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Educational gradients in five Asian immigrant populations: Do country of origin, duration and generational status moderate the education-health relationship?

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ABSTRACT

Education usually shows a relationship with self-rated health such that those with highest education have the best health and those with lowest education have the worst health. We examine these educational gradients among Asian immigrants and whether they differ by country of origin, duration in the United States, and generational status. Migration theories suggest that recent immigrants from poorer countries should show a weaker relationship between education and health than US-born Whites. Acculturation theory further suggests that differences in gradients across country of origin should diminish for longer-term immigrants and the US-born and that these groups should display gradients similar to US-born Whites.

We use the March Current Population Survey (2000−2010) to examine educational gradients in self-rated health among recent immigrants (≤15 years duration), longer-term immigrants (>15 years duration), and second generation US-born Asians from China (n = 4473), India (n = 4,307), the Philippines (n = 5746), South Korea (n = 2760), and Japan (n = 1265).

We find weak or non-significant educational gradients among recent Asian immigrants across the five countries of origin. There is no indication that longer-term immigrants display significant differences across educational status. Only second generation Chinese and Filipinos show significant differences by educational status.

Overall, Asians show an attenuated relationship between education and self-rated health compared to US-Whites that persists over duration in the US and generational status. Our findings show shortcomings in migration and acculturation theories to explain these gradient patterns. Future research could use binational data or explore psychosocial factors to identify potential suppressors of educational gradients.

1. Background

Many studies find that persons who have completed more years of education have better health compared to those who have fewer years of schooling. This pattern is called an educational gradient because the best health outcomes are for those with the highest education. Those with less education have slightly worse health, and so on. The educational gradient has been found in range of health outcomes, including life expectancy, disability, chronic conditions, and self-reported health (Braveman et al., 2010). However, the beneficial role of higher educational attainment is either weakened or not present among Asian immigrants compared to US-born samples (Kimbro et al., 2008; Acevedo-Garcia et al., 2010).

Yet, much of our current knowledge relies on studies that have aggregated Asian immigrant samples, obscuring subgroup differences. Some studies have found some differences in the educational gradients in birthweight, self-rated health, work limitations, obesity, and smoking status among Asian ethnic subgroups (Kimbro et al., 2008; Madan et al., 2006; Wang et al., 1994). These investigations vary in their methodology and approach, however, limiting the generalizablity of their findings. Researchers have long called for analyses of Asian immigrants to disaaggregate by country of origin, owing to their distinct migration histories, cultural orientations, and economic characteristics (Yi et al., 2015). What is more, explanations for immigrant socioeconomic (SES) gradients have focused increasingly on the characteristics of sending countries. For example, immigrants may "import" the patterns between education and health of their country of origin (Riosmena and Dennis, 2012). Alternatively, the "healthy migrant hypothesis" proposes that immigrants are positively selected on health compared to their non-migrating counterparts in the origin country. Health selection limits

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immigrants' variability in health status and compresses health differences across educational categories (Jasso et al., 2004). With the growing interest in the role of sending countries, it is critical to conduct subgroup analyses comparing gradients across different countries of origin.

Country-level factors, such as the level of economic development or progression in the epidemiological and nutritional transitions, can underpin differences in the education and health relationship by country of origin (Acevedo-Garcia et al., 2012). For example, developing countries such as China are in the midst of a nutritional transition, which may result in a weaker relationship between education and health outcomes as the burden of chronic diseases shifts from individuals with high SES to those with low SES (Popkin, 2003). Additionally, immigrants from poorer countries are thought to have greater health selection, since the migration costs are higher (Read et al., 2005). Hence, we may expect immigrants from poorer and less developed countries to display a weaker relationship between education and health. In these instances, the gradient is "attenuated", meaning that there are smaller differences in health status across educational categories. These gradient differences by country of origin are likely to be more prominent among recent immigrants because of their limited exposure to the United States (Riosmena and Dennis, 2012).

Theories of acculturation generally predict that the health outcomes of immigrants will converge to those of their US-born counterparts over time in the United States and across generational status (Rogler et al., 1991). Accordingly, we expect differences in educational gradients across country of origin groups to diminish for longer-term immigrants. Previous research found that longer-term Asian immigrants displayed a stronger relationship between higher education and better self-rated health than recent immigrants (Acevedo-Garcia et al., 2010). Likewise, we expect second-generation US-born individuals to display an even stronger association between higher education and better health compared to immigrants, as they have the most exposure to the American social environment and have been educated in the US. Existing studies using the aggregated population of US-born Asians have shown a protective benefit of education and income across several health outcomes, even though the effect is reduced compared to US-born Whites (Kimbro et al., 2008).

In summary, we have the following hypotheses: H1: Asians in general will have attenuated gradients compared to US-born Whites. H2: There will be differences in the educational gradients across Asian countries of origin. These differences will be most pronounced among recently-arrived immigrants. H3: Among immigrants, educational gradients will be stronger with increasing duration in the US. H4: Educational gradients in health will be stronger among US-born (2nd generation) compared with foreign-born (1st generation) Asians.

2. Methods

2.1. Participants and data

We used the 2000–2010 waves of the March Current Population Survey (CPS) (Ruggles et al., 2010). The sample included foreign-born and second generation US-born single-race Asian respondents who were born in or had at least one parent born in China, India, Philippines, South Korea or Japan. Of the foreign-born, we limited to those who entered the United States after 1970 and were at least 25 years old at the time of migration. This increased the likelihood that the foreign-born completed their education in the country of origin, reducing potential confounding by place of education (Walton et al., 2009; Zhen and Xie, 2004). Second generation US-born Asians were also limited to those over 25 years old. Finally, we limited the maximum age of all respondents to 64 years, as health differences across education and duration diminish with older age (Ro and Gee, 2012). Our final sample sizes were Chinese = 4473, Asian Indian = 4037, Filipino = 5746, Korean = 2760, Japanese = 1265. No ethics review was needed for this study, as the publicly-available version of the CPS does not contain potential identifiers and poses minimal risk of identity disclosure.

2.2. Measures

2.2.1. Self-rated health

The outcome measure was self-rated health, a summary health measure associated with mortality, health utilization behaviors, and disability (Idler and Benyamini, 1997; Benyamini and Idler, 1999; Idler and Kasl, 1995; Ferraro et al., 1997). Respondents reported their general health on a five-point scale: "Excellent", "Very Good", "Good", "Fair" and "Poor". This outcome was dichotomized into fair/poor versus all others (Acevedo-Garcia et al., 2010; Zhang et al., 2010).

2.2.2. Educational attainment

We measured education in three categories: Less than high school degree (ref.), high school graduate, and college graduate.

2.2.3. Nativity/years in the United States

This variable was divided into the following categories: 1) US-born Asians (second generation); 2) Recent immigrants: 0–15 years duration; 3) Longer-term immigrants: 16 or more years duration.

We calculated duration by subtracting the year of entry variable from the survey year. We could not identify duration for a small minority of respondents because the CPS records the year of entry for immigrants in multiple-year intervals (e.g. entering 1990–1991, entering 1992–1995). To address this problem, we used the American Community Survey to calculate the likelihood that a respondent entered the United States in a given year. For example, in the 2000 wave, respondents entering between 1984 and 1985 straddled the two duration categories. According to the ACS, 46% of these immigrants entered in 1984 and 54% entered in 1985. We created a duplicate of the observation, one of which received a weight of 0.46 to correspond to the likelihood of being in the 0–15 duration group and the other a weight of 0.54 to represent its likelihood of being in the 16+ year group. This duration weight was multiplied by the person weight in the complex survey weighting scheme for a new person weight. These straddling observations were rare (3% of Chinese, 2% of Asian Indian, 3% of Filipinos, 2% of Koreans, 2% of Japanese).

2.2.4. Cohorts

This paper controls for cohort of entry, as duration and cohort effects are confounded in cross-sectional data (Lauderdale, 2001). For example, health differences by duration category may not be due to length of residence in the United States, but because immigrants who entered the United States 10 years prior may be compositionally distinct from immigrants entering 5 years prior. We accounted for these potential compositional differences (i.e., cohort effects) by including four year-of-entry cohorts in our model: immigrants entering 1970–1979, 1980–1989, 1990–1999 and 2000–2010. These categories were created using the year of immigration variable. In instances where the year of entry range straddled two cohorts (i.e., entering between 1998 and 2000), we coded the respondents into the earlier cohort (i.e., the 1990–1999 cohort).

2.2.5. Additional variables

We controlled for gender (categorical, male reference), age (continuous), survey year (categorical, year 2000 reference), and the poverty to family income ratio (PIR) (continuous) in 1999 dollars.

2.3. Analysis

To assess educational gradients, we conducted a series of logistic regressions with poor/fair self-rated health as the outcome. The first set of models examined the relationship between education and fair/poor self-rated health for each Asian subgroup and US-born Whites.