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Descriptive Finding

Age patterns of racial/ethnic/nativity differences in disability and physical functioning in the United States

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Age patterns of racial/ethnic/nativity differences in disability and physical functioning in the United States

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Abstract

BACKGROUND

Rapid population aging and increasing racial/ethnic and immigrant/native diversity make a broad documentation of U.S. health patterns during both mid- and late life particularly important.

OBJECTIVE

We aim to better understand age- and gender-specific racial/ethnic and nativity differences in physical functioning and disability among adults aged 50 and above.

METHODS

We aggregate 14 years of data from the National Health Interview Survey and calculate age- and gender-specific proportions of physical functioning and two types of disability for each population subgroup.

RESULTS

Middle-aged foreign-born individuals in nearly every subgroup exhibit lower proportions of functional limitations and disability than U.S.-born whites. This pattern of immigrant advantage is generally reversed in later life. Moreover, most U.S.-born minority groups have significantly higher levels of functional limitations and disability than U.S.-born whites in both mid- and late life.

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CONCLUSIONS

Higher levels of functional limitations and disability among U.S.-born minority groups and immigrant populations in older adulthood pose serious challenges for health providers and policymakers in a rapidly diversifying and aging population.

1. Introduction

By 2030, the number of older immigrants living in the United States is expected to have increased by 40 percent (Arias 2010). U.S.-born racial/ethnic minority groups will also continue to grow and make up an increasing share of the older population (Vincent and Velkoff 2010). These shifts will change the demographic structure of the elderly population and influence future population health patterns. Indeed, levels of poor physical functioning and disability are higher for older-aged blacks and Hispanics compared to the majority non-Hispanic white population (Cantu et al. 2013; Hummer et al. 2013; Kelley-Moore and Ferraro 2004; Manton, Gu, and Lamb 2006; Mehta, Sudharsanan, and Elo 2013). Recent research also documents increases in disability for adults in midlife; this increase may be more prevalent for minority groups (Freedman et al. 2013; Martin and Schoeni 2013).

At the same time, most studies of U.S. immigrants show favorable levels of health in comparison to U.S.-born whites (Akresh and Frank 2008; Singh and Siahpush 2001, 2002), a pattern known as the healthy immigrant effect. However, at older ages this pattern seems to reverse, with higher disability rates among a number of foreign-born groups compared to U.S.-born whites (Haas, Krueger, and Rohlfen 2012; Dallo, Booza, and Nguyen 2013). Foreign-born Asians are the only group that appears to retain favorable health outcomes into older age (Cho and Hummer 2001; Fuller-Thomson et al. 2011; De Souza and Fuller-Thomson 2013). In contrast, foreign-born Hispanics exhibit the greatest disability burden of any large U.S. subgroup (Hayward et al. 2014).

Despite substantial research in this area, most studies analyze only a few subgroups and most use only one measure of functioning or disability. Few studies contain, within one analysis, a broad array of subgroups and several measures of functioning/disability. And none of the related scholarship to date documents race/ethnic and nativity patterns in functioning and disability as they differ across age groups from midlife to the oldest-old. This paper thus expands on previous research by providing a comprehensive examination of three measures of functioning/disability for 13 subgroups of U.S.-born and foreign-born adults, stratified by gender, with age

groups that encompass both mid- and late life. As a result, we provide a thorough documentation of older adult physical health differences in the U.S.

2. Conceptual framework

The conceptualization of the disability process (Verbrugge and Jette 1994) first involves the loss of physical functioning, such as the ability to walk, climb stairs, and lift heavy objects. These functional limitations (FLs) progress into finding it difficult or impossible to perform personal care activities, such as bathing or getting around within the home (activities of daily living: ADLs) and then into finding it difficult or impossible to perform more complex household tasks, such as shopping for groceries or paying bills (instrumental activities of daily living: IADLs). FLs become disabilities when individuals find it difficult or impossible to perform activities that affect their expected social roles (Altman 2001; Crimmins 2004).

Racial/ethnic and nativity differences in functioning and disability in mid- and late life are of crucial importance because they highlight the physical consequences of social inequality in U.S. society (Hummer et al. 2013). These inequalities result in differing health trajectories in mid- and late life across groups. Such health inequalities not only lead to pain, suffering, and frustration for the affected individuals and groups, but are also hard on caregivers and costly for families and governments (Lynch, Brown, and Taylor 2009). As groups who have been historically discriminated against and who continue to occupy the lower socioeconomic strata of U.S. society, it is crucial that researchers document both racial/ethnic and immigrant/native differences in older adult health outcomes (Mehta, Sudharsanan, and Elo 2013; Treas and Batalova 2009).

3. Data and methods

We pool 14 years (1998–2011) of the National Health Interview Survey (NHIS) to estimate functioning and disability differences by race/ethnicity/nativity for adults 50 and older. The NHIS is an annual cross-sectional, nationally representative survey of civilian, non-institutionalized adults. We downloaded the data from the Integrated Health Interview Series (IHIS). The IHIS contains harmonized variables from NHIS data across many years, as well as appropriate weights for the complex survey design (IHIS 2013). ADL and IADL questions were asked of the entire sample (NHIS Core) and include proxy respondents. Functional limitations were self-reported by a subset of respondents in the Sample Adult Questionnaire. The total sample for the 14 years of data for ages 50 and above was 322,641; of these, 146,655 answered the Sample Adult

Questionnaire. After deleting respondents with missing data, our final sample size was 319,893 for the analysis of ADLs/IADLs and 144,975 for the analysis of FLs.

We constructed a measure of FLs based on individuals' responses to items that assess their ability (without special equipment) to stoop/kneel, stand for two hours, walk three blocks, climb 10 stairs, sit for two hours, carry 10 pounds, grasp objects, reach overhead, and push large objects. Respondents who answered "very difficult" or "cannot do at all" to one or more of these items were coded as having an FL. ADL disabilities consist of eating, bathing, dressing, and getting around inside the home. IADLs include everyday household chores, doing necessary business, shopping, or getting around for other purposes. Respondents who needed help with one or more of these items were considered to have an ADL or IADL limitation, respectively.

We include age categories that allow for reasonable cell sizes and that encompass midlife (50–64) and later life (65–74, 75–84, 85+). The racial/ethnic groups we include are Mexican Americans, Puerto Ricans, Cuban Americans, Other Hispanics, non-Hispanic Asian Americans, non-Hispanic blacks, and non-Hispanic whites. Each racial/ethnic group is further subdivided by nativity. Because there were only a small number of U.S.-born Cubans, this group was included with U.S.-born Other Hispanics. Those who reported multiple races, Native American, or unknown race were omitted.

Analytically, we document the proportion of individuals with an FL, ADL, and IADL, respectively, by race/ethnicity/nativity. All analyses are conducted separately by age group and gender. U.S.-born whites are the reference category for statistical tests. The analyses are weighted to account for the complex NHIS survey design and IHIS variance estimation variables are used to pool multiple years of data into a single file.

4. Results

Table 1 illustrates substantial variation in women's health by race/ethnicity/nativity; importantly, this variation differs extensively by age. For female midlife adults (50–64), all immigrant groups, with the exception of island-born Puerto Ricans, exhibit lower or equal proportions of FLs, ADL disability, and IADL disability, in comparison to U.S.-born whites. However, the opposite pattern is evident at older ages (65–74, 75–84, and 85+) in that most immigrant groups have worse health compared to U.S.-born whites. For example, foreign-born Mexican women have statistically lower FLs, ADL disability, and IADL disability at ages 50–64 compared to U.S.-born white women. Among 65–74 year-old women, foreign-born Mexican Americans have proportions of FLs (.68), ADL disability (.08), and IADL disability (.14) that are all significantly higher than U.S.-born white women (.58, .03, and .07, respectively). These disparities are even wider at the oldest age groups. What is most striking is that nearly all the

foreign-born groups (with the exception of Cubans) exhibit this pattern of significantly lower (at ages 50–64) and then significantly higher (generally at ages 65 and above) levels of disability and functional limitations than U.S.-born whites. Clearly, the healthy immigrant effect for midlife foreign-born adults is not evident in later life.

Turning to the U.S.-born minority groups, black, Mexican American, and Other Hispanic females have substantially higher levels of disability and FLs in comparison to U.S.-born whites during midlife. Only U.S.-born Asian Americans have health profiles comparable to U.S.-born white women. At the older ages, U.S.-born minority group women, with the exception of Asian Americans, continue to exhibit higher levels of disability and FLs than U.S.-born whites.

Table 1: Proportion reporting functional limitations (FL), limitations in activities of daily living (ADL), and limitations in instrumental activities of daily living (IADL), by race/ethnicity/nativity among U.S. females by age group, 1998–2011

	Females											
	50–64			65–74			75–84			85+		
	FL	ADL	IADL	FL	ADL	IADL	FL	ADL	IADL	FL	ADL	IADL
Foreign-born												
Mexican foreign-born	0.33*	0.01*	0.04*	0.68*	0.08*	0.14*	0.77*	0.17*	0.26*	0.82*	0.39*	0.57*
Puerto Rican Island-born	0.55*	0.03*	0.09*	0.65*	0.06*	0.13*	0.73*	0.18*	0.27*	0.85*	0.37*	0.45*
Cuban Origin foreign-born	0.36*	0.02	0.03*	0.47*	0.03	0.06	0.62	0.10	0.13	0.66	0.31*	0.31
Other Hispanic foreign-born	0.40	0.02	0.04*	0.52	0.03	0.08	0.73*	0.13*	0.22*	0.74	0.33*	0.52*
Asian foreign-born	0.31*	0.01*	0.02*	0.46*	0.02	0.06	0.72*	0.12*	0.20*	0.78*	0.36*	0.45*
Black foreign-born	0.37	0.01*	0.03*	0.55	0.04*	0.07	0.71*	0.14*	0.25	0.79*	0.17	0.22*
White foreign-born	0.38	0.02	0.04	0.51*	0.05	0.07	0.67	0.08	0.17	0.69	0.25*	0.38
U.S-born												
Mexican US-born	0.44	0.04*	0.07*	0.58	0.07*	0.13*	0.74*	0.16*	0.25*	0.78*	0.36*	0.49*
Puerto Rican Mainland-born	0.50*	0.03	0.07*	0.56	0.06*	0.12*	0.71	0.14*	0.27*	0.86*	0.24*	0.38*
Other Hispanic US-born	0.50*	0.04*	0.08*	0.63*	0.05*	0.10*	0.70*	0.11*	0.24*	0.79*	0.29*	0.45*
Asian US-born	0.40	0.01*	0.03*	0.60	0.03	0.06	0.68	0.07	0.19	0.62*	0.10*	0.26*
Black US-born	0.53*	0.04*	0.09*	0.73*	0.08*	0.17*	0.78*	0.19*	0.30*	0.86*	0.37*	0.49*
White US-born (ref.)	0.41	0.02	0.05	0.58	0.03	0.07	0.66	0.07	0.16	0.72	0.19	0.39

N for ADL/IADL = 179,976

N for FL = 81,597

* Indicates that proportion differs from US-born whites in the same age and gender group ($p < .05$).

Source: Integrated Health Interview Survey, 1998–2011.

The key patterns for men (Table 2) are quite similar to those for women. Foreign-born Mexican, Cuban, Other Hispanic, Asian, and black men at ages 50–64 have lower levels of FLs, ADL disability, and IADL disability compared to U.S.-born white men. One clear example is foreign-born Mexican Americans: they have a lower proportion of FLs (.24), a comparable proportion of ADL disability (.01), and a lower proportion of IADL disability (.02) than those of U.S.-born white men (.33, .01, and .03, respectively). As with women, the only exception is island-born Puerto Rican men. In contrast, U.S.-born minority men (except Asian Americans) exhibit higher proportions of FLs, ADL disability, and IADL disability than U.S.-born whites.

Table 2: Proportion reporting functional limitations (FL), limitations in activities of daily living (ADL), and limitations in instrumental activities of daily living (IADL), by race/ethnicity/nativity among males by age group, 1998–2011

	Males											
	50–64			65–74			75–84			85+		
	FL	ADL	IADL	FL	ADL	IADL	FL	ADL	IADL	FL	ADL	IADL
Foreign-born												
Mexican foreign-born	0.24*	0.01	0.02*	0.44*	0.03	0.06*	0.63*	0.14*	0.21*	0.78*	0.31*	0.47*
Puerto Rican Island-born	0.42*	0.03*	0.05*	0.43*	0.05*	0.08*	0.72*	0.14*	0.23*	0.81*	0.25*	0.39*
Cuban Origin foreign-born	0.23*	0.01	0.02*	0.32*	0.02	0.04	0.57	0.11*	0.13	0.64	0.33*	0.37*
Other Hispanic foreign-born	0.25*	0.01	0.01*	0.35	0.03	0.06*	0.62*	0.13*	0.16*	0.71*	0.21*	0.35*
Asian foreign-born	0.18*	0.01	0.01*	0.33*	0.02	0.03*	0.54	0.05	0.12	0.70	0.31*	0.43*
Black foreign-born	0.24*	0.01	0.03	0.41*	0.04*	0.05	0.57	0.11*	0.17*	0.74*	0.26*	0.18
White foreign-born	0.29	0.02	0.02	0.33	0.03	0.05	0.53	0.07	0.11	0.69	0.16	0.25
U.S-born												
Mexican US-born	0.41*	0.02*	0.05*	0.43*	0.04*	0.07*	0.62*	0.10*	0.18*	0.74*	0.23*	0.36*
Puerto Rican Mainland-born	0.38*	0.01	0.04	0.42*	0.03	0.06*	0.61*	0.12*	0.17*	0.70*	0.17	0.38*
Other Hispanic US-born	0.39*	0.02*	0.04	0.51*	0.03*	0.05*	0.63*	0.09*	0.13*	0.73*	0.27*	0.33*
Asian US-born	0.22*	0.01	0.02*	0.42	0.01	0.03	0.54	0.06	0.19*	0.69	0.18	0.28
Black US-born	0.41*	0.03*	0.06*	0.46*	0.05*	0.08*	0.72*	0.15*	0.27*	0.79*	0.31*	0.36*
White US-born (ref.)	0.33	0.01	0.03	0.39	0.02	0.06*	0.55	0.05	0.09	0.67	0.14	0.25

N for ADL/IADL = 139,917

N for FL = 63,378

* Indicates that proportion differs from US-born whites in the same age and gender group ($p < .05$).

Source: Integrated Health Interview Survey, 1998–2011.

As with the pattern for women, immigrant similarities/advantages for men relative to U.S.-born whites at ages 50–64 largely disappear and, with the exception of foreign-born Cubans, become disadvantages at ages 65 and above. At ages 75 and above, foreign-born Mexican men have much higher proportions of ADL/IADL disability and FLs than U.S.-born white men. In addition, at ages 65 and above, all U.S.-born minority groups except Asians have substantially higher proportions of disability and FLs than U.S.-born whites.

5. Discussion and conclusion

Our findings provide evidence consistent with the healthy immigrant effect for both males and females in midlife (Akresh and Frank 2008). Relative to U.S.-born whites, foreign-born Mexicans, Cubans, Other Hispanics, Asians, blacks, and whites all have comparable and in some cases lower proportions of FLs and ADL/IADL disability. Middle-aged immigrants may not yet demonstrate the negative health effects caused by many years of physically demanding work (Toussaint-Comeau 2006). At the same time, island-born Puerto Ricans displayed worse health outcomes than U.S.-born whites; Puerto Ricans may be less selected for good health since they are U.S. citizens and can more easily migrate to the mainland than other groups.

Our evidence also illustrates that the more positive health profiles of immigrants relative to U.S.-born non-Hispanic whites in midlife extends to ages 65–74 only for female and male Cuban, Asian, and white immigrants. The relatively comparable health between foreign-born blacks and U.S.-born whites in early late life is consistent with other research (Hamilton and Hummer 2012); however, at the oldest ages (75–84, 85+), the health of black immigrants is significantly worse than that of U.S.-born whites across all three outcomes. The health advantage of the Cuban foreign-born group is quite likely due to their favorable socioeconomic status relative to other immigrant groups. The 1960s cohort of Cuban immigrants was largely middle or upper-middle class and experienced successful assimilation into U.S. society (Telles and Ortiz 2008; Tienda and Mitchell 2006). These socioeconomic advantages relative to other immigrant groups have likely translated to positive health outcomes in late life.

We also found that foreign-born Mexican Americans and Other Hispanics have significantly higher levels of disability in early late life (65–74) compared to U.S.-born whites (also see Hayward et al. 2014). This pattern was clear for both men and women. Importantly, these groups most often move to the U.S. for employment reasons and generally work in low-skill, very physically demanding jobs (Tienda and Mitchell 2006). The cumulative toll of working in physically taxing and risky jobs with low autonomy may well be responsible for their poorer health in early late life. Our results

also indicate that, by the oldest ages (85+), every foreign-born group (except Cubans) has higher proportions of FLs and ADL/IADL disability than U.S.-born whites, in direct contrast to the healthy immigrant effect.

Interestingly, both foreign- and U.S.-born Asian Americans exhibited considerably better health than most groups; however, only the U.S.-born Asians exhibited health comparable to that of non-Hispanic whites at the oldest ages. Foreign-born Asian Americans reported similar or better health than whites until ages 75–84, at which point foreign-born Asian men exhibited worse health than white males on all three measures and Asian women had a higher level of ADL disability. These results are consistent with earlier studies that suggest the foreign-born Asian health advantage may not extend into late life (Markides et al. 2007; Mutchler, Prakash, and Burr 2007). In part, this may be due to the heterogeneity of this group. Asians who migrate to the U.S. as refugees or for family reunification may be less positively health-selected and/or may be older at the time of migration than most immigrants.

Our results also revealed that most U.S.-born minority groups – in particular blacks, Puerto Ricans, Mexican Americans, and Other Hispanics – were characterized by poorer health than U.S.-born whites in all age groups. Prior studies suggest that socioeconomic disadvantages among these populations play an important part in their poorer health relative to whites (Hummer, Benjamin, and Rogers 2004, Hummer et al. 2013). These wide differences in health across racial/ethnic groups illustrate that the U.S. has a considerable way to go to achieve health equality.

In spite of its strengths, our study has limitations. Prior studies have shown that some national origin differences in disability are related to age patterns of immigration (Elo, Mehta, and Huang 2011), a measure not available in the NHIS. Second, the NHIS does not include individuals who live in institutions (mainly nursing homes). The percentage of older adults in nursing homes is higher among whites (3.2%) and blacks (4.2%) than Hispanics (1.8%) or Asians (1.4%) (Feng et al. 2011). Thus estimates could be higher if nursing home residents were included. Finally, our data do not allow for an understanding of *why* there are such wide subgroup differences and why such differences vary by age. Patterns of immigrant selectivity, type of visa, selective out-migration, and the life course accumulation of socioeconomic resources may impact upon these health differences.

Despite these limitations, our study represents an important contribution to knowledge of the complex patterns of race/ethnicity/nativity and adult health in the United States. With a demographic profile characterized by rapidly increasing numbers and proportions of aging immigrants and members of racial/ethnic minority groups, it is essential that U.S. society implements social and health policies that ameliorate the negative health outcomes among immigrants and disadvantaged minority groups. The future wellbeing of the elderly population is at stake.

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