Early-Life Social Environment and Episodic Memory Among Older Adults in China

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A growing body of research suggested that early-life circumstances can affect cognitive health in later life (Richards & Deary, 2005). Studies in both developed and developing countries have consistently shown that higher childhood socioeconomic status (SES) was significantly associated with a higher level of cognitive functioning in adulthood and late life (Kaplan et al., 2001; Luo & Waite, 2005; Richards & Wadsworth, 2004). However, other important aspects of childhood conditions such as early-life social environment (e.g., peer friendship, parent-child relationship quality, and neighborhood cohesion) are rarely examined. Our study extends the previous literature by examining the effects of multiple dimensions of childhood social environment on episodic memory in later life. Drawing on data from China Health and Retirement Longitudinal Study (CHARLS) and its supplement, the 2014 Life History Survey, we try to answer the following questions:

1) What types of childhood social environment are associated with mid- to late-life episodic memory in China?

2) To what extent are the effects of childhood social environment on mid- to late-life episodic memory accounted for by adulthood SES and health?

Background

Recent studies suggested that exposure to early-life stress increases reactivity to stress and cognitive deficits in adulthood (Lupien, McEwen, Gunnar, & Heim, 2009). Problems in
children’s relationships with peers and parents can potentially cast long shadows over their adult social relationships, which in turn can have negative impacts on their health. On the other hand, emotional support from parents early in life can have lasting health implications because children growing up in a loving and supportive environment tend to have better interpersonal skills and better mental and physical health, which is conducive to the development of high-quality social relationships throughout the life course (Chopik & Edelstein, 2018; Shaw, Krause, Chatters, Connell, & Ingersoll-Dayton, 2004). Empirical research in aging studies have provided evidence that retrospective recall of parent-child relationship quality mattered for mental and cognitive life. For instance, retrospective ratings of low parent-child relationship quality during childhood are related to higher levels of negative emotions in adulthood, including depression and anxiety (Chopik & Edelstein, 2018; Lehman, Taylor, Kiefe, & Seeman, 2009; Mallers, Charles, Neupert, & Almeida, 2010). A healthy childhood social environment may also enhance trust and lead to more active social involvement with neighbors, friends, and community activity over the lifecourse. Therefore, one potential pathway from childhood social environment to late-life cognition is via adulthood mental health and social engagement, both of which have been found to correlate with cognitive health in later life (Dong, Li, & Simon, 2014; Feng et al., 2014; Jorm, 2000).

Another potential pathway linking early-life social environment and late-life cognition is via educational attainment. A good early-life social environment can enhance self-esteem and help children develop important social skills that facilitate learning in schools. For example, research in Western countries has found that parent-child emotional bond is beneficial for multiple positive outcomes including school readiness, sleep, health, and school grades (Kiernan & Mensah, 2011; Li, Cui, Cao, & Liu, 2016), all of which may contribute to higher educational
attainment. Numerous research has shown that level of education is one of the most robust correlates of cognitive health in later life (Huang & Zhou, 2013; Maurer, 2010).

Data and Methods

Data

We use two waves (2011 and 2015) of the China Health and Retirement Longitudinal Study (CHARLS) and its supplement — the 2014 Life History Survey (module on childhood conditions) in the analysis. CHARLS is modeled after the Health and Retirement Study in the U.S. It is a nationally representative longitudinal survey of community-dwelling adults ages 45 and older in China, who are interviewed every two years. If the respondents were married, their spouses were also interviewed. A multistage cluster sampling method was used to obtain the sample at baseline (2011), which included 17,708 respondents from 150 counties in 28 provinces in China. Face-to-face computer-assisted personal interviews were conducted, with a response rate of 80.5%. The 2014 life history survey is a supplementary survey that collected detailed information of respondent’s childhood circumstances, educational and occupational history, and health. Our analytical sample in this paper included those aged 45 years and older in 2011 who participated in the life history module, grew up with their parents, and had valid memory score in 2011 and 2015 (N=9,209).

Measures

Episodic memory. Respondents were asked to recall 10 simple Chinese nouns right after they were read to them (immediate recall) and then four minutes later (delayed recall). We averaged the scores of immediate recall and delayed recall to create a measure of episodic memory.
Childhood social environment was measured by respondents’ recall of their relationships with peers, parents, and neighbors before age 17. *Having a good friend* (1=yes) is based on the respondent’s answer to the question “When you were a child, did you have a good friend?”.

Respondents were also asked to assess their relationship quality with their female and male guardians in their childhood. Responses range from (1) excellent to (5) poor. We reverse coded the variables so that a higher number represents better relationship quality with parents, and we averaged the scores for mothers and fathers and created a variable called *parent-child relationship quality*. Respondents were also asked about their childhood neighborhood quality. Two questions addressed social relationships among neighbors. First, respondents were asked “Were the neighbors of the place where you lived as a child willing to help each other out?” Responses range from (1) very willing, (2) somewhat willing, (3) not very willing to (4) not willing at all. Respondents were then asked, “Were the neighbors of the place where you lived as a child very close-knit?” Responses range from (1) very close-knit, (2) somewhat close-knit, (3) not very close-knit (4) not close-knit at all. Based on factor analysis, we found that two items loaded on one factor and we called it *neighborhood cohesion*. We reverse coded the variables so that a higher number represents more cohesive relationship among neighbors.

Control variables. Adulthood conditions included educational attainment, depressive symptoms, and social engagement. *Education* was coded into five categories: no schooling, less than elementary but can read and write, elementary school, middle school, and high school or more. The *depressive symptoms* variable reflects mental health and was measured by the 10-item Center for Epidemiologic Studies Depression Scale (CESD-10). The sum of the CESD-10 scores ranged from 0 to 30 with higher scores indicating more depressive symptoms. *Social engagement* was measured by participation in one or more social activities (e.g., visiting
neighbors/friends, playing majong/cards, going to dance or exercise in parks or other places, going to a sports or social club, etc.) in the last month. We dichotomized the variable (1=participate in one or more activities). We have also controlled for the following variables in all the analyses: age (centered at age 45), gender (1=female), marital status (1=unmarried), residence (1=rural), and childhood SES and health. Childhood SES indicators included father’s education, mother’s education, living in rural area, and self-reported childhood health.

Analytic Strategy

We first present weighted descriptive statistics of the study variables in the sample. Baseline individual-level weights were used to adjust for sample selection and household and individual non-response. Second, we used OLS regression to examine the association between childhood social environment and episodic memory at baseline. Finally, we used a lagged dependent variable approach (LDV) to examine the association between indicators of childhood social environment and episodic memory at 4-year follow-up, controlling for baseline episodic memory and other covariates.

Preliminary Results

Our preliminary results showed that about 53.5% older Chinese reported that they had a good friend in their childhood. On average, respondents recalled relatively good relationship with their parents (2.76 on a scale of 1 to 4) and rated their childhood neighborhood as very cohesive (3.36 on a scale of 1 to 4). Results from OLS regression showed that all three indicators of perceived quality of early-life social environment were significantly associated with episodic memory at baseline in China. For example, we found that older adults who reported that they had good friends in childhood had significantly higher episodic memory scores than those who reported having no good friends, controlling for childhood SES, childhood health, age,
gender, marital status, and rural residence. Parent-child relationship was also positively associated with episodic memory score. During the 4-year follow-up, those who had good friends, had better relationship with parents, and lived in more cohesive neighborhoods in childhood had higher memory scores, after controlling for baseline memory, sociodemographic factors, and childhood SES and health. After controlling for educational attainment, depressive symptoms, and social engagement at baseline, the effects of some indicators of early-life social environments remained robust. These results suggest that early-life social environment may be an important protective resource of episodic memory in later life.

References


