 (0.22–0.25)	0.61 (0.58–0.64)	0.28 (0.27–0.30)	1.91 (1.86–1.96)	1.47 (1.43–1.52)
Central/South America	0.62 (0.58–0.65)	0.32 (0.30–0.34)	0.52 (0.49–0.54)	0.30 (0.29–0.32)	1.75 (1.70–1.80)	1.50 (1.46–1.54)
Western Europe	0.26 (0.22–0.30)	0.29 (0.25–0.34)	0.26 (0.23–0.30)	0.27 (0.24–0.31)	0.66 (0.62–0.70)	0.78 (0.73–0.82)
Eastern Europe	0.85 (0.79–0.91)	0.82 (0.76–0.88)	0.58 (0.55–0.62)	0.51 (0.48–0.54)	1.30 (1.25–1.35)	1.41 (1.36–1.46)
East Asia	0.31 (0.28–0.35)	0.26 (0.24–0.29)	0.22 (0.20–0.24)	0.17 (0.16–0.19)	0.77 (0.74–0.81)	0.88 (0.84–0.92)
Southeast Asia	1.11 (1.04–1.18)	0.78 (0.73–0.83)	0.66 (0.62–0.69)	0.48 (0.45–0.51)	1.66 (1.60–1.71)	1.61 (1.55–1.67)
South Asia	0.39 (0.35–0.43)	0.37 (0.33–0.42)	0.40 (0.37–0.44)	0.35 (0.32–0.39)	1.17 (1.12–1.22)	1.42 (1.36–1.48)
Middle East	0.56 (0.47–0.66)	0.36 (0.30–0.43)	0.66 (0.58–0.76)	0.44 (0.38–0.50)	1.09 (1.01–1.17)	1.16 (1.07–1.24)
Africa	0.33 (0.28–0.39)	0.25 (0.22–0.30)	0.45 (0.40–0.50)	0.34 (0.31–0.38)	1.41 (1.35–1.49)	1.45 (1.38–1.53)
Other regions	0.35 (0.26–0.49)	0.28 (0.21–0.39)	0.48 (0.38–0.60)	0.39 (0.31–0.50)	0.92 (0.82–1.03)	0.93 (0.83–1.05)

Data source: As for Table 1

^aControls for age and sex

^bControls for basic model 1 + marital status, education, employment status, and poverty index

Table 3

Odds ratio (95% confidence interval) of reporting mental disability among working age (18–64 years old) immigrants who arrived since 1990 ($N = 451,147$)

Explanatory/confounding variable	Model 1	Model 2	Model 3
Country/region ^a			
Canada	0.52 (0.42–0.64)	1.52 (1.22–1.89)	1.74 (1.31–2.30)
Central/South America	0.98 (0.92–1.04)	1.34 (1.26–1.43)	1.24 (1.12–1.37)
Western Europe	0.40 (0.34–0.47)	1.21 (1.02–1.43)	1.02 (0.80–1.32)
Eastern Europe	1.29 (1.20–1.39)	3.43 (3.16–3.73)	2.74 (2.43–3.10)
East Asia	0.49 (0.44–0.54)	1.10 (0.98–1.22)	0.98 (0.83–1.16)
Southeast Asia	1.68 (1.58–1.80)	3.28 (3.06–3.53)	2.58 (2.26–2.95)
South Asia	0.62 (0.55–0.69)	1.75 (1.56–1.97)	1.47 (1.38–1.96)
Middle East	0.89 (0.75–1.06)	1.72 (1.44–2.06)	1.31 (0.97–1.77)
Africa	0.53 (0.45–0.62)	1.28 (1.08–1.50)	1.06 (0.84–1.34)
Other regions	0.55 (0.40–0.77)	1.27 (0.91–1.76)	1.00 (0.60–1.65)
English proficiency (ref: speaks only English)			
Does not speak English/not well	1.07 (0.99–1.15)	1.06 (0.98–1.15)	
Speaks well/very well	0.55 (0.51–0.60)	0.55 (0.51–0.60)	
Duration of U.S. residence (ref: 0–4 years)			
5–10 years	1.42 (1.36–1.49)	1.19 (1.10–1.30)	
Interaction between region of origin and U.S. residence (ref: Mexico × 0–4 years)			
Canada × 5–10 years		0.72 (0.47–1.09)	
Central/South America × 5–10 years		1.15 (1.01–1.31)	
Western Europe × 5–10 years		1.33 (0.96–1.85)	
Eastern Europe × 5–10 years		1.45 (1.25–1.69)	
East Asia × 5–10 years		1.20 (0.97–1.49)	
Southeast Asia × 5–10 years		1.42 (1.22–1.66)	
South Asia × 5–10 years		1.36 (1.08–1.70)	
Middle East × 5–10 years		1.57 (1.08–2.28)	
Africa × 5–10 years		1.39 (1.01–1.91)	
Other regions × 5–10 years		1.52 (0.78–2.94)	
Model fit statistics (–2 LOG L)			
Without covariates 83,812.1	–	–	
With covariates 78,902.9	72,806.4	72,759.9	

Model 1: control for age and sex

Model 2: Model 1 + English proficiency, U.S. residence, marital status, education, employment status, and poverty index

Model 3: Model 2 + Interaction between U.S. residence and region of origin

Data source: As for Table 1

^aThe reference group is Mexican immigrants

Table 4

Odds ratio (95% confidence interval) of reporting physical disability among working age (18–64 years old) immigrants who arrived since 1990 ($N = 451,147$)

Explanatory/confounding variable	Model 1	Model 2	Model 3
Country/region ^a			
Canada	0.54 (0.46–0.64)	1.14 (0.96–1.36)	1.00 (0.77–1.30)
Central/South America	0.84 (0.79–0.89)	1.06 (1.00–1.12)	0.93 (0.85–1.02)
Western Europe	0.42 (0.37–0.48)	0.91 (0.79–1.05)	0.85 (0.70–1.04)
Eastern Europe	0.93 (0.87–1.00)	1.77 (1.64–1.90)	1.62 (1.45–1.81)
East Asia	0.35 (0.32–0.38)	0.60 (0.55–0.67)	0.54 (0.46–0.63)
Southeast Asia	1.05 (0.98–1.12)	1.65 (1.54–1.77)	1.48 (1.31–1.68)
South Asia	0.65 (0.60–0.72)	1.31 (1.19–1.44)	1.05 (0.91–1.22)
Middle East	1.08 (0.94–1.23)	1.64 (1.43–1.89)	1.43 (1.14–1.79)
Africa	0.73 (0.65–0.82)	1.32 (1.17–1.49)	1.20 (1.02–1.42)
Other regions	0.78 (0.62–0.98)	1.40 (1.11–1.77)	1.23 (0.87–1.74)
English proficiency (ref: speaks only English)			
Does not speak English/not well	1.01 (0.94–1.08)	1.00 (0.94–1.08)	
Speaks well/very well	0.74 (0.68–0.79)	0.73 (0.68–0.79)	
U.S. duration (ref: 0–4 years)			
5–10 years	1.36 (1.30–1.42)	1.19 (1.11–1.28)	
Interaction between region of origin and U.S. residence (ref: Mexico × 0–4 years)			
Canada × 5–10 years		1.25 (0.90–1.75)	
Central/South America × 5–10 years		1.23 (1.09–1.37)	
Western Europe × 5–10 years		1.11 (0.86–1.45)	
Eastern Europe × 5–10 years		1.15 (1.01–1.32)	
East Asia × 5–10 years		1.21 (0.99–1.48)	
Southeast Asia × 5–10 years		1.18 (1.03–1.37)	
South Asia × 5–10 years		1.44 (1.20–1.73)	
Middle East × 5–10 years		1.25 (0.94–1.66)	
Africa × 5–10 years		1.18 (0.93–1.48)	
Other regions × 5–10 years		1.25 (1.79–1.99)	
Model fit statistics (–2 LOG L)			
Without covariates 101,621.9	–	–	
With covariates 92,725.1	88,152.6	88,128.1	

Model 1: control for age and sex

Model 2: Model 1 + English proficiency, U.S. residence, marital status, education, employment status, and poverty index

Model 3: Model 2 + interaction between U.S. residence and region of origin

Data source: As for Table 1

^aThe reference group is Mexican immigrants

Table 5

Odds ratio (95% confidence interval) of reporting work disability among working age (18–64 years old) immigrants who arrived since 1990 ($N = 451,147$)

Explanatory/confounding variable	Model 1	Model 2	Model 3
Country/region ^a			
Canada	0.25 (0.22–0.27)	0.37 (0.33–0.41)	0.39 (0.34–0.45)
Central/South America	0.92 (0.90–0.94)	1.01 (0.99–1.03)	0.96 (0.92–0.99)
Western Europe	0.35 (0.33–0.37)	0.51 (0.48–0.54)	0.52 (0.47–0.56)
Eastern Europe	0.69 (0.67–0.71)	0.94 (0.90–0.97)	0.91 (0.87–0.96)
East Asia	0.41 (0.39–0.42)	0.59 (0.56–0.61)	0.54 (0.50–0.57)
Southeast Asia	0.88 (0.85–0.90)	1.06 (1.03–1.09)	0.99 (0.93–1.04)
South Asia	0.62 (0.59–0.64)	0.94 (0.91–0.98)	0.90 (0.85–0.96)
Middle East	0.57 (0.53–0.61)	0.78 (0.72–0.83)	0.65 (0.58–0.73)
Africa	0.75 (0.71–0.78)	0.98 (0.94–1.03)	0.93 (0.87–0.99)
Other regions	0.48 (0.43–0.54)	0.62 (0.55–0.70)	0.57 (0.48–0.67)
Does not speak English/not well		1.00 (0.97–1.03)	1.00 (0.97–1.03)
Speaks well/very well		0.98 (0.95–1.01)	0.98 (0.95–1.01)
U.S. duration (ref: 0–4 years)			
5–10 years		1.15 (1.13–1.17)	1.09 (1.06–1.12)
Interaction between region of origin and U.S. residence (ref: Mexico × 0–4 years)			
Canada × 5–10 years			0.88 (0.73–1.07)
Central/South America × 5–10 years			1.10 (1.05–1.15)
Western Europe × 5–10 years			0.97 (0.87–1.09)
Eastern Europe × 5–10 years			1.04 (0.98–1.11)
East Asia × 5–10 years			1.17 (1.08–1.26)
Southeast Asia × 5–10 years			1.12 (1.05–1.19)
South Asia × 5–10 years			1.08 (1.00–1.16)
Middle East × 5–10 years			1.36 (1.17–1.57)
Africa × 5–10 years			1.11 (1.01–1.22)
Other regions × 5–10 years			1.20 (0.95–1.51)
Model fit statistics (–2 LOG L)			
Without covariates 389,058.0		–	–
With covariates 380,379.1		375,209.9	375,156.8

Model 1 control for age and sex

Model 2: Model 1 + English proficiency, U.S. residence, marital status, education, employment status, and poverty index

Model 3: Model 2 + Interaction between U.S. residence and region of origin

Data source: As for Table 1

^aThe reference group is Mexican immigrants