



Intergenerational reproduction and adult self-rated physical health in China

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ABSTRACT

We used cross-sectional data from the 2017 Chinese General Social Survey to investigate whether and how Chinese parents utilize their socioeconomic resources to facilitate the acquisition of socioeconomic resources by their children that in turn affect the self-rated health of the adult children. We found that father's type of work unit (*danwei*) and father's membership in the Chinese Communist Party were not independently associated with the self-rated health of survey respondents. Father's education was associated with the self-rated health of women, especially younger women, and self-reported childhood social class was associated with the self-rated health of men and older women, most strongly so for younger men. Two thirds of the association between father's education and self-rated health among younger women was statistically explained by personal socioeconomic resources and almost a quarter of the association between self-reported childhood social class and self-rated health among younger men was statistically explained by personal socioeconomic resources. Our study illuminates the importance of intergenerational reproduction in fostering the good health of Chinese adults, especially for those who grew up after the Chinese economic reform of the 1970s.

1. Introduction

Strong associations between socioeconomic status – education, income and occupation – and health have been well documented in the social determinants of health literature in general (Link & Phelan, 1995; Adler & Newman, 2002) and in China in particular (Wang, 2012; Huang & Yin, 2013; Hong & Chen, 2017). In regard to processes linking socioeconomic status to health, it has been proposed that education can affect health by shaping future occupational opportunities and earning potential and by providing knowledge, information and resources related to promoting health status (Ross & Wu, 1995). Income can facilitate the purchase of health care services, better nutrition, better living environments and recreation, all of which can affect an individual's health (Kennedy et al., 1998). Employment can guarantee income and access to quality health care (Gregorio et al., 1997). In addition, higher socioeconomic status can provide people with stronger motivation and resources to maintain a healthy lifestyle which can also lead to good health (Wang & Geng, 2019).

There are two main perspectives on the presumably causal relationship between socioeconomic status and health: social causation and health-selective mobility (Elstad & Krokstad, 2003). Consistent with the processes outlined above, the social causation perspective contends that the position of individuals in the social structure determines their health

level; in other words, lower socioeconomic status causes worse health status (Dahl, 1996). Health-selective mobility, by contrast, contends that health status is a screening mechanism for personal social mobility wherein people with better health are better able to obtain higher socioeconomic status (West, 1991). Researchers in China who have investigated associations between socioeconomic status and health (Hong & Chen, 2017; Hong & Liu, 2021; Huang & Yin, 2013; Wang, 2012) have typically concluded that both processes are relevant for the health of Chinese people but that the explanatory power of social causation is stronger than that of health-selective mobility (Wang, 2012). Consistent with these studies, the current study applies a social causation perspective to the investigation of socioeconomic health inequalities in China.

Rather than investigating the range of processes and mechanisms by which socioeconomic status influences health in China, this study addresses a more distal causal process potentially germane to the manifestation of socioeconomic inequalities in health in China: parents utilizing their socioeconomic resources to facilitate the acquisition of socioeconomic resources by their children that in turn affect the health of the children in adulthood. This line of inquiry is informed by a long tradition of scholarship on intergenerational reproduction in sociology. For example, Bourdieu and Passeron (1977) argued that the French educational system is founded upon relations of power and inequality

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despite the appearance of equal educational opportunity for everyone. They claimed that parents use their socioeconomic resources, including cultural capital (education credentials and socially valued habitus) and economic capital (income and wealth), to facilitate the acquisition of educational credentials and subsequently other socioeconomic resources (capitals) by their children. This process of intergenerational capital transmission plays a key role in social class reproduction, according to Bourdieu and Passeron (1977). There is ample evidence that the socioeconomic resources of Chinese parents are associated with the socioeconomic circumstances of their children. Regarding what economists refer to as intergenerational elasticities in education, the World Bank's Development Research Group estimates that 49% of Chinese children born to parents in the top quartile of years of schooling will end up in the top quartile of years of schooling themselves (Mobility, 2018; Narayan et al., 2018). The group also estimates that the correlation between the incomes of parents and their children in China is as high as 0.40 (Mobility, 2018; Narayan et al., 2018).

In regards to the health effects of intergenerational reproduction on adult health, previous research from the South Korean context is instructive. There it has been argued that wealthy and well-educated South Korean parents tend to devote their socioeconomic resources to developing their children's math and linguistics skills in particular. These skills contribute to good performance in the standardized university entrance exams, access to prestigious universities, success in the labour and marriage markets and, ultimately, good health for their adult children (Veenstra & Jeong, 2016). Similar processes may be at work in China as well. As in South Korea, the standardized university entrance exams in China are highly competitive, with Chinese parents treating the university entrance exams as one of the most important issues in their children's lives. However, this process has likely only been a factor in the intergenerational transmission of socioeconomic resources since 1977 when standardized university entrance exams were reintroduced to Chinese society. Previous research related to intergenerational reproduction and health in China has mainly focused on how childhood health affects socioeconomic status and then health in adulthood (e.g., Hong & Liu, 2021). However, no previous research has investigated how parental socioeconomic status affects self-rated health in adulthood by way of adult socioeconomic status in the Chinese context. In light of the above, the current study pursues the following research questions utilizing a nationally representative survey dataset of Chinese adults: 1) Are parental socioeconomic resources associated with their adult children's self-rated health? 2) If yes, to what degree do personal socioeconomic resources explain these associations?

Our study can be distinguished from previous research in three ways. First, we use the type of "work unit" (*danwei*) and membership in the Chinese Communist Party (CCP) as key measures of socioeconomic status specific to the Chinese context. After the founding of the People's Republic in 1949, the CCP governed most workplaces with the work unit system, a state production unit administrative system (Schurmann, 1968). A work unit facilitated the centrally planned economy by adopting an "all-encompassing" role for its employees (Walder, 1988) which is not limited to labour distribution and production but also addresses the allocation of benefits such as public housing, medical care, childcare, sense of belonging, etc. (Bray, 2005; Fu & George, 2015). Our study distinguishes between (i) state-sector employment (consisting of CCP and government organizations, public institutions and military), (ii) enterprises, (iii) social groups and village/neighbourhood committees and (iv) self-employment (no *danwei*) for the survey respondents' fathers. Historically, a person typically required special approval to change their work unit (Lu et al., 1997, p.3), ensuring that work units were fixed for most people. More recently, however, the fixedness of *danwei* is less assured. Accordingly, we do not use the survey respondents' own type of work unit as a reliable indicator of their socioeconomic status. The CCP is the ruling party and the largest political organization in China, possessing significant power, both socially and politically (Xue & Cheng, 2017). CCP membership reflects the

connection to the PRC's authority-power and brings both economic and educational benefits (Appleton et al., 2009; Yan, 2019). Our survey sample also allows us to identify CCP membership for the survey respondents and their fathers. We contend that these political dimensions also need to be taken into consideration when assessing socioeconomic status in the Chinese context (Hammarström et al., 2014; Korp, 2010).

Second, we adopt a gendered perspective on processes linking parental socioeconomic resources to adult health by stratifying our sample by gender. Gender can trigger different intergenerational transmission processes which strengthen and reproduce gender role stereotypes and gender inequality (Eccles et al., 1990). Son preferences in parental investments and spending in China have been extensively documented, reproducing gender inequalities in education, economic status and health (Kornrich & Furstenberg, 2013). Previous research has found that parents' financial and educational investment in their children's development differ by the gender of the child because parents may perceive the opportunities in the social, economic and political structure to be different for sons and daughters (Carter & Wojtkiewicz, 2000; Kornrich & Furstenberg, 2013). In Chinese culture, the status good feature of housing is especially crucial for men in the marriage market since homeownership has been long considered as a precondition and an indispensable material foundation for marriage (Li & Wu, 2017). Because of this, parents with a son are motivated to accumulate wealth for their son's marital housing, while having one or more daughters provides little motivation of this kind (Yang et al., 2021). We attempt to investigate whether different strategies of intergenerational reproduction are more or less efficacious for the self-rated health of Chinese daughters versus Chinese sons.

Third, given the many institutional transformations the People's Republic of China has endured since its foundation in 1949, we additionally stratify our sample by age, distinguishing between survey respondents aged 23 to 44 from those aged 45 to 65. Respondents aged 45 in our sample were born in 1972, the beginning of a period of profound social transformation in China. This temporal distinction allows us to obtain insight into the relevance of societal changes forthcoming from the Cultural Revolution and the Chinese economic reform on the health effects of intergenerational reproduction in China.

2. Methods

Our study utilized data from the 2017 Chinese General Social Survey. The Chinese General Social Survey (CGSS) began in 2003 and is the earliest national, comprehensive and continuous academic survey project in China. The CGSS comprehensively collects data from multiple levels of society: community, family and individual. CGSS data is currently the most important data source for studying Chinese society and is widely used in research, teaching and government decision-making. The 2017 CGSS used a multistage stratified random sampling strategy to collect data at multiple levels of provinces, cities, counties, families and individuals by means of household surveys. The resultant sample covered 28 provinces and comprised 12,582 individuals. Of these, 11,061 questionnaires were successfully completed, a response rate of 87.9%.

We focused on respondents aged 23–65 years. We adopted a lower boundary of 23 years of age (i.e., born before 1994) in order to ensure that most respondents would have completed their educational training. We adopted an upper boundary of 65 years of age (i.e., born after 1952) in order to ensure that the respondents were of working age and born after the founding of the People's Republic. Father's education, father's type of work unit and annual household income had the highest amounts of missing data in this subsample (Table 1).¹ We utilized a listwise

¹ In sensitivity analyses we tested several different strategies for accommodating missing data and found that the results were not meaningfully affected by doing so.

Table 1
Characteristics of the working sample (un-weighted data).

| Variable | Categories | Total (n = 9357) | | Female (n = 4996) | | Male (n = 4361) | |
|--|---|------------------|------|-------------------|------|-----------------|-------|
| | | n | % | n | % | n | % |
| Father's education | Non-educated | 2995 | 32.0 | 1650 | 33.0 | 1345 | 30.8 |
| | Elementary school | 2954 | 31.6 | 1533 | 30.7 | 1421 | 32.6 |
| | Junior high school | 1502 | 16.1 | 775 | 15.5 | 727 | 16.7 |
| | Technical school or higher | 1310 | 14.0 | 690 | 13.8 | 620 | 14.2 |
| | Missing | 596 | 6.4 | 348 | 7.0 | 248 | 5.7 |
| Father's CCP membership | Non-CCP member | 7874 | 84.2 | 4223 | 84.5 | 3651 | 83.7 |
| | CCP member | 1282 | 13.7 | 645 | 13.0 | 637 | 14.6 |
| | Missing | 201 | 2.2 | 128 | 2.6 | 73 | 1.7 |
| Self-reported childhood social class | Lower class | 3738 | 40.0 | 1973 | 39.5 | 1765 | 40.5 |
| | Middle class | 3108 | 33.2 | 1615 | 32.3 | 1493 | 34.2 |
| | Higher class | 2399 | 25.6 | 1354 | 27.1 | 1045 | 24.0 |
| | Missing | 112 | 1.2 | 54 | 1.1 | 58 | 1.3 |
| Father's type of work unit (<i>danwei</i>) | State-sector employment | 368 | 3.93 | 167 | 3.3 | 201 | 4.6 |
| | Enterprises | 1429 | 15.3 | 773 | 15.5 | 656 | 15.0 |
| | Social groups, village/neighbourhood committees | 928 | 9.9 | 499 | 10.0 | 429 | 9.8 |
| | No <i>danwei</i> /self-employment | 4945 | 52.9 | 2640 | 52.8 | 2305 | 52.9 |
| | Other | 711 | 7.6 | 381 | 7.6 | 330 | 7.6 |
| | Missing | 976 | 10.4 | 536 | 10.7 | 440 | 10.1 |
| Education level | Elementary school or less | 2696 | 28.8 | 1728 | 34.6 | 968 | 22.2 |
| | Junior high school | 2869 | 30.7 | 1416 | 28.3 | 1453 | 33.3 |
| | Technical or senior high school | 1782 | 19.0 | 876 | 17.5 | 906 | 20.8 |
| | Junior college or higher | 1997 | 21.3 | 966 | 19.3 | 1031 | 23.6 |
| | Missing | 13 | 0.1 | 10 | 0.2 | 3 | 0.1 |
| | CCP membership | Non-CCP member | 8409 | 89.9 | 4668 | 93.4 | 3741 |
| Hukou status | CCP member | 941 | 10.1 | 324 | 6.5 | 617 | 14.2 |
| | Missing | 7 | 0.1 | 4 | 0.1 | 3 | 0.1 |
| | Rural | 5949 | 63.6 | 3210 | 64.3 | 2739 | 62.8 |
| Marital status | Urban | 3376 | 36.1 | 1768 | 35.4 | 1608 | 36.9 |
| | Missing | 32 | 0.3 | 18 | 0.4 | 14 | 0.3 |
| | Never married | 959 | 10.3 | 377 | 7.6 | 582 | 13.4 |
| | Married | 7701 | 82.3 | 4194 | 83.9 | 3507 | 80.4 |
| Self-rated physical health | Separated/divorced | 326 | 3.5 | 168 | 3.4 | 158 | 3.6 |
| | Bereaved | 371 | 4.0 | 257 | 5.1 | 114 | 2.6 |
| | Missing | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| | Healthy | 7735 | 82.7 | 4062 | 81.3 | 3673 | 84.2 |
| | Unhealthy | 1620 | 17.3 | 933 | 18.7 | 687 | 15.8 |
| | Missing | 2 | 0.0 | 1 | 0.0 | 1 | 0.0 |
| | | Mean | Std | Mean | Std | Mean | Std |
| Age | | 46.3 | 12.1 | 46.3 | 12.0 | 46.3 | 12.2 |
| Household size | Missing | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| | | 2.96 | 1.44 | 3.00 | 1.44 | 2.91 | 1.45 |
| Logged equivalized income | Missing | 13 | 0.1% | 5 | 0.1% | 8 | 0.18% |
| | | 10.07 | 1.83 | 10.04 | 1.82 | 10.11 | 1.84 |
| | Missing | 789 | 8.4% | 462 | 9.2% | 327 | 7.5% |

deletion approach applied to the variables utilized in this study which led to discarding 22.4% of the cases. The final working sample comprised 4996 women and 4361 men.

We measured parental socioeconomic resources with father's educational attainment, father's CCP membership, father's type of work unit (*danwei*) and self-reported childhood social class. Father's educational attainment distinguishes between (i) non-educated, (ii) elementary school, (iii) junior high school and (iv) technical school or higher. Although compulsory education in contemporary China ranges from elementary school to junior high school, this system only came into force in 1986. Given that the average age of the selected sample is 46 (birth year 1971, see Table 1), we distinguish between elementary school and junior high school when coding father's education. Father's CCP membership distinguishes between non-CCP members and CCP members (consisting of formal members, democratic party members and Communist Youth League members). Respondents were also asked "What type of *danwei* did your father work in when you were 14 years old?" Father's *danwei* distinguishes between (i) state-sector employment (consisting of CCP and government organizations, public institutions and military), (ii) enterprises, (iii) social groups and village/neighbourhood committees, (iv) no *danwei*/self-employment and (v) other. Lastly, respondents were asked, "Which social class do you identify your

family belonged to when you were 14 years old?" Response categories ranged from 1 (the lowest) to 10 (the highest). We collapsed this ten-part variable into three categories, distinguishing between lower class (values 1 and 2), middle class (values 3 and 4) and higher class (values 5 to 10).

We measured personal socioeconomic resources with educational attainment, CCP membership and household income. Educational attainment distinguishes between (i) non-educated or elementary school, (ii) junior high school, (iii) technical or senior high school and (iv) junior college or higher. CCP membership distinguishes between non-CCP members and CCP members (again consisting of formal members and democratic party members). Annual household income is measured in *Yuan*. We calculated logged equivalized annual household income by dividing annual household income by the square root of household size and then taking the log of this value.

We utilized self-rated physical health (SRPH) as the dependent variable for these analyses. Self-rated health in general is considered to be an effective predictor of mortality and other functional limitations and has been used in many developed and developing countries (Lowry & Xie, 2009). Respondents were asked, "How would you evaluate your current physical health condition?" Possible responses were (i) very unhealthy, (ii) unhealthy, (iii) neutral, (iv) healthy and (v) very healthy.

We dichotomized this variable for use in multivariate binary logistic regression models. There has been discussion among Chinese health researchers regarding whether “neutral” should be classified as healthy or unhealthy (Jiao, 2014; Li & Zhu, 2008). Informed by this debate, we chose to apply the strategy comparing very healthy, healthy or neutral to unhealthy or very unhealthy. All of the variables utilized in this study are summarized in Table 1.

We created a series of binary logistic regression models on dichotomized SRPH to predict unhealthy or very unhealthy self-rated health separately for men aged 23 to 44, men aged 45 to 65, women aged 23 to 44 and women aged 45 to 65.² The first model included the four parental socioeconomic resources variables and the control variables age, marital status and hukou status. The second model added the three personal socioeconomic resources variables to the first model. The full binary logistic regression model can be specified as:

$$\ln(p / (1 - p)) = \beta_0 + \sum \beta_{1i}X_{1i} + \sum \beta_{2j}X_{2j} + \sum \beta_{3k}X_{3k}$$

where $\beta_{1i}X_{1i}$ are the parental socioeconomic resources variables, $\beta_{2j}X_{2j}$ are the personal socioeconomic resources variables and $\beta_{3k}X_{3k}$ are the control variables. Where appropriate, we applied Wald tests (Stata command *testparm*) to determine whether a categorical variable made a statistically significant contribution to a model. Where appropriate, we also applied the Karlson-Holm-Breen (KHB) decomposition technique via the Stata command *khb* (Kohler et al., 2011) to investigate the degree to which personal socioeconomic resources potentially mediated associations between parental socioeconomic resources and SRPH. This technique addresses the problem of residual variance in logit models wherein changes in regression coefficients across nested models can reflect changes in the scaling of the dependent variable rather than mediation or confounding. In all of the models we applied the personal weight variable provided with the CGSS data to account for the complex sampling design of the CGSS.

3. Results

3.1. Men aged 23 to 44

Model 1 in Table 2 shows the coefficients for parental socioeconomic resources regressed on poor SRPH for men aged 23 to 44. Father's educational attainment, father's CCP membership and father's type of work unit were not significantly associated with SRPH (Wald $p > 0.05$). Self-reported childhood social class was significantly associated with SRPH (Wald $p < 0.001$) with an odds ratio comparing lower class to higher class of 3.420 (95% CI = 1.792–6.527). Model 2 in Table 2 adds indicators of personal socioeconomic status to Model 1. The KHB decomposition technique indicates that the odds ratio comparing lower class to higher class declined by 22.8% as a result of controlling for these potentially mediating factors, and that 34.8% of the decline could be attributed to education and 65.2% could be attributed to household income. Lastly, household income manifested a significant association with SRPH among younger men (OR = 0.706 and 95% CI = 0.542–0.919), controlling for all of the other variables in Model 2.

3.2. Men aged 45 to 65

Model 1 in Table 3 shows the coefficients for parental socioeconomic resources on SRPH for men aged 45 to 65. Father's educational attainment, father's CCP membership and father's type of work unit were not significantly associated with SRPH (Wald $p > 0.05$). Self-reported

² In supplementary tables we provide the same series of models in samples that are less disaggregated than these: (i) the full sample, (ii) the subsample of men, (iii) the subsample of women, (iv) the subsample of respondents aged 23 to 44 and (v) the subsample of respondents aged 45 to 65.

childhood social class was significantly associated with SRPH (Wald $p < 0.001$) with an odds ratio comparing lower class to higher class of 2.178 (95% CI = 1.471–3.223). The KHB decomposition technique indicates that the odds ratio comparing lower class to higher class declined by 37.4% as a result of controlling for these potentially mediating factors, and that 22.6% of the decline could be attributed to education and 77.5% could be attributed to household income. Lastly, educational attainment (the comparison of the least to most highly educated produced OR = 2.576 and 95% CI = 1.269–5.229) and household income (OR = 0.584 and 95% CI = 0.504–0.675) were significantly associated with SRPH among older men, controlling for all of the other variables in Model 2.

3.3. Women aged 23 to 44

Model 1 in Table 4 shows the coefficients for parental socioeconomic resources on SRPH for women aged 23 to 44. Father's CCP membership, father's type of work unit and self-reported childhood social class (Wald $p > 0.05$) were not significantly associated with SRPH. Father's educational attainment was significantly associated with SRPH (Wald $p < 0.0001$) with an odds ratio comparing non-educated fathers to fathers with technical school or higher of 3.033 (95% CI = 1.339–6.869). The KHB decomposition technique indicates that the odds ratio comparing least educated and most educated fathers declined by 66.9% as a result of controlling for these potentially mediating factors, and that 41.8% of the decline could be attributed to education, 44.3% could be attributed to household income and 13.9% could be attributed to personal CCP membership. Lastly, educational attainment (the comparison of the least to most highly educated produced OR = 3.592 and 95% CI = 1.378–9.366) and household income (OR = 0.580 and 95% CI = 0.441–0.761) were significantly associated with SRPH among younger women, controlling for all of the other variables in Model 2.

3.4. Women aged 45 to 65

Model 1 in Table 5 shows the coefficients for parental socioeconomic resources on SRPH for women aged 45 to 65. Father's CCP membership and father's type of work unit were not significantly associated with SRPH (Wald $p > 0.05$). Father's educational attainment as a whole was significantly associated with SRPH (Wald $p < 0.01$) although none of the specific comparisons of educational categories to the least educated category was significant. Self-reported childhood social class was significantly associated with SRPH (Wald $p < 0.0001$) with an odds ratio comparing lower class to higher class of 1.917 (95% CI = 1.372–2.678). The KHB decomposition technique indicates that the odds ratio comparing lower class to higher class declined by 31.7% as a result of controlling for these potentially mediating factors; 22.6% of the decline could be attributed to education and 74.0% could be attributed to household income. Lastly, educational attainment (the comparison of the least to most highly educated produced OR = 2.503 and 95% CI = 1.432–7.465) and household income (OR = 0.673 and 95% CI = 0.585–0.760) were significantly associated with SRPH among older women, controlling for all of the other variables in Model 2.

4. Discussion

In Chinese society, parental socioeconomic resources are crucial to their children's accumulation of resources in adulthood (Chen et al., 2019; Fu & George, 2015; Hong and Liu, 2021; Hong & Zhao, 2015; Wu, Qi, Yang, Ye, & Sun, 2019). In this study, we link parental resources (father's education, father's type of work unit, father's CCP membership and self-reported childhood social class) to personal resources (education, equalized household income and CCP membership) in an investigation of the intergenerational production of self-rated physical health in Chinese society. Associations between personal socioeconomic resources and self-rated physical health persisted after controlling for

Table 2

Binary logistic regression models on unhealthy or very unhealthy self-rated physical health men aged between 23 and 44 (n = 1452; weighted data).

| Variable | Categories | Model 1 | | Model 2 | |
|--------------------------------------|---|-----------|-------------|----------|--------------|
| | | OR | 95% CI | OR | 95% CI |
| Father's educational attainment | Non-educated | 1.709 | 0.685-4.261 | 1.421 | 0.536-3.771 |
| | Elementary school | 1.507 | 0.692-3.282 | 1.485 | 0.677-3.254 |
| | Junior high school | 0.811 | 0.372-1.769 | 0.867 | 0.393-1.913 |
| | Technical school or higher (reference) | 1.000 | | 1.000 | |
| Father's CCP membership | CCP member | 0.338 | 0.104-1.094 | 0.351 | 0.105-1.168 |
| | Non-CCP member (reference) | 1.000 | | 1.000 | |
| Father's type of work unit | State-sector employment | 2.659 | 0.753-9.397 | 3.181 | 0.832-12.170 |
| | Enterprises | 0.981 | 0.480-2.005 | 1.092 | 0.527-2.264 |
| | Social groups, village/neighbourhood committees | 1.397 | 0.602-3.238 | 1.601 | 0.670-3.825 |
| | Other | 1.141 | 0.386-3.373 | 1.229 | 0.399-3.787 |
| | No <i>danwei</i> /self-employment (reference) | 1.000 | | 1.000 | |
| Self-reported childhood social class | Lower class | 3.420**** | 1.792-6.527 | 2.656** | 1.382-5.104 |
| | Middle class | 1.697 | 0.850-3.390 | 1.557 | 0.780-3.105 |
| | Higher class (reference) | 1.000 | | 1.000 | |
| Educational attainment | Elementary school or lower | | | 1.198 | 0.430-3.338 |
| | Junior high school | | | 0.950 | 0.452-1.996 |
| | Technical school or senior high school | | | 0.477 | 0.221-1.030 |
| | Junior college or higher (reference) | | | 1.000 | |
| CCP membership | CCP member | | | 0.336 | 0.108-1.050 |
| | Non-CCP member (reference) | | | 1.000 | |
| Logged equalized income | ... | | | 0.706*** | 0.542-0.919 |

Note: Each model controls for age, hukou status and marital status. *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001.

Table 3

Binary logistic regression models on unhealthy or very unhealthy self-rated physical health men aged between 45 and 65 (n = 1922; weighted data).

| Variable | Categories | Model 1 | | Model 2 | |
|--------------------------------------|---|-----------|-------------|-----------|-------------|
| | | OR | 95% CI | OR | 95% CI |
| Father's educational attainment | Non-educated | 1.301 | 0.671-2.521 | 0.882 | 0.431-1.804 |
| | Elementary school | 1.050 | 0.556-1.983 | 0.765 | 0.381-1.534 |
| | Junior high school | 1.157 | 0.556-2.406 | 1.017 | 0.457-2.262 |
| | Technical school or higher (reference) | 1.000 | | 1.000 | |
| Father's CCP membership | CCP member | 1.131 | 0.709-1.804 | 1.183 | 0.738-1.896 |
| | Non-CCP member (reference) | 1.000 | | 1.000 | |
| Father's type of work unit | State-sector employment | 0.861 | 0.411-1.806 | 0.958 | 0.432-2.127 |
| | Enterprises | 0.876 | 0.541-1.419 | 1.177 | 0.705-1.963 |
| | Social groups, village/neighbourhood committees | 0.718 | 0.407-1.266 | 0.768 | 0.423-1.220 |
| | Other | 0.599* | 0.366-0.979 | 0.725 | 0.431-1.220 |
| | No <i>danwei</i> /self-employment (reference) | 1.000 | | 1.000 | |
| Self-reported childhood social class | Lower class | 2.178**** | 1.471-3.223 | 1.662* | 1.099-2.511 |
| | Middle class | 1.726** | 1.138-2.620 | 1.590* | 1.025-2.464 |
| | Higher class (reference) | 1.000 | | 1.000 | |
| Educational attainment | Elementary school or lower | | | 2.576** | 1.269-5.229 |
| | Junior high school | | | 2.319* | 1.198-4.486 |
| | Technical school or senior high school | | | 1.351 | 0.664-2.750 |
| | Junior college or higher (reference) | | | 1.000 | |
| CCP membership | CCP member | | | 1.140 | 0.732-1.777 |
| | Non-CCP member (reference) | | | 1.000 | |
| Logged equalized income | ... | | | 0.584**** | 0.504-0.675 |

Note: Each model controls for age, hukou status and marital status. *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001.

parental socioeconomic resources. Educational attainment and equalized household income were both strongly associated with self-rated physical health in the samples of women and men aged 45 to 65. In particular, people with higher education and higher household incomes were less likely to be unhealthy. This is not surprising given previous research on socioeconomic resources and self-rated health in western countries (Winkleby et al., 1992) and in China (Huang & Yin, 2013; Wang, 2012; Hong and Liu, 2021). Strong links between education level, labour market opportunities and lifestyle practices described in previous research (Huang & Yin, 2013) potentially explain the associations between personal socioeconomic resources and self-rated physical health reported in this study. Education is the gatekeeper of higher occupational status, which in turn brings access to better healthcare resources (Fujishiro et al., 2010). Also, higher educational attainment facilitates healthy lifestyles (Huang & Yin, 2013) and healthcare seeking behaviours (Zhang et al., 2009). However, these results are not aligned with

Yamazaki's research in Japan which found that income was only correlated with self-rated health among men (Yamazaki et al., 2005) or Huang and Yin's (2013) research from China which also found that income had little association with women's self-rated health.

In regards to parental socioeconomic resources, we found that father's educational attainment was more strongly associated with self-rated physical health among women than among men. Before controlling for personal socioeconomic resources, younger women with more educated fathers had lower odds of having poor self-rated physical health, which was not the case for men and older women. In particular, we found evidence suggesting that personal education and household income mediated the effect of father's education on self-rated physical health, as two thirds of the association between father's education on self-rated physical health among younger women was statistically explained by personal socioeconomic status. Moreover, among younger women, education and income explained similar proportions of the

Table 4
Binary logistic regression models on unhealthy or very unhealthy self-rated physical health women aged between 23 and 44 (n = 1614; weighted data).

| Variable | Categories | Model 1 | | Model 2 | |
|--------------------------------------|---|---------|-------------|-----------|-------------|
| | | OR | 95% CI | OR | 95% CI |
| Father's educational attainment | Non-educated | 3.033** | 1.339-6.869 | 1.481 | 0.650-3.375 |
| | Elementary school | 1.259 | 0.593-2.670 | 0.911 | 0.424-1.959 |
| | Junior high school | 0.530 | 0.220-1.277 | 0.467 | 0.193-1.131 |
| | Technical school or higher (reference) | 1.000 | | 1.000 | |
| Father's CCP membership | CCP member | 0.646 | 0.291-1.437 | 0.727 | 0.333-1.588 |
| | Non CCP (reference) | 1.000 | | 1.000 | |
| Father's type of work unit | State-sector employment | 0.180 | 0.021-1.412 | 0.190 | 0.023-1.598 |
| | Enterprises | 1.415 | 0.656-2.746 | 1.849 | 0.875-3.907 |
| | Social groups, village/neighbourhood committees | 1.587 | 0.722-3.221 | 1.925 | 0.927-4.001 |
| | Other | 0.648 | 0.262-1.604 | 0.816 | 0.314-2.122 |
| | No <i>danwei</i> /self-employment (reference) | 1.000 | | 1.000 | |
| Self-reported childhood social class | Lower class | 1.044 | 0.594-1.833 | 0.711 | 0.391-1.292 |
| | Middle class | 0.718 | 0.391-1.319 | 0.623 | 0.331-1.173 |
| | Higher class (reference) | 1.000 | | 1.000 | |
| Educational attainment | Elementary school or lower | | | 3.592** | 1.378-9.366 |
| | Junior high school | | | 1.178 | 0.487-2.849 |
| | Technical school or senior high school | | | 1.881 | 0.801-4.418 |
| | Junior college or higher (reference) | | | 1.000 | |
| CCP membership | CCP member | | | 0.216 | 0.026-1.766 |
| | Non-CCP member (reference) | | | 1.000 | |
| Logged equalized income | ... | | | 0.580**** | 0.441-0.761 |

Note: Each model controls for age, hukou status and marital status. *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001.

Table 5
Binary logistic regression models on unhealthy or very unhealthy self-rated physical health for women aged 45 to 65 (n = 2108; weighted data).

| Variable | Categories | Model 1 | | Model 2 | |
|--------------------------------------|---|-----------|-------------|-----------|-------------|
| | | OR | 95% CI | OR | 95% CI |
| Father's educational attainment | Non-educated | 1.380 | 0.746-2.551 | 0.954 | 0.496-1.833 |
| | Elementary school | 1.107 | 0.615-1.993 | 0.892 | 0.476-1.669 |
| | Junior high school | 0.505 | 0.243-1.051 | 0.407* | 0.190-0.871 |
| | Technical school or higher (reference) | 1.000 | | 1.000 | |
| Father's CCP membership | CCP member | 1.182 | 0.761-1.838 | 1.329 | 0.845-2.091 |
| | Non CCP member (reference) | 1.000 | | 1.000 | |
| Father's type of work unit | State-sector employment | 0.399* | 0.168-0.946 | 0.476 | 0.205-1.110 |
| | Enterprises | 0.755 | 0.474-1.204 | 0.892 | 0.553-1.438 |
| | Social groups, village/neighbourhood committees | 0.695 | 0.432-1.119 | 0.735 | 0.463-1.244 |
| | Other | 1.082 | 0.720-1.626 | 1.126 | 0.725-1.749 |
| | No <i>danwei</i> /self-employment (reference) | 1.000 | | 1.000 | |
| Self-reported childhood social class | Lower class | 1.917**** | 1.372-2.678 | 1.606** | 1.112-2.310 |
| | Middle class | 1.045 | 0.725-1.507 | 0.991 | 0.629-1.409 |
| | Higher class (reference) | 1.000 | | 1.000 | |
| Educational attainment | Elementary school or lower | | | 2.503* | 1.432-7.465 |
| | Junior high school | | | 1.556 | 0.864-4.244 |
| | Technical school or senior high school | | | 1.951 | 1.095-5.584 |
| | Junior college or higher (reference) | | | 1.000 | |
| CCP membership | CCP member | | | 0.722 | 0.384-1.623 |
| | Non-CCP member (reference) | | | 1.000 | |
| Logged equalized income | ... | | | 0.673**** | 0.585-0.760 |

Note: Each model controls for age, hukou status and marital status. *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001.

association between father's education and self-rated physical health. Thus, it could be the case that the progressive attitudes of parents allow their daughters to flourish, in part by acquiring personal education and high household incomes, with subsequent positive impacts on health.

We also found that self-reported childhood social class was more strongly associated with self-rated physical health among men than among women. Before controlling for personal socioeconomic resources, self-reported childhood social class was significantly linked to self-rated physical health among men of both age groups and among older women but not younger women. Nevertheless, only a small portion of the association between self-reported childhood social class and self-rated physical health among men was explained by personal socioeconomic resources. This is consistent with some previous research from other contexts which suggest that self-rated childhood social class provides greater relative importance than adulthood circumstances for cardiovascular disease mortality (Claussen et al., 2003) and survival rate

during the war era (Kuh et al., 2002). It is also worth noting that, because of the limitations of the original dataset, we were not able to assess parental income or wealth. Given the subjective and retrospective nature of the self-reported childhood social class measure, reverse causality and/or spuriousness may be at play here. For example, people with higher socioeconomic status may optimistically interpret their childhood social class as relatively high.

To investigate how social transformation in contemporary China influences the social life of individuals born in different eras, it is vital to stratify research samples by age. The differing results by gendered age groups in our study likely reflect the changing nature of social mobility across different eras, perhaps more marked so among women. We found that parental education attainment was more important for the self-rated physical health of younger women than older women. Meanwhile, the association between personal education and self-rated physical health was stronger among younger women than older women.

These findings may be explained by the restoration of the college entrance exams from 1977 onwards after the Cultural Revolution that provided women with more opportunities to secure places in universities which is especially key to procuring well-paid occupations and higher socioeconomic status for women due to the gender wage gap (Chi & Li, 2008) and women's higher rate of return to education (Hannum et al., 2013; Mishra & Smyth, 2015).

Income manifested a stronger association with self-rated physical health among younger women than among older women in our sample, perhaps because there is less variability in incomes among older women than among younger women. (Notably, income manifested a weaker association with self-rated physical health among younger men than among older men in our sample.) The market transition perspective contributes to understanding such differences between women. During the planned economy period of the P.R.C. (1949 to the 1980s), the state directly intervened in individuals' employment (Zhao, 2016). Consequently, women at that time had similar wage levels, all relatively low despite having high levels of education. In the process of "denationalization" and market transition from the 1980s onwards, the nature of social stratification changed as individuals' subjectivity in career seeking was restored (Zhao, 2016). Younger women were more engaged in the competition of a market-driven human resource market for production incentives and human capital returns (Nee, 1989), which provides well-educated women with more opportunities to procure well-paid occupations.

Limitations of this study also serve to provide directions for future research in this area. First, the measure of a father's type of work unit is less sophisticated than it could be. In particular, we could not distinguish state-owned enterprises from private enterprises. Second, the measures of parental economic resources are relatively weak. We used the subjective measure of self-rated childhood social class and the objective measure of father's type of work unit at the respondents' age of 14, neither of which is a direct and objective measure of childhood economic resources. Although most fathers likely had a stable type of work unit, we still cannot guarantee that father's *danwei* did not change over time. More objective measures of childhood economic status would be welcome in future inquiry of this area. Finally, the data applied in this study are cross-sectional, which means that we were not able to conclusively discern causal directionality. Longitudinal data that includes information from multiple generations would be especially valuable in this area of study.

In conclusion, the primary purpose of this study was to investigate the intergenerational transmission of socioeconomic resources and adult self-rated physical health in China. We used a wide-ranging set of indicators to measure the socioeconomic resources of respondents to the CGSS and their parents. Higher personal educational attainment was associated with lower odds of having poor self-rated physical health for both younger and older women and older men and higher household income was associated with better self-rated physical health for men and women of both age groups. This is consistent with previous research showing that personal socioeconomic status is positively associated with health in China (Wang, 2012; Huang & Yin, 2013; Hong & Chen, 2017). Higher self-reported childhood social class was significantly associated with better self-rated physical health for men and older women, and having a higher educated father was significantly associated with lower odds of having poor self-rated physical health for younger women. We also found that personal socioeconomic resources explained sizable portions of the associations between indicators of parental socioeconomic resources and self-rated physical health, especially among men and younger women. These findings are suggestive of the importance of intergenerational reproduction in fostering the good health of Chinese adults, especially for those who grew up after the Chinese economic reforms of the 1970s.

Author contributions

XZ and GV: Conceptualization, methodology. XZ: Data curation; data analysis, writing of original draft. GV: review and editing.

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