Racial/Ethnic and Generational Status Differences in the Relationships between Subjective Social Status, Objective Socioeconomic Status, and Young Adult Health

Karen Gerken, Kathleen Mullan Harris and Robert A. Hummer
The University of North Carolina, Chapel Hill

Introduction and Research Questions

It is well documented that U.S. adults with higher socioeconomic status (SES) have better health and lower mortality than those with lower socioeconomic status (Link and Phelan 1995; Elo and Preston 1996; Elo 2009). Moreover, SES disparities in U.S. health and mortality have been widening in recent decades, especially among more recent births cohorts, yielding perhaps the largest SES gradients in health and mortality over the past half-century or more (Masters et al. 2012; Lynch 2003; Miech et al. 2011; Hummer and Hernandez 2013; Liu and Hummer 2008). Clearly, it is an important time for social scientists to better document and understand socioeconomic gradients in health, particularly among young adults in recent birth cohorts.

Most research on SES disparities in health has relied on objective measures of socioeconomic status (OSS), particularly educational attainment and income. Recent attention has also been given to a measure of perceived socioeconomic status, or subjective social status (SSS), as a tool for investigating SES disparities in health (Singh-Manoux et al. 2003). While OSS is related to SSS, some emerging evidence suggests that SSS is more strongly related to morbidity and mortality than OSS in a variety of populations (Adler et al. 2000; Singh-Manoux et al. 2005; Ostrove et al. 2000; Demakakos et al. 2008). Importantly, though, little is known about how the relationships between SSS and OSS and between SSS and health may differ across racial/ethnic and immigrant groups, including children of immigrants.

While very few studies have compared these relationships across racial/ethnic groups, those that did typically utilized small, non-representative samples (Ostrove et al. 2000; Goodman et al. 2003). One study of pregnant women found that SSS and self-rated health were more weakly related for Black and Hispanic women, compared with White and Chinese-American women, when controlling for OSS (Ostrove et al. 2000). Another study, which examined a group of Black and White adolescents in one school district, found the association between SSS and obesity was weaker among Black adolescents compared to White adolescents (Goodman et al. 2003). The few previous papers that have included measures of immigrant status in their investigations of SSS and health only examined SSS development and the relationships between SSS and mental and physical health within certain U.S. immigrant groups, such as Asians (Leu et al. 2008; Gong et al. 2012) and Mexicans (Franzini and Fernandez-Esquer 2006; Reitzel et al. 2010). While these studies uncovered health gradients by subjective social status within specific groups, no paper to date has compared the SSS–health gradient across racial/ethnic and immigrant groups. Moreover, no paper to date has compared whether the relationship between SSS and OSS differs across racial/ethnic and generational status groups.

This paper examines whether or not there are racial/ethnic and generational status differences in the associations between OSS and SSS, and between SSS and objective measures of health in a nationally representative sample of young adults in the United States. Importantly, we include both individual measures of young adult OSS as well as parental measures of OSS to better understand young adults’ assessment of SSS. This intergenerational perspective is very unique in this literature and will allow us to better understand racial/ethnic and immigrant status differences in SSS. We contribute to the literature on racial/ethnic and immigrant health disparities in two key ways: 1) better understanding the relationship...
between objective social status and subjective social status for various population subgroups; and 2) better understanding how subjective social status is associated with objectively measured indicators of biological health risk for various population subgroups. We use data from the National Longitudinal Study of Adolescent to Adult Health, a nationally representative longitudinal study of a young adult cohort that includes unique measures of SSS, OSS, and biomarkers of physical health.

**Conceptual Model:**

We posit that physical health in young adulthood is related to subjective social status and objective socioeconomic status in young adulthood. In addition, subjective social status is related to objective socioeconomic status in young adulthood. Our model is also longitudinal; we hypothesize that parental objective socioeconomic status in adolescence is associated with respondent OSS and SSS in young adulthood directly and thus physical health in young adulthood indirectly. We examine this conceptual model by race/ethnicity and immigrant status and our two main research questions are indicated by the two numbered pathways above.

**Research questions:**

1. Do the associations between objective socioeconomic status, both parental and own, and subjective social status differ for various population subgroups?
2. Is subjective social status associated with objectively measured indicators of biological health risk differently for various population subgroups?

**Data:**

This paper uses data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), a nationally representative study that originally sampled 20,745 students in grades 7-12 from 132 middle- and high-schools across the country and interviewed the adolescent and one of their parents in the
home in 1995. Three additional waves of data were collected in in-home interviews to follow the original cohort as they aged: Wave II (1996), Wave III (2001 – 2002), and Wave IV (2008 – 2009). An expanded set of biomarkers were collected at Wave IV, and nearly every respondent has multiple objective measures of physical health available to analyze. This paper draws on data from two waves of Add Health, Waves I and IV. OSS, SSS and health data come from Wave IV, and sociodemographic measures, including race/ethnicity and immigrant status, are drawn from Wave I.

Measures:

Dependent health variables:

C-reactive protein: CRP measures immune function and inflammation. To adjust for skewing, we create a logged transformation of the original CRP measure. In addition, we utilize a clinically relevant categorical measure of inflammation: low (CRP < 1), average (CRP between 1 and 3), and elevated (CRP above 3).

Obesity: Obesity is an indicator of metabolic function based on height and weight. We calculate body mass index (BMI) as kg/m$^2$, and those with BMIs above 30 are considered obese.

Abdominal Obesity: Another measure of metabolic function is abdominal obesity. We create a binary measure of abdominal obesity based on measured waist circumference at Wave IV for each gender (> 102 cm for males, > 88 cm for females).

Hypertension: We create a clinically relevant binary indicator of hypertension to capture both diagnosed and undiagnosed hypertension, including those who had high measured blood pressure (systolic BP>=130 and/or diastolic BP>=90), self-reported a hypertension diagnosis or were taking hypertension medication at the time of the Wave IV survey.

In addition to binary/categorical indicators described above, we will also explore continuous measures of these health outcomes (i.e., CRP, BMI, waist circumference, and systolic blood pressure).

Socioeconomic status variables:

Subjective Social Status: We use the SSS variable at Wave IV that asked respondents to place themselves on a ladder compared to the rest of the US population, with those on the lowest rung (1) considering themselves to have the lowest status and those on the top rung (10) considering themselves to have the highest status.

Respondent Objective Socioeconomic Status: We use two measures of OSS reported at Wave IV: respondent’s report of household income (in thousands of dollars) and respondent educational attainment (collapsed into a categorical variable: less than high school, high school graduate, some college, college degree, or any graduate education).

Parent Objective Socioeconomic Status: We use two measures of parental OSS reported at Wave I in the parent questionnaire: parent’s report of household income (in thousands of dollars) and the highest educational attainment of either parent (collapsed into a categorical variable: less than high school, high school graduate, some college, college degree, or any graduate education).

Sociodemographic Variables:

Race/Ethnicity: Using self-reports of race and ethnicity reported at Wave I, we create four racial/ethnic groups: Non-Hispanic Asian, Hispanic, Non-Hispanic Black, and Non-Hispanic White.

Immigrant Status: Using data from the parental reports, and the adolescent reports in the in-school and in-home interviews at Wave I, we constructed a generational dummy variable with three immigrant status categories of young adults: 1st generation (foreign-born with foreign-born parents), 2nd generation (native-
born with foreign-born parent(s), and 3\textsuperscript{rd} + generation (native born with native-born parents) (Harris et al 2009).

**Racial/Ethnic and Generational Status Groups:** Using the previously described groupings, we delineate 8 focal groups for analysis: Asian 1\textsuperscript{st}, 2\textsuperscript{nd} and 3\textsuperscript{rd}+ generations; Hispanic 1\textsuperscript{st}, 2\textsuperscript{nd} and 3\textsuperscript{rd}+ generations; White, 3\textsuperscript{rd}+ generation; Black 3\textsuperscript{rd}+ generation. Small numbers of 1\textsuperscript{st} and 2\textsuperscript{nd} generation Blacks and Whites are excluded from the analysis.

**Preliminary findings:**

Table 1 presents some descriptive statistics for variables of interest, both for the full sample, and for each of the key racial/ethnic and immigrant status groups. In general, the Asian subsample, particularly the first generation Asian immigrants, is the healthiest, with the smallest proportion of respondents with high CRP, obesity and abdominal obesity. On the other end of the spectrum, 3\textsuperscript{rd}+ generation Black respondents have the highest proportions of high CRP, overall obesity and abdominal obesity. The Hispanic respondents have the most heterogeneity based on immigrant group, with first generation immigrants typically being healthier than the overall average, while 3\textsuperscript{rd}+ generation Hispanics being more likely than the overall sample to be hypertensive, overall obese, abdominally obese and have high levels of CRP. Overall, while some racial/ethnic patterns emerge in the health profiles of the respondents, these health risks vary by immigrant status.

Similar heterogeneity is apparent with the socioeconomic indicators, both objective and subjective. Asian immigrants (both first and second generation) have the highest OSS indicators (most educated and highest household income) of the sample, as well as the highest SSS scores (5.50 and 5.56, respectively). Third+ generation Blacks are the least educated and have the lowest incomes, and have the lowest average SSS score. However, despite being better educated and earning household incomes similar to the mean of the whole sample, Hispanic 3\textsuperscript{rd}+ generation individuals have a mean SSS score similar to 3\textsuperscript{rd} generation Blacks.

**Further research:**

These preliminary results suggest that the relationship between OSS and SSS may vary by race/ethnicity and generational status. In particular, young adult Hispanic immigrants have similar OSS distributions to 3\textsuperscript{rd} generation Hispanics and Whites, but higher SSS scores (while 3\textsuperscript{rd} generation Hispanics have a much lower mean SSS score than their White peers). Hispanic immigrants also have lower rates of hypertension and elevated CRP than 3\textsuperscript{rd} generation Whites and Hispanics, despite their lower OSS. In order to understand if and how differences in SSS may explain the apparent better health of these immigrant groups, we plan to run fully adjusted models that test racial/ethnic and immigrant status differences in the relationships between OSS, SSS and objective physical health. We will also control for other sociodemographic variables in these fully adjusted models, including age, sex and family structure in adolescence. In addition, we will explore how including longitudinal OSS indicators, namely parental OSS, will affect the models. This paper will be the first to thoroughly examine these relationships across a number of racial/ethnic immigrant groups in a nationally representative study of young adults.

**References:**


Franzini, Luisa and Maria Eugenia Fernandez-Esquer. 2006. The association of subjective social status and health in low-income Mexican-origin individuals in Texas. Social Science & Medicine 63(3)788–804


Table 1: Selected Descriptive Statistics, by Immigrant Group (N=10,101)

<table>
<thead>
<tr>
<th>Health Measures</th>
<th>Asian, 1</th>
<th>Asian, 2</th>
<th>Asian, 3+</th>
<th>Hispanic, 1</th>
<th>Hispanic, 2</th>
<th>Hispanic, 3+</th>
<th>White, 3+</th>
<th>Black, 3+</th>
<th>Total</th>
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<tr>
<td>N=</td>
<td>140</td>
<td>143</td>
<td>60</td>
<td>244</td>
<td>463</td>
<td>455</td>
<td>7230</td>
<td>1366</td>
<td>10,101</td>
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<td><strong>Health Measures</strong></td>
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<td><strong>CRP Category</strong></td>
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<tr>
<td>Normal (0 - 1)</td>
<td>43.63%</td>
<td>38.59%</td>
<td>58.87%</td>
<td>29.51%</td>
<td>26.03%</td>
<td>25.25%</td>
<td>33.34%</td>
<td>29.78%</td>
<td>32.42%</td>
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<tr>
<td>Elevated (1 - 3)</td>
<td>37.52%</td>
<td>40.54%</td>
<td>18.27%</td>
<td>35.18%</td>
<td>31.31%</td>
<td>33.88%</td>
<td>29.68%</td>
<td>26.28%</td>
<td>29.81%</td>
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<tr>
<td>High (3+)</td>
<td>18.85%</td>
<td>20.88%</td>
<td>22.86%</td>
<td>35.31%</td>
<td>42.66%</td>
<td>40.87%</td>
<td>36.98%</td>
<td>43.94%</td>
<td>37.77%</td>
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<td><strong>Obese</strong></td>
<td>17.77%</td>
<td>33.41%</td>
<td>26.47%</td>
<td>40.72%</td>
<td>47.21%</td>
<td>39.42%</td>
<td>35.56%</td>
<td>48.31%</td>
<td>37.39%</td>
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<tr>
<td><strong>Abdominal Obesity</strong></td>
<td>33.08%</td>
<td>40.96%</td>
<td>32.14%</td>
<td>50.02%</td>
<td>60.50%</td>
<td>58.73%</td>
<td>51.23%</td>
<td>57.14%</td>
<td>51.76%</td>
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<td><strong>Hypertension</strong></td>
<td>20.11%</td>
<td>23.12%</td>
<td>28.38%</td>
<td>19.58%</td>
<td>24.07%</td>
<td>29.08%</td>
<td>25.70%</td>
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<td><strong>Respondent SES Indicators</strong></td>
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<td><strong>Education</strong></td>
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<tr>
<td>Less than HS</td>
<td>0.86%</td>
<td>2.40%</td>
<td>1.91%</td>
<td>12.38%</td>
<td>8.68%</td>
<td>12.65%</td>
<td>6.77%</td>
<td>8.98%</td>
<td>7.38%</td>
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<td>HS Degree</td>
<td>6.66%</td>
<td>12.99%</td>
<td>22.99%</td>
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<td>21.24%</td>
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<td>24.00%</td>
<td>19.28%</td>
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<td>Some College</td>
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<td>30.77%</td>
<td>31.27%</td>
<td>44.42%</td>
<td>50.47%</td>
<td>44.38%</td>
<td>40.42%</td>
<td>43.38%</td>
<td>41.27%</td>
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<tr>
<td>College Degree</td>
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<td>39.59%</td>
<td>38.42%</td>
<td>16.09%</td>
<td>16.64%</td>
<td>18.64%</td>
<td>26.35%</td>
<td>16.71%</td>
<td>24.54%</td>
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<tr>
<td>Graduate Education</td>
<td>12.59%</td>
<td>14.25%</td>
<td>5.42%</td>
<td>5.31%</td>
<td>4.30%</td>
<td>3.09%</td>
<td>7.99%</td>
<td>6.93%</td>
<td>7.53%</td>
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<tr>
<td><strong>Household Income</strong></td>
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<td>(in thousands of $)</td>
<td>90.60</td>
<td>87.06</td>
<td>82.35</td>
<td>62.33</td>
<td>67.31</td>
<td>65.35</td>
<td>65.87</td>
<td>46.50</td>
<td>64.53</td>
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<td>(sd)</td>
<td>(73.59)</td>
<td>(82.78)</td>
<td>(75.06)</td>
<td>(48.89)</td>
<td>(54.60)</td>
<td>(48.60)</td>
<td>(39.26)</td>
<td>(45.35)</td>
<td>(44.47)</td>
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<td><strong>SSS Ladder</strong></td>
<td>5.50</td>
<td>5.56</td>
<td>4.98</td>
<td>5.20</td>
<td>5.05</td>
<td>4.69</td>
<td>5.07</td>
<td>4.68</td>
<td>5.03</td>
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<tr>
<td>(sd)</td>
<td>(2.09)</td>
<td>(2.47)</td>
<td>(2.04)</td>
<td>(1.91)</td>
<td>(2.04)</td>
<td>(1.78)</td>
<td>(1.52)</td>
<td>(2.07)</td>
<td>(1.69)</td>
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