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Childhood and adult socioeconomic status and self-rated health in Korea

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Short Abstract

In this paper we investigate the associations between childhood SES and self-rated health, whether these associations are indirect operating through attained adult SES, and whether the associations between childhood and adult SES and self-rated health differ among men and women using a nationally representative survey data collected in Korea in 2003.
Many prior studies on SES and health have focused on western societies but these findings may not be generalizable to non-western contexts. For example, SES is positively associated with healthy lifestyles in many western countries, while this relationship has not always been found in non-western societies. Representing countries that have experienced rapid changes in economic development and demographic transition during last few decades, Korea provides an interesting case in which we can gain additional insights into whether the SES-health relationship may vary by context.

INTRODUCTION

In this paper, we contribute to the literature on socioeconomic gradients and health across the life course by examining the associations between childhood and adulthood socioeconomic status (SES) and self-rated health among Korean men and women. Many prior studies on social differentials in health outcomes have focused on western societies although the findings may not be applicable to populations in different contexts. For example, SES is positively associated with healthy life styles in many western countries, while this relationship has not always been found in non-western societies (Cockerham et al., 2000). Representing countries that have experienced rapid changes in economic development and demographic transitions during the last few decades, Korea provides an interesting case in which we can gain some additional insights into how the SES-health relationship may be contingent on a specific context. A recent report released by the United Nations predicts that the highest life expectancy by the end of the century is to be found in Korea. The report attributes this enormous improvement in longevity to decreasing social inequalities in health and to public awareness on a healthy lifestyle in Korea (UNDESA, 2013).

In addressing the association between SES and self-rated health among Korean men and women, we compare the associations between an individual's childhood SES, represented by socioeconomic conditions in the family of origin, to those of the individuals' attained adult SES. Early life socioeconomic conditions have been found to be linked to various health outcomes in later life, including chronic diseases, functional disabilities and self-rated health (Elo & Preston, 1992; Blackwell et al., 2001; Huang & Elo, 2009; Gilman et al., 2002; O'Rand & Hamil-Luker, 2005; Laaksonen, 2005; Haas, 2007, 2008). The results of these studies suggest that childhood disadvantages may have a permanent negative impact on an individual's health through biological, psychological and behavioral mechanisms (Alwin & Wray, 2005; Crystal & Shea, 1990; Crystal & Shea, 2002; Heikkinen, 2011; Lynch & Davey Smith, 2005). Childhood circumstances are also known to be correlated with adult SES as children who grow up in wealthier households are more likely to achieve higher adult SES themselves, which is also known to be correlated with better adult health outcomes. Thus, the influence of childhood SES may be mostly indirect operating through attained adult SES.

However, the question remains whether the influence of childhood SES on health operates mainly through adult SES in contexts like Korea that have gone through rapid social and economic change over the last few decades. Although studies in the United States and

Western Europe tend to show the lingering effects of childhood SES on adult health outcomes net of the individual's own attained SES (Galobardes et al., 2004; Galobardes et al., 2008; Pollitt et al., 2005), the independent association between childhood SES and adult health may not be substantial in Korea. In comparative literature on intergenerational social mobility, there is some evidence suggesting a comparatively weak intergenerational transmission of social class in Korea (Park, 2004). Moreover, studies of educational achievement in Korea also point to somewhat weaker impact of family SES on students' test scores than in other countries (Park, 2008, 2013). The relatively weak influences of family SES on individuals' occupational and educational outcomes, which in turn, are associated with their health outcomes points to the possibility that the association between childhood SES and adult health outcomes may be weaker in Korea that in societies where family of origin has a stronger impact on adults' occupational and educational outcomes. At the same time, to the extent that childhood SES is related to poor health in childhood, and poor health in childhood has a direct effect on adult health through physiological scarring, we would expect to find an association between childhood SES and adult health, even controlling for adult SES.

In addition, we examine possible gender differences in the ways in which childhood and adulthood SES are related to self-rated health in adulthood. Although numerous studies have investigated the relationship between gender and health in the US and other Western European countries (Hunt, 2000; Mackenbach et al., 1999; Cummings & Jackson, 2008), these findings may not be relevant in contexts like Korea, where more traditional divisions of labor prevail and, although the situation is changing, women seldom obtain high-paying jobs (Brinton, 2001). According to a recent international statistics, Korean women aged 25 to 64 earned only 61 percent of what Korean men earned, which was the lowest percentage relative to men among all OECD countries (OECD, 2010). In 2008, only 58.6 percent of women aged 25 to 64 were employed, which was lower than the corresponding employment rate in many OECD countries including a neighboring country, Japan (63.3%) (OECD, 2010). In the same year, about 70 percent and 80 percent of US and Swedish women aged 25 to 64 were employed, respectively. Furthermore, when the study cohorts were born sons were more highly valued than daughters. Thus, we hypothesize that there are likely to be gender differences in the associations between childhood and adult SES and self-rated health.

As noted above, in this paper we investigate (1) the associations between childhood SES

and self-rated health in Korea, (2) whether these associations are indirect operating through attained adult SES, and (3) whether the associations between childhood and adult SES and self-rated health differ among men and women using a nationally representative survey data collected in Korea in 2003.

DATA AND METHODS

We use data from the 2003 wave of the Korean Labor and Income Panel Study (KLIPS). The KLIPS is a longitudinal survey of a representative sample of Korean households and individuals therein. The survey began in 1998 when 13,317 individuals in 5,000 households were interviewed. The initial sample has been re-interviewed each year and additional individuals have been added. In addition to information on economic activities and occupation, the study obtains information on socioeconomic and demographic characteristics of households and their members, such as household income, home ownership, household size, educational attainment, place of residence, age sex, and marital status. In addition, the study collects information on childhood family characteristics, such as parental education and occupation. In 2003, an expanded set of health questions was included to collect information for all respondents on self-rated health, functional impairments, and whether the respondent had been diagnosed with common chronic conditions (www.kli.re.kr/klips).

Our analytic sample consists of individuals who were ages 25-64 at the time of the interview in 2003. Of these 8,232 individuals, we excluded 197 individuals who had missing information on the explanatory variables included in the analysis, except in the case of mothers' and father's education and occupation for which missing cases were classified as a separate category. We also dropped individuals born in North Korea or abroad (n=84). Our final sample size is 7,951 individuals, 3,944 males and 4,007 females.

Health outcomes

We examine the associations between childhood SES and adult characteristics and self-rated health coded as very poor (1), poor (2), fair (3), good (4), and very good (5); a measure that has been previously used in several prior studies to examine the associations between childhood circumstances and adult health (Idler & Benyamini, 1997; Miilunpalo et al., 1997; Kawachi et al., 1999; Burstrom & Fredlund, 2001) and to study gender differences in self-rated health in Korea (Park, 2005). Self-rated health is a widely used indicator of general health status. It is correlated

with reports of chronic conditions and is a strong predictor of mortality (Ibid.).

Childhood Characteristics

Our childhood characteristics capture family SES measured at the time when the respondent was age 14, characteristics that in prior studies have been linked to adult health and mortality (Alwin & Wray, 2005; Lynch & Davey Smith, 2005; Luo & Waite, 2005). These characteristics consist of the father's occupational class, except in mother only families (8.3%) when the mother's occupation was used, and parents' educational attainment. Our occupation coding distinguishes between agricultural, professional/clerical, service, and manual or blue-collar occupations. We also include a separate category for those whose fathers (or mothers in mother-only families) were not in the labor force or for whom occupation was missing. We measure the father's and the mother's educational attainment based on the highest level of school completed as follows: no school, elementary school, middle school, or high school/college/university, and don't know/missing.

Adult Characteristics

We include several adult characteristics measured at the time of the 2003 survey. These consist of the following demographic characteristics: gender, age and marital status (single, married, separated/divorced/widowed). Socioeconomic status is captured by the respondent's educational attainment coded as middle school or below, high school, (2-year) junior college, (4-year) university degree/graduate school. We also include household income (log of household income), and home ownership (own, or not). In addition, we control for household size as a linear variable.

Statistical methods

We use ordinary least squares (OLS) regression to estimate the associations between self-rated health and our explanatory variables (Park, 2005). Standard errors were adjusted for clustering within the household. We present results from models that were estimated separately by gender. To test whether the associations between childhood and adult SES differ significantly by gender we pooled men and women and included interaction terms between gender and each SES indicator in the full model. We show results from Model 1, which controls for age and all measures of childhood SES. Model 2 controls for age and all adult characteristics, and Model 3 controls for all explanatory variables. All models were estimated in STATA 12. We present sample characteristics for the full sample and by gender and we test for significant differences

between men and women with a t-test for linear variables and Pearson chi-square test for categorical variables.

PRELIMINARY RESULTS

Table 1 provides sample characteristics and Tables 2 and 3 provide the results from the multivariate models. As seen in Table 1, about half of the sample was male with a mean age of 42 years. Close to half of the respondents lived in households where the household head was employed in agriculture and close to 14% were in professional or clerical, 12% in service, and 16% in blue-collar occupations. Fathers' educational level was higher than that of the mothers with about 24% of the fathers having high school education or above compared to only about 7% of the mothers. In contrast, about 40% of the mothers had no schooling compared to about 22% of the fathers. There were no substantive gender differences in these childhood characteristics although the gender difference for the occupation of household head reached statistical significance (Table 1).

In contrast, there were significant gender differences in marital status and own educational attainment between the respondents in adulthood. A larger percentage of men than women were single, 20% and 11% respectively, whereas 89% of the women were married (79.1%) or separated, divorced or widowed (9.9%); the respective percentages among men were 75.9% and 4.1%. Men were significantly more likely to have university education (28%) than women (16%), whereas women were more likely to have only lower secondary education or below (36%) than men (23%). There were no significant gender differences in household income, home ownership or household size (Table 1).

As described previously, self-rated health is measured on a five-point scale with a higher score reflecting better self-rated health status. As seen in Table 1, men were significantly more likely to report better health (3.5) than women (3.3; p-value for the difference = 0.00). This finding is consistent with a dichotomous measure of excellent/very good health versus very poor/poor/fair health; 60% of the men versus 50% of the women reported that their health was excellent or very good (p-value for the difference = 0.00). These results are consistent with prior findings of a gender difference in self-rated health in Korea (Park, 2005). We now turn to the results from the multivariate analyses shown in Table 2 for men and Table 3 for women.

Childhood socioeconomic status and self-rated health

Childhood SES is a significant predictor of self-rated health for both men and women in Korea. Men who grew up in families where the household head was employed in agriculture reported significantly better health than men who grew up in households where the household head was employed in blue-collar, professional/clerical or service occupations. In addition, father's education was a significant predictor of self-rated health among men such that increasing levels of father's education was associated with better self-rated health (Model 1, Table 2). Controls for adult characteristics attenuated these associations, but they remained significant for father's educational attainment and marginally significant (10%-level) for household head's occupation in agriculture (Model 3, Table 2). Mother's educational attainment was not a significant predictor of self-rated health among men in either Model 1 or Model 3 (Table 2).

In contrast to men, mother's education was a significant predictor of self-rated health among women. Women whose mothers had no education had significantly worse health than women whose mothers had elementary education or higher levels of schooling. In addition, father's educational attainment predicted women's self-rated health with women whose father's had higher levels of education reporting better self-rated health. Similarly, women who grew up in households were the household head was employed in agriculture reported better self-rated health than those who grew up in households where the head was employed in blue collar or service occupations, although these results were only marginally significant (Table 3, Model 1). Controls for women's adult characteristics attenuated these associations substantially such that none remained statistically significant at the 5%-level when both childhood and adult characteristics were included in the model (Table 3, Model 3).

Adult characteristics and self-rated health

All adult characteristics were significant predictors of self-rated health among men. Married men were significantly more likely to report better self-rated health than single or separated, divorced or widowed men. In addition, household size was negatively associated with better self-rated health. On the other hand, higher SES whether measured by educational attainment, household income or home ownership was associated with better self-rated health (Model 2, Table 2). These results were robust to controls for childhood SES with only minor changes in the size of the coefficients of the adult characteristics when childhood SES was

included in the model (Model 3, Table 2).

Adult characteristics were also significant predictors of self-rated health among women, except for household size. There were also some differences in these associations for women compared to men. For example, single women were not significantly more like to report poorer self-rated health than married women and the education gradient appeared to be somewhat steeper for women than for men (Model 2, Table 3). As was the case with men, controls for childhood SES resulted in only minor changes in the coefficients for adult characteristics (Model 3, Table 3).

NEXT STEP

We will test whether the differences in coefficients of childhood and adult SES differ between men and women. We note some of the differences in the sizes of the coefficients between men and women above but not whether they are significantly different from each other. In further analysis, we will also focus on the role of intergenerational social mobility in shaping self rated health in adulthood by introducing interaction terms between parental SES education and the respondents' own adult SES.

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TABLE 1: Distribution of childhood and adult characteristics, the Korean Labor and Income Panel Study (KLIPS), Males and Females Ages 25-64, 2003 (% or mean and standard deviation)

Characteristic	Total (N=7,951)	Male (3,944)	Female (4,007)	p-value[1]
Self-rated health	3.4 (0.8)	3.5 (0.8)	3.3 (0.9)	0.00
Excellent/good	55.0	60.0	50.0	0.00
Fair/poor/very poor	45.0	40.0	50.0	
Age	42.0 (10.9)	41.9 (10.7)	42.0 (11.0)	0.53
Childhood characteristics				
Occupation of hh head[2]				
Agriculture	48.3	47.5	49.1	0.02
Professional/clerical	14.0	13.7	14.4	
Service	12.0	12.4	11.7	
Blue collar	15.7	17.0	14.5	
Other/missing	9.9	9.5	10.4	
Father's education				
No school	22.4	22.2	22.6	0.45
Elementary school	33.2	33.3	33.0	
Middle school	15.2	15.2	15.2	
High school/college/univ	23.9	24.4	23.4	
Don't know/missing	5.4	4.9	5.8	
Mother's education				
No school	39.5	38.7	40.3	0.27
Elementary school	30.5	30.8	30.3	
Middle school	9.5	9.9	9.0	
High school/college/univ	7.5	7.2	7.8	
Don't know/missing	13.0	13.4	12.6	
Adult characteristics				
Marital status				
Single	15.5	20.1	11.0	0.00
Married	77.5	75.9	79.1	
Separated/divorced/widow	7.0	4.1	9.9	
Educational attainment				
Lower secondary/below	29.3	22.5	36.1	0.00
Upper secondary	38.6	39.0	38.2	
College/vocational school	10.1	10.6	9.6	
University/graduate school	22.0	28.0	16.2	
Household income	3,131 (2,837)	3,156 (2,818)	3,108 (2,855)	0.45
Home ownership				
Own	62.9	62.8	63.0	0.88
Rent/Other	37.1	37.2	37.0	
Household size	3.7 (1.20)	3.71 (1.20)	3.70 (1.21)	0.84

[1] P-value refers to the difference in the distribution of the explanatory variable between males and females based on a chi-square test for categorical variables and t-test for continuous variables.
[2] Refers to father's occupation except when the father is not present.

TABLE 2: Results from ordinary least squares (OLS) regression for self-rated health, the Korean Labor and Income Panel Study (KLIPS), Males ages 25-64, 2003 (N=3,944)

Characteristic	Model 1	Model 2	Model 3
Age	-0.020 **	-0.019 **	-0.019 **
Childhood characteristics[1]			
Occupation of hh head[2] (blue collar)			
Agriculture	0.087 *		0.064 +
Professional/clerical	-0.004		-0.065
Service	0.034		0.017
Father's education (no school)			
Elementary school	0.139 **		0.069 +
Middle school	0.167 **		0.102 *
High school/college/univ	0.196 **		0.108 *
Mother's education (no school)			
Elementary school	0.053		-0.003
Middle school	0.010		-0.054
High school/college/univ	0.076		0.010
Adult characteristics			
Marital status (married)			
Single		-0.124 **	-0.114 **
Separated/divorced/widow		-0.238 **	-0.233 **
Educational attainment (lower secondary/below)			
Upper secondary		0.245 **	0.244 **
College/vocational school		0.236 **	0.244 **
University/graduate school		0.285**	0.299 **
Ln of Household income		0.093 **	0.091 **
Home ownership (rent/other)			
Own		0.062 *	0.066 *
Household size		-0.033 **	-0.032 **
Constant	3.270 **	2.661 **	2.592 **
Adjusted R^2	0.091	0.134	0.136

[1] Omitted category is shown in parenthesis. Missing category for father's occupation and education and mother's education are not shown.
[2] Refers to father's occupation except when the father is not present.

TABLE 3: Results from ordinary least squares (OLS) regression for self-rated health, the Korean Labor and Income Panel Study (KLIPS), Females ages 25-64, 2003 (N=4,007)

Characteristic	Model 1	Model 2	Model 3
Age	-0.030 **	-0.026 **	-0.025 **
Childhood characteristics[1]			
Occupation of hh head[2] (blue collar)			
Agriculture	0.066 +		0.057
Professional/clerical	0.026		-0.017
Service	-0.050		-0.075
Father's education (no school)			
Elementary school	0.077 *		0.026
Middle school	0.088 +		0.036
High school/college/univ	0.103 *		0.035
Mother's education (no school)			
Elementary school	0.097 **		0.037
Middle school	0.133 *		0.095 +
High school/college/univ	0.096 +		0.044
Adult characteristics			
Marital status (married)			
Single		-0.071	-0.067
Separated/divorced/widow		-0.185 **	-0.179 **
Educational attainment (lower secondary/below)			
Upper secondary		0.197 **	0.191 **
College/vocational school		0.192 **	0.193 **
University/graduate school		0.265**	0.266 **
Ln of Household income		0.043 **	0.043 **
Home ownership (rent/other)			
Own		0.079 **	0.077 **
Household size		0.018	0.018
Constant	3.104 **	2.709 **	2.651 **
Adjusted R^2	0.185	0.208	0.210

[1] Omitted category is shown in parenthesis. Missing category for father's occupation and education and mother's education are not shown.

[2] Refers to father's occupation except when the father is not present.