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Factors affecting the physical and mental health of older adults in China: The importance of marital status, child proximity, and gender

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Lindy Williams[a,*], Renling Zhang[b], Kevin C. Packard[c]

[a] Department of Development Sociology, Warren Hall, Cornell University, Ithaca, NY 14853, USA
[b] International Labour Organizations Country Office for China and Mongolia, 1-10 Tayuan Diplomatic Office Building, Beijing 100600, PR China
[c] Cornell Statistical Consulting Unit, B13 Savage Hall, Cornell University, Ithaca, NY 14853, USA

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ABSTRACT

Evidence is accumulating about the association between strong family ties and the emotional and physical welfare of older adults, and researchers have identified negative consequences of being unmarried, being childless, and/or living alone. These associations have been recognized in multiple contexts, including in Asia where living with a spouse and/or grown children has been shown in some studies to improve elderly well-being. Social support, especially family support, is expected to continue to be important where populations are aging and social safety nets are weak. Using longitudinal data from the 2010 and 2012 waves of the China Family Panel Studies, we focus on the effects of marital status at times 1 and 2, changes in marital status between the two surveys, and other family-related indicators of social connectedness on ratings of depression, levels of life satisfaction, and self-reported physical health among those aged 50 and over. Our sample includes 9831 respondents who have valid data on wellbeing indicators for Wave 1 and Wave 2, as well as complete information on the other covariates controlled in our analysis. In analyses of the full sample, those who were married at both points in time reported lower *depression* scores than those who were never-married, divorced, or widowed at both time points, and those whose unions dissolved in the interval. Those who were married at both times also generally reported greater levels of *life satisfaction* than those who were never married at both time points and those who became divorced during the interval. Important underlying gender differences are observed both for life satisfaction and depression. In addition, those who were married at both time points reported being in better *physical health* than those who became widowed during the interval (significant primarily for women), and those who had never been married (significant primarily for men). Our study contributes to the literature on social ties and the wellbeing by highlighting the importance of marital status and changing marital status, net of child co-residence and proximity, in China.

1. Introduction

Evidence has long been accumulating about the association between social relationships and health and well-being at all ages (Cornwell & Waite, 2009; House, Landis, & Umberson, 1988; Kawachi & Berkman, 2001; Umberson, Crosnoe, & Reczek, 2010). Among life's most intimate relationships, being married (Kawachi & Berkman, 2001) has been found to be positively associated with better health for a number of reasons. For example, Goldman, Korenman, and Weinstein (1995:1718) argue that:

the increased social ties and networks that typically result from marriage may facilitate access to medical information and services, constrain risk-taking behavior and encourage healthy behaviour, act as a buffering mechanism in stressful situations, substitute for

formal health care, and provide economic resources that affect the frequency and quality of health care services [15–17]. In addition, departures from the married state (namely, becoming widowed or divorced) are stress-provoking crises that may result in higher risks of morbidity and mortality.

Thus resources are attained through being married and crises are incurred through marital dissolution. Among older adults, strong family ties and friendship networks are also considered to be crucial for emotional and physical welfare, and researchers have identified negative health consequences of being unmarried (never-married, divorced, or widowed), being childless, and/or living alone (Lillard & Waite, 1995; Ross, 1995; Umberson, Pudrovska, & Reczek, 2010; Waite & Gallagher, 2000; Wilcox et al., 2003; Williams & Umberson, 2004). Indeed, "[for] many older adults, becoming widowed is perhaps

* Corresponding author.
  E-mail addresses: Lbw2@cornell.edu (L. Williams), zhangr@iloguest.org (R. Zhang), kcp48@cornell.edu (K.C. Packard).

the most difficult, yet inevitable role transition" (Li, Liang, Toler, & Gu: 2005: 637).

These matters have been recognized as important in a number of geographical contexts, including locations in Asia where researchers have found that living with or near children can significantly improve elderly welfare (Knodel & Debavalya, 1997; Hermalin, 1997). In Japan, Okabayashi, Liang, Krause, Akiyama, and Sugisawa (2004) have found that among older married adults, spousal support is more important for an individual's well-being than is children's support, but help from children is particularly beneficial for welfare outcomes among those without a spouse. Family support networks and living arrangements are likely to continue to be important where populations are aging and social safety nets remain uneven (Teerawichitchainan, Pothisiri, & Long, 2015).

Despite all the positive associations identified to date between social ties and health indicators, Umberson, Crosnoe, and Reczek (2010: 143) argue that a thorough examination of the literature "yields a clear image of the double-edged nature of social ties – as a source of support and sustenance and as a source of stress and worry." The authors detail the various pathways through which either stress or social support may result, and argue that many of the adverse effects of social ties have been observed among those at younger ages, while among the elderly, it is again often the *loss of ties* (e.g., through widowhood), and the potentially harmful health consequences of those experiences (weight loss, etc.), that are of particular concern. At the same time, it seems clear that older adults may experience diminished control over their lives as younger people assume responsibility in realms previously the domain of the older person (Tucker, Klein, & Elliott, 2004; Umberson, Pudrovska, & Reczek, 2010; Williams, 2004). Kawachi and Berkman (2001: 461) contend that both lost ties and aid from children can affect well-being:

At the opposite end of the life course, social isolation and loss of social ties are among the most potent predictors of depressive symptoms among the elderly.[12] On the other hand, social support received from children can paradoxically reinforce a sense of dependence in the elderly, thereby undermining self-esteem and leading to feelings of helplessness.[13] We suspect that social support can either promote a sense of self-efficacy and self-esteem or become "dis-abling" by reinforcing dependence; therefore, social support can have "mixed" effects.[4,14]

Our research focuses on physical and mental health indicators among older adults in China, the most populous nation in the world, and where, as of the year 2000, one fifth of family households had an adult aged 65 or older in residence. Both the number and percentage of elderly adults in the population are projected to rise considerably over the next several decades in China, where the family remains the principal institution for support of older adults (Yi & Wang, 2003: 98). Chinese parents continue to be held entirely accountable for the well-being of their children when they are young, and children continue to be fully responsible for their parents' physical and emotional care when parents become old (Li et al., 2005). As in much of East and Southeast Asia, however, rising rates of migration to cities, in combination with very low fertility and expanding female labor force participation have been in the spotlight, as the government expects these changes to lead to declining family support for the elderly, and as it attempts to devise plans for long term care among the oldest members of the population (ESCAP, 2015). In particular, a shortage of grown children in a context of shifting attitudes and economic conditions is expected to be important for co-residence patterns in the years ahead (Logan, Bian, & Bian, 1998; Yi & Wang, 2003). Sun, Lucas, Meng, and Zhang (2011) argue that culturally, China appears ill-prepared for what is likely to be a growing number of older empty-nest families.

Although institutional living is one obvious solution, recent research on the oldest old in China has found that, for the moment,

institutional arrangements are generally, although not uniformly, associated with negative health outcomes (Li, Zhang, & Liang, 2009). The authors conclude that being married provides the best likelihood of having reliable old age support (Li et al., 2009: 225, citing Chappell, 1991). Among those living with a spouse, living also with children appears to convey very little additional health advantage to the elderly, and in certain circumstances in their study was actually associated with negative health outcomes.

We look further at these complicated issues, foregrounding both marital status and changes in marital status in our analysis (Williams & Umberson, 2004), and looking at all those aged 50 and above instead of just at the oldest old. Marriage continues to be nearly universal in China (Ji & Yeung, 2014), and until recently divorce and remarriage rates have been very low (Wang & Zhou, 2010). Yet across much of Asia, marriage is increasingly delayed and growing proportions of women and men may never enter a formal marital union. There is reason to expect that the same may occur in China. In addition, divorce and remarriage rates are now increasing in China. Divorce, as measured by both the crude rate and the refined divorce rate has risen steadily and quite markedly since 1979 (Wang & Zhou, 2010).

Using recent national-level panel data, we assess the ways in which these circumstances may be affecting elderly well-being in China today. We examine continuity and change in marital status at two points in time because, again, marital status may affect health either because of the "greater economic resources, social support, and regulation of health behaviors that the married enjoy" (*marital resource model*) or because of "the strains of marital dissolution [that] undermine health" (*crisis model*) (Williams & Umberson, 2004:82; Goldman, Korenman, & Weinstein, 1995). To do so, we examine both physical and psychological health, including self-reported physical health, and self-reports of life satisfaction and depression. An individual's rating of his or her own health"predicts mortality over and above measures of chronic and acute disease, physician assessment made by clinical exam, physical disability, and health behaviors such as smoking; and it is a stronger predictor of mortality than is physician-assessed health" (Ross & Wu, 1996: 110). In addition to the widely accepted efficacy of self-rated health as an indicator of morbidity and mortality, subjective reports of physical health and psychological health, including measures of depression and life satisfaction, enable respondents to assess their physical and mental health in accordance with their "individual beliefs, priorities, experiences, and circumstances" (Whitley, Popham, & Benzeval, 2016: 2).

Specifically, we address the following four questions. (1) What is the effect of marital status and change in marital status over time on the health and well-being of the older adults? (2) Does the presence of children buffer the effect of not having a spouse or losing a spouse between time 1 and time 2? (3) Do these effects change once background socioeconomic factors are controlled? (4) Do the answers to these questions differ according to the gender of the respondent?

Although China is undergoing a great deal of societal change, much of the literature on aging in that country continues to emphasize the importance of assistance from family members for the well-being of older adults. We thus anticipate finding support for both the marital resource model and the crisis model, specifically that those who have never been married and those who have been divorced or widowed (either before the first interview in 2010 or during the interval between 2010 and 2012) and who have not remarried, will report worse physical and mental health outcomes compared to those who were continuously married. In addition, although some U.S.-based research has found that marriage conveys few significant advantages over cohabitation (Musick & Bumpass, 2012), we expect that it may do so for older adults living in China, where cohabitation is less normative than it is among Americans. We also anticipate that living with or near children may buffer effects of marital dissolution on physical and mental health indicators, but that, as has been found in other contexts, results may also be mixed.

Finally, we expect the results to vary by gender. Marriage has been found in many western contexts to be more protective for men's health than women's (Lillard & Waite, 1995; Williams & Umberson, 2004). Although Li et al. (2005) did not find gender differences in depression in their analysis of data from Wuhan, China, they did note that Chinese men have financial advantages over Chinese women (for example, through urban men's disproportionate share of pensions), and that if widowed, men may have to rely less on their adult children for financial support. They suggest that resultant:

> financial dependency may increase intergenerational strains and women's difficulties in adjusting to widowhood (Krause & Liang, 1993), whereas for Chinese men, their financial stability usually is less affected by spousal death, and the family support system is readily available to compensate their loss of emotional and instrumental support upon widowhood (Li et al., 2005: 639).

Examining gender in association with age is important in studies such as ours. For example, men are less likely to be widowed than women, and transitions to widowhood typically occur later in life than do transitions to divorce (Johnson, 2005: 1070). Older age is associated with declining health around the world, and although women have longer life expectancy than men, they often report being in worse health for a number of "biological, social-structural, psychosocial, and behavioral" reasons (Read & Gorman, 2010: 373). We run all models separately for women and men, controlling for age in each one. We also assess the potential significance of a set of interaction terms in our analysis of our combined sample.

Controlling for socioeconomic status (SES) is also necessary, because higher SES, as measured by education level or financial advantage, is positively associated with better health at all ages, and longitudinal studies have shown that this "is largely due to the effects of SES on health, not vice versa" (Ross & Wu, 1996: 105). Ross and Wu (1996:105) focus on education as an indicator of SES in their analysis of physical functioning and physical health because it is an exogenous indicator that informs life chances in occupation and income, it generally does not vary after early adulthood, and it can be measured for all adults. Although physical health typically declines with age, it often does so less precipitously among those with more education. Higher education is also associated with a higher likelihood of sustained cognitive function over time (Albert et al., 1995; Rowe & Kahn, 1997) and with lower levels of depression (Miech & Shanahan, 2000).

Financial well-being at older ages is also clearly important for health, as those with more resources can better avoid and combat disease (Read & Gorman, 2010). Prior research by Zimmer and Kwong (2004) has found that savings is a strong predictor of health outcomes, net of other socioeconomic factors, such as household income and pensions, in both urban and rural areas in China. Since our sample includes older adults both under and over the age of retirement, we use savings as our indicator of financial resources. We expect our results regarding socioeconomic status and mental and physical health to be consistent with findings from previous research; i.e., we expect those with higher levels of education and savings to report being in better physical and mental health than their less advantaged counterparts.

We also control for place of residence (urban v. rural) because issues associated with population aging in China are thought to be particularly acute in rural areas, where the majority of those aged 60 and above live, and "where many state welfare provisions are non-existent" (Liu, 2014: 305, drawing on Yao & Li, 2000). Rural elderly whose children have migrated away tend to be seen as especially vulnerable. Some contend that because migration decisions are often made collectively and family webs of interdependence are complicated, the migration of young adults can still prove helpful to older family members, however (Liu, 2014). In addition, while family support systems in rural areas are indeed strained by low fertility and the spatial location of job opportunities, rural children often do care for

their parents when they are not co-residing (Giles & Mu, 2007). While improvements in rural health care systems may be underway, and while support from rural adult children may be being provided to their parents, we hypothesize that respondents living in rural areas will report being in worse physical and perhaps psychological health than their urban counterparts.

2. Data and methods

To assess these possibilities we analyze data from the China Family Panel Studies (CFPS), and include information from interviews conducted in 2010 (Wave 1) and 2012 (Wave 2). The CFPS uses a nationally representative multi-stage probability sample, with counties (or equivalent) as the primary sampling units, villages (or equivalent) sampled within counties, and households sampled within villages. The 2010 baseline survey included 14,960 households, including 33,600 adult respondents aged 16 and older, and 8990 children aged under 16, with an individual response rate of roughly 84 percent (Xie, 2012).

Approximately 80.6 percent of those who took part in Wave 1 were successfully tracked and re-interviewed for Wave 2 (Xie & Hu, 2014). Roughly 20 percent of the full sample was thus lost to attrition. Unfortunately, in panel studies, this is not unusual. In our subsample of those aged 50 and older at Time 1 who have complete information on all variables included in the analysis, the attrition was slightly more substantial (73 percent of 2010 respondents were tracked and re-interviewed). Not surprisingly, it was also selective on certain of our key indicators, including older age and marital status, in particular having been widowed at Time 1. As a consequence, those who were interviewed in Wave 2 are likely healthier than those lost to attrition and our results should be read accordingly.

We restrict the sample to those who were aged 50 and above in 2010. We have merged the 2010 adult sub-dataset, 2012 adult sub-dataset, and the 2012 family roster sub-dataset based on personal ID. After accounting for item-level non-response, our effective sample size includes 9831 respondents who have valid data on all wellbeing indicators (depression, life satisfaction, self-rated physical health) and on marital status indicators for both Wave 1 and Wave 2, as well as complete information on the other covariates controlled in our analysis.

2.1. Dependent variables

The dependent variables include three self-reported indicators of physical and mental health, as measured at Wave 2. The first variable, self-rated physical health, gauges one's assessment of his/her own health. It was measured by a single item that asked respondents to rate their health on a 5-point scale (unhealthy, fair, good, very good, excellent). The variable is coded 1 (unhealthy) to 5 (excellent).

The second variable, depression, considers the continuum of psychological distress (symptoms of depression/anxiety). As assessed in 2012, this variable measures how often the respondent felt depressed during the past month according to the 20-question Center for Epidemiological Studies Depression Scale (CES-D). Respondents were asked to rate the frequency of each symptom of distress using the following scale: (1) almost never, (2) sometimes, (3) often, or (4) most of the time. The scale of the variable was constructed by computing the mean score across all items on the 1–4 frequency scale for each respondent. A higher score indicates a higher frequency of depressive symptoms and thus a higher level of depression. Regarding the reliability of the CES-D scale, the Cronbach's alpha coefficient is 0.85, which indicates a high level of internal consistency.

The third variable, life satisfaction, is defined as the respondent's rating of satisfaction with his/her life. It was measured by a single question on a 5-point scale from 1 (very unsatisfied) to 5 (very satisfied). In several of our analyses, we control for baseline measures of these same variables, collected during Wave 1 (discussed in detail

below).

2.2. Independent variables

Explanatory variables include marital status at Times 1 and 2, change in marital status between Times 1 and 2, living arrangements with or near children, and other socio-demographic covariates. We have constructed a composite marital status variable, classified into eight categories depending on respondents' reports of their marital status over the 2-year period. Respondents who were married at both interviews are classified as (a) Married at Time 1 and Time 2 and are assigned as the reference group in all regression analyses. Respondents who were in cohabiting unions during both waves of the survey are classified as (b) Cohabiting at Time 1 and Time 2. (In some cultural contexts, combining married and cohabiting respondents into one category would be appropriate, but cohabitation as an alternative to marriage remains less common in China, particularly among older adults, and we retain separate categories in this analysis). Respondents who were never married at Time 1 and remained unmarried (and not cohabiting) at Time 2 are classified as (c) Never-married at Time 1 and Time 2. Respondents who were widowed at both points in time are classified as (d) Widowed at Time 1 and Time 2. Respondents who were divorced at both interviews are classified as (e) Divorced at Time 1 and Time 2.

Respondents who were married at Wave 1 and divorced at Wave 2 are classified as (f) Married in T1 - > Divorced in T2. Those who were married in Wave 1 and widowed in Wave 2 are classified as (g) Married in T1 - > Widowed in T2. Given the relatively small numbers of respondents who were never married, divorced, or widowed in Wave 1 and married or cohabiting by Wave 2 (21 in total), they are combined and classified as (h) Not in union at T1- > In union at T2. The thirteen responses that fit none of these categories have been coded as missing.

We use Wave 1 data for all other variables. We control for age in all regressions. Age is measured in chronical years and we have created a variable that distinguishes those in their early 50s at Time 1 from those 55–59, 60–64, 65–69, and 70 or older. We also control for respondents' gender (dichotomized F/M) in all regressions using the combined file.

To assess whether the presence or absence of children alters the effects of marital status or change in marital status on well-being, we analyze several child availability variables from Time 1, including (a) the number of living children the respondent reported (coded 0=0, 1=1, 2=2 or more in Table 2, and left un-recoded in regression analysis), and (b) whether the respondent was living with at least one child in the same household (0=no; 1=yes). In addition, respondents were asked whether they had a/another child living in the same county, (including county-level city and district), and that variable is coded to reflect the absence of a nearby child: (c) (0=child living nearby; 1=no child living nearby). Those with no living children are coded as having no co-resident children and no children living nearby. Note: It is not uncommon for elderly Chinese who do not have biological children to adopt a niece or a nephew to ensure support in old age (Li et al., 2005). This practice lessens the collinearity problem that would otherwise be likely to exist between never-married status and number of children. Our analysis does not distinguish biological from adopted or stepchildren.

Socioeconomic control variables include place of residence, education, and savings as measured at Time 1. The control variable for place of residence is dichotomized (rural or urban residence). The community where the respondent was residing at the time of the interview has been coded as urban or rural according to the 2010 classification by the National Bureau of Statistics of China (Wu et al., 2015). Education is measured in years of formal schooling and is not recoded in regressions. Savings is measured by a single question that assesses cash and bank savings, translated as: "The total amount of deposit at the end of last year was ___yuan. Deposit refers to money saved in a bank or at

Table 1
Percent distribution of all variables for those aged 50 and older in China, 2010–2012.

	Total	Female	Male	P-Value
Well-being				
T1 Depression (mean; s.d.)[a]	1.51 (0.69)	1.58(0.74)	1.45 (0.63)	0.000
T1 Life Satisfaction (mean; s.d.)[a]	3.58 (1.04)	3.60(1.03)	3.57 (1.04)	0.276
T1 Self-rated Health (mean; s.d.)[a]	3.90 (1.12)	3.77(1.16)	4.02 (1.07)	0.000
T2 Depression (mean; s.d.)[a]	1.68 (0.44)	1.75(0.46)	1.61 (0.40)	0.000
T2 Life Satisfaction (mean; s.d.)[a]	3.44 (1.07)	3.45(1.08)	3.43 (1.05)	0.331
T2 Self-rated Health (mean; s.d.)[a]	2.37 (1.14)	2.25(1.14)	2.48 (1.13)	0.000
Marital Status				
Continuity				
Married at both times[b]	82.85	77.90	87.69	0.000
Cohabiting at both times[b]	0.06	0.09	0.03	0.966
Never Married at both times[b]	0.90	0.07	1.71	0.000
Divorced at both times[b]	1.17	1.12	1.23	0.671
Widowed at both times[b]	12.33	17.75	7.03	0.000
Change				
Married - > Divorced[b]	0.13	0.01	0.26	0.105
Married - > Widowed[b]	2.28	2.94	1.64	0.000
Not in union - > In union[b]*	0.27	0.13	0.41	0.144
Availability of children (T1)				
Number of children (mean; s.d.)[a]	2.55 (1.39)	2.65(1.42)	2.45 (1.34)	0.000
Living with at least one child[b]	46.34	47.45	45.26	0.017
Had no child living nearby[b]	26.17	25.70	26.63	0.766
Demographic and SES variables (T1)				
Age (mean; s.d.)[a]	61.30 (8.59)	61.32(8.61)	61.3 (8.60)	0.777
Female[b]	49.47	–	–	
Urban residence[b]	44.33	45.48	43.22	0.000
Years of schooling (mean; s.d.)[a]	4.24 (4.68)	3.02(4.33)	5.44 (4.70)	0.000
Logarithm of saving (mean; s.d.)[a]	6.11 (3.82)	5.02(3.95)	7.18 (3.37)	0.000
Total	99.93	99.92	99.93	
N (Unweighted)	9831	4842	4989	

1) For each of the indicators, we use two-tailed *T*-tests[a] to test the gender differences of the means of each variable. We employ Chi-square tests[b] to compare gender differences of each categorical variable.

2) Percentages are calculated using weighted data. Unweighted *Ns* are shown to indicate the true sample sizes.

other organizations/by individuals that pays interest." The variable is our measure of economic status and has been transformed by taking the natural logarithm of the respondent's report.

We control for Wave 1 measures of depression, life satisfaction and self-rated health in final models as controls for selection on well-being, as it is clear that comorbidity between depression and physical ill-health is not unusual (Moussavi, Chatterji, Verdes, & Tandon, 2007). Note: to assess depression, only six questions from the CES-D were asked during Wave 1, and they were coded into five categories: almost never, sometimes, half of the time, often, most of the time. Although the Wave 1 depression variable is thus measured slightly differently from the Wave 2 variable, both variables are coded so that a higher score is associated with greater levels of depression. Life satisfaction and self-reported health were measured the same way in Wave 1 as in Wave 2.

Table 2
Mean scores of dependent variables across different levels of independent variables, 2010 and 2012.

	Mean Depression Score T2	P-Value	Mean Life Satisfaction Score T2	P-Value	Mean Self-rated Physical Health Score T2	P-Value
Marital Status (T1 to T2)						
Continuity						
Married at both times	1.65 (0.42)	–	3.45 (1.05)	–	2.40 (1.14)	–
Cohabiting at both times	1.31 (0.48)	0.793	3.32 (0.98)	0.037	3.78 (1.62)	0.572
Never Married at both times	1.92 (0.46)	0.000	2.97 (1.14)	0.028	2.14 (1.18)	0.235
Divorced at both times	1.78 (0.49)	0.094	3.21 (1.21)	0.000	2.43 (1.25)	0.566
Widowed at both times	1.79 (0.46)	0.000	3.44 (1.14)	0.764	2.21 (1.10)	0.000
Change						
Married -> Divorced	1.87 (0.43)	0.043	2.43 (0.98)	0.000	2.67 (1.13)	0.923
Married -> Widowed	1.86 (0.55)	0.000	3.33 (1.17)	0.043	2.06 (1.17)	0.000
Not in union -> In union*	1.48 (0.28)	0.344	3.79 (1.34)	0.531	2.95 (1.10)	0.034
Demographic and SES Characteristics (T1)						
Gender						
Female	1.75 (0.46)	–	3.45 (1.09)	–	2.25 (1.14)	–
Male	1.61 (0.40)	0.000	3.43 (1.05)	0.867	2.48 (1.13)	0.000
Age Groups						
Age 50–59	1.65 (0.43)	–	3.36 (1.07)	–	2.47 (1.17)	–
Age 60–69	1.69 (0.43)	0.871	3.51 (1.00)	0.000	2.29 (1.12)	0.000
Age 70+	1.73 (0.48)	0.001	3.54 (1.13)	0.000	2.22 (1.08)	0.000
Place of Residence						
Urban	1.60 (0.42)	–	3.49 (1.06)	–	2.41 (1.10)	–
Rural	1.75 (0.44)	0.000	3.40 (1.07)	0.000	2.33 (1.18)	0.002
Years of schooling						
Less than 9 years	1.74 (0.45)	–	3.41 (1.09)	–	2.27 (1.16)	–
9 years and more	1.54 (0.38)	0.000	3.51 (1.00)	0.000	2.61 (1.07)	0.000
Amount of Savings						
Upper third	1.58 (0.45)	–	3.61 (1.13)	–	2.57 (1.15)	–
Middle third	1.65 (0.41)	0.000	3.50 (1.04)	0.000	2.42 (1.09)	0.000
Lowest third	1.73 (0.44)	0.000	3.28 (1.12)	0.000	2.23 (1.12)	0.000
Availability of children (T1)						
Number of children						
No child	1.76 (0.47)	–	3.22 (1.10)	–	2.38 (1.20)	–
One child	1.60 (0.42)	0.000	3.40 (1.03)	0.118	2.48 (1.07)	0.022
Two or more children	1.70 (0.44)	0.015	3.46 (1.08)	0.006	2.34 (1.16)	0.472
Living with at least one child						
Yes	1.68 (0.44)	–	3.45 (1.08)	–	2.32 (1.14)	–
No	1.68 (0.44)	0.621	3.43 (1.09)	0.392	2.29 (1.12)	0.000
Had no child living nearby						
Yes	1.67 (0.43)	–	3.51 (1.05)	–	2.33 (1.12)	–
No	1.69 (0.44)	0.000	3.42 (1.07)	0.057	2.38 (1.15)	0.014
N (Unweighted)	9831		9831		9831	

1) We employ two-tailed *T*-tests to compare the means of the scores of depression, life satisfaction, and self-rated physical health across different levels of the explanatory and control variables. Levels of explanatory and control variables indicated by "–" in the "*P*-Value" cells are reference groups.
2) Descriptive statistics above are calculated using weighted data. Unweighted Ns are shown to indicate the true sample sizes.
3) Standard deviations are presented in brackets.

2.3. Analytic strategy

Weighted data are shown in Tables 1 and 2 in which descriptive statistics are presented. We have chosen the village/neighborhood as our cluster variable and weighted the data using the sampling weights specified by the design of the CFPS, allowing this sample to match the composition of the Chinese population in 25 provinces and provincial-level municipalities.

In regression analyses, data are also weighted. Because self-rated physical health and life satisfaction are both ordinal variables, we use ordered logistic regression analysis to examine the effects of continuity and change in marital status and the other independent variables on the health and well-being of those who were aged 50 and older in 2010. In our analysis of depression, we use OLS regressions to estimate the effects of marital status and control variables because the CES-D scale is typically analyzed as an interval-level variable. We generated the descriptive statistics and estimated the regression models using Stata 12.0.

In each regression analysis, we begin by running models with the marital status variables, controlling for age, and controlling for gender

Table 3
Ordered logistic regression models for self-rated physical health, 2010–2012.

	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Marital Status (ref=married in T1 & T2)				
Continuity				
Never married in T1 & T2	−0.582*	−0.642**	−0.500*	−0.180
	(0.23)	(0.24)	(0.25)	(0.27)
Cohabited in T1 & T2	1.994	1.984	1.879	1.673
	(2.30)	(2.32)	(1.91)	(1.54)
Divorced in T1 & T2	0.023	−0.014	−0.069	−0.075
	(0.28)	(0.29)	(0.27)	(0.24)
Widowed in T1 & T2	−0.050	−0.068	−0.050	−0.071
	(0.08)	(0.08)	(0.08)	(0.09)
Change				
Married in T1 -> Divorced in T2	0.132	0.106	0.040	0.638
	(0.52)	(0.53)	(0.49)	(0.83)
Married in T1 -> Widowed in T2	−0.405*	−0.401*	−0.401*	−0.317
	(0.18)	(0.18)	(0.17)	(0.18)
Not in union in T1 -> In union in T2	0.748	0.769*	0.775*	0.924
	(0.39)	(0.39)	(0.39)	(0.55)
Demographic Characteristics (T1)				
Female	−0.371***	−0.361***	−0.203***	−0.064
	(0.05)	(0.05)	(0.05)	(0.05)
Age Group (ref= age 50–54)				
Age 55–59	−0.261***	−0.237***	−0.141*	−0.123
	(0.07)	(0.07)	(0.07)	(0.07)
Age 60–64	−0.382***	−0.326***	−0.207**	−0.236**
	(0.07)	(0.07)	(0.08)	(0.08)
Age 65–70	−0.452***	−0.354***	−0.245**	−0.158
	(0.08)	(0.09)	(0.09)	(0.10)
Age 70+	−0.496***	−0.367***	−0.215*	−0.134
	(0.08)	(0.09)	(0.09)	(0.09)
Availability of Children (T1)				
Number of children		−0.065**	−0.041	−0.034
		(0.02)	(0.02)	(0.02)
Living with at least one child		0.180**	0.168**	0.092
		(0.06)	(0.06)	(0.06)
Having no child living nearby		0.110	0.068	0.036
		(0.07)	(0.07)	(0.07)
SES (T1)				
Urban residence			0.013	−0.102
			(0.05)	(0.05)
Years of schooling			0.035***	0.020***
			(0.01)	(0.01)
Logarithm of savings			0.037***	0.034***
			(0.01)	(0.01)
Time 1 Well-being				
Life satisfaction				0.077**
				(0.03)
Self-rated health				0.769***
				(0.03)
Depression				−0.131**
				(0.05)
Intercepts				
Cut point 1	−1.356***	−1.355***	−0.765***	2.142***
Cut point 2	−0.366***	−0.362***	0.240*	3.322***
Cut point 3	1.255***	1.262***	1.876***	5.115***
Cut point 4	2.645***	2.652***	3.268***	6.561***
Pseudo *R*-squared	0.009	0.010	0.014	0.083
N	9831	9831	9831	9831

Weighted data are used.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 4
OLS regression models for depression, 2010–2012.

	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Marital Status (ref=married in T1 & T2)				
Continuity				
Never married in T1 & T2	0.320***	0.394***	0.297***	0.157**
	(0.06)	(0.06)	(0.06)	(0.06)
Cohabited in T1 & T2	−0.252	−0.221	−0.165	−0.150
	(0.26)	(0.25)	(0.21)	(0.18)
Divorced in T1 & T2	0.134*	0.166**	0.200***	0.174**
	(0.06)	(0.06)	(0.06)	(0.06)
Widowed in T1 & T2	0.093***	0.090***	0.076***	0.053**
	(0.02)	(0.02)	(0.02)	(0.02)
Change				
Married in T1 -> Divorced in T2	0.280*	0.316*	0.375**	0.204
	(0.14)	(0.14)	(0.13)	(0.11)
Married in T1 -> Widowed in T2	0.190***	0.187***	0.184***	0.165***
	(0.05)	(0.05)	(0.05)	(0.05)
Not in union in T1 -> In union in T2	−0.139*	−0.133*	−0.121	−0.169
	(0.06)	(0.06)	(0.07)	(0.09)
Demographic Characteristics (T1)				
Female	0.133***	0.127***	0.084***	0.061***
	(0.01)	(0.01)	(0.01)	(0.01)
Age Group (ref= age 50–54)				
Age 55–59	0.028	0.022	−0.014	−0.012
	(0.02)	(0.01)	(0.01)	(0.01)
Age 60–64	0.025	0.006	−0.029	−0.012
	(0.02)	(0.02)	(0.02)	(0.02)
Age 65–70	0.029	−0.011	−0.039*	−0.031
	(0.02)	(0.02)	(0.02)	(0.02)
Age 70+	0.046*	−0.011	−0.042	−0.035
	(0.02)	(0.02)	(0.02)	(0.02)
Availability of Children (T1)				
Number of children		0.035***	0.015**	0.012*
		(0.01)	(0.01)	(0.00)
Living with at least one child		−0.017	−0.001	0.012
		(0.01)	(0.01)	(0.01)
Having no child living nearby		−0.039*	−0.017	−0.007
		(0.02)	(0.02)	(0.01)
SES (T1)				
Urban residence			−0.093***	−0.070***
			(0.01)	(0.01)
Years of schooling			−0.016***	−0.011***
			(0.00)	(0.00)
Logarithm of savings			−0.005**	−0.004**
			(0.00)	(0.00)
Time 1 Well-being				
Life satisfaction				−0.041***
				(0.01)
Self-rated health				−0.056***
				(0.01)
Depression				0.167***
				(0.01)

Table 4 *(continued)*

	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Constant	1.570*** (0.01)	1.520*** (0.02)	1.746*** (0.02)	1.831*** (0.04)
Adjusted _R_ Square	0.043	0.052	0.098	0.238
_N_	9831	9831	9831	9831

Weighted data are used.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

in our analyses using the combined file (Model 1 in each table). We then add variables to assess whether the presence of adult children might buffer any effects of being without a spouse at Time 1 or losing a spouse in the interval (Model 2 in each table). Because number of children may be related, not only to the age of the respondent, but also to his or her education, place of residence, and wealth, we include the residence and SES variables in Model 3 in each table to see whether they alter the effects of marital status or child availability on health outcomes. In Model 4 of each table we add controls for each health status variable from Time 1. In these final models, we thus assess whether some marital status variables remain important in influencing the health and well-being of older Chinese adults, net of all covariates.

We have run each set of the analyses just described for the full sample. We have then rerun all models, adding interaction terms for gender and marital status categories to assess the potential significance of each (results of full models shown in AppendixTable A1). Finally, as we have indicated, we have also run each set of analyses separately for men and for women (results shown in AppendixTables A2–A4).

3. Results

3.1. Descriptive statistics

The data in Table 1 show descriptive information for the variables in our analysis, for the full sample and for women and men separately. The well-being indicators include scores on all three dependent variables at both time periods. Average scores on the depression variables at Times 1 and 2 are not comparable, given the measurement issues discussed above, but average scores for both self-reported physical health and life satisfaction are lower at Time 2 than at Time 1. This is not surprising in an elderly population. The mean score for life satisfaction decreased from 3.6 at Time 1 to 3.4 at Time 2, and the mean score for self-rated physical health dropped from 3.9 to 2.4. Both the reported levels of life satisfaction and the declines in those levels were very similar for men and women over time. Men reported better physical health than women at both survey waves, although women and men reported comparable declines in health over time. Men also reported lower levels of depression than women at both points in time.

The independent variables of greatest interest in this research are the marital status variables and the majority of the sampled men (88 percent) and women (78 percent) were married at both points in time. Very low percentages reported being in a cohabiting relationship at either interview (0.06 percent of combined sample) and only slightly higher percentages were never married, although men were significantly more likely than women to fall in that category (1.7 versus .07 percent). Not surprisingly, women were much more likely than men to be widowed at both waves of the survey (17.8 versus 7.0 percent), or to become widowed during the interim (2.9 versus 1.6 percent). Although slightly higher percentages of men than women reported being

divorced at both survey dates or becoming divorced in the interval, these differences are not statistically significant. Overall, the percentage of women not in union at both T1 and T2 (roughly 19 percent) is almost twice as high as that of men (10 percent); and the proportion of women experiencing union dissolution during the two years (2.95 percent) is greater than the percentage of men whose unions ended (1.9 percent). In contrast, the percentage of men entering a union (0.41 percent) appears higher that of women (0.13 percent), but again, that difference is not statistically significant.

The men and women in our sample had on average more than two living children; approximately three quarters of the sample had at least one child living nearby and close to half were living with at least one of their children. The mean age of both men and women was 61.3 and the sample is evenly divided by gender. Approximately 44 percent of respondents were living in an urban area when they were interviewed in 2010. Men reported completing more years of schooling, on average, than women and having higher levels of savings.

The data in Table 2 show mean depression, life satisfaction, and physical health scores according to each of the independent variables. Those who were married at both points in time appear to have fared better than those in nearly all other marital status categories in a number of ways. Compared to those who were married in both years: (1) those who were cohabiting at both time points reported lower scores on life satisfaction; (2) those who had never been married had higher depression scores and lower levels of life satisfaction; (3) those who were divorced at both time points had lower levels of life satisfaction; and (4) those who were widowed at both points in time reported higher depression scores and worse physical health scores. (5) Those whose unions dissolved through divorce or widowhood had worse depression and lower life satisfaction scores, and (6) those who became widowed during the interval also reported worse physical health than did those who remained married at both time points. The one exception to this pattern is that those who were not in union at time 1, but entered a union by time 2, reported better physical health scores than those who were married at both times.

Results also suggest that those with no living children have comparatively high levels of depression and low levels of life satisfaction. Those with one child reported the lowest levels of depression and the best physical health scores. Those with two or more children reported greater life satisfaction scores than those at lower parities. Those with at least one co-resident child reported being in significantly better physical health than those without, as did those with at least one child living nearby.

Not surprisingly, results suggest that depression and physical health scores worsen with age. Interestingly, however, life satisfaction scores are shown to improve with age. As noted above, women reported worse depression and physical health scores than men. Rural residents reported worse depression, worse physical health, and lower levels of satisfaction with life than their urban counterparts. And those with less education and those with lower levels of savings reported greater depression, lower life satisfaction scores, and worse physical health than did those with more formal schooling and more savings. At the bivariate level, results are thus largely consistent with expectations.

3.1.1. Physical health

In Table 3, we present regression models for self-reported physical health using the full sample. In Model 1, health is regressed only on the marital status variables, with controls for age and gender. Consistent with what was shown in Table 2 (without controls for other variables), becoming widowed in the interval affects physical health negatively, as does increasing age, and being female. Having been widowed at both interview dates is not significant once age and gender are controlled, but net of age and gender, never having been married has a negative impact on physical health.

Table 5
Ordered logistic regression models for life satisfaction, 2010–2012.

	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Marital Status (ref=married in T1 & T2)				
Continuity				
Never married in T1 & T2	−0.925*** (0.27)	−0.923*** (0.28)	−0.793** (0.29)	−0.323 (0.33)
Cohabited in T1 & T2	−0.291 (1.02)	−0.273 (1.02)	−0.369 (0.88)	−0.267 (0.89)
Divorced in T1 & T2	−0.378 (0.28)	−0.414 (0.29)	−0.455 (0.28)	−0.379 (0.25)
Widowed in T1 & T2	−0.177* (0.09)	−0.164 (0.09)	−0.143 (0.09)	−0.095 (0.09)
Change				
Married in T1 -> Divorced in T2	−1.660* (0.67)	−1.673* (0.67)	−1.730* (0.71)	−1.365* (0.53)
Married in T1 -> Widowed in T2	−0.341 (0.20)	−0.328 (0.20)	−0.320 (0.19)	−0.313 (0.19)
Not in union in T1 -> In union in T2	0.361 (0.78)	0.359 (0.76)	0.311 (0.81)	0.416 (0.91)
Demographic Characteristics (T1)				
Female	0.060 (0.05)	0.064 (0.05)	0.144** (0.05)	0.178*** (0.05)
Age Group (ref= age 50–54)				
Age 55–59	0.093 (0.07)	0.095 (0.07)	0.154* (0.07)	0.125 (0.07)
Age 60–64	0.263*** (0.07)	0.268*** (0.07)	0.327*** (0.07)	0.239** (0.07)
Age 65–70	0.401*** (0.07)	0.423*** (0.08)	0.475*** (0.08)	0.433*** (0.08)
Age 70+	0.475*** (0.09)	0.500*** (0.09)	0.565*** (0.09)	0.497*** (0.09)
Availability of Children (T1)				
Number of children		−0.026 (0.02)	0.000 (0.02)	−0.003 (0.02)
Living with at least one child		0.066 (0.06)	0.045 (0.06)	0.018 (0.06)
Having no child living nearby		0.152* (0.07)	0.121 (0.07)	0.064 (0.07)
SES (T1)				
Urban residence			0.095 (0.05)	0.070 (0.05)
Years of schooling			0.024*** (0.01)	0.011 (0.01)
Logarithm of savings			0.013* (0.01)	0.007 (0.01)
Time 1 Well-being				
Life satisfaction				0.423*** (0.03)
Self-rated health				0.132*** (0.03)
Depression				−0.268***

(continued on next page)

Table 5 *(continued)*

	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
				(0.04)
Intercepts				
Cut point 1	−2.785***	−2.770***	−2.418***	−1.092***
Cut point 2	−1.509***	−1.494***	−1.139***	0.242
Cut point 3	0.373***	0.391***	0.753***	2.254***
Cut point 4	1.660***	1.678***	2.044***	3.615***
Pseudo *R*-squared	0.004	0.005	0.007	0.038
N	9831	9831	9831	9831

Weighted data are used.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Controlling for the presence of children (Model 2) does not mediate the significance of any of these effects, although the size of some of the coefficients, particularly for age categories, is reduced. Results indicate that having had more children is associated with being in worse physical health, but actually living with at least one child is associated with better health reports. Thus it is unlikely that the fact that a child is co-resident is the result of a parent's poor health. Net of these factors, adults who entered a union during the interval are found to be in better health than those who were married at both time points.

As we have indicated, socioeconomic status and place of residence are often associated both with fertility levels and with better access to health care, and these variables are controlled in Model 3. As anticipated, higher educational attainment and more savings are both associated with better physical health, and once these variables are controlled, the negative effect on health of number of living children becomes non-significant. In addition, while the dummy variable for having been never-married at both time points remains statistically significant, the size of the coefficient is reduced, as are the coefficients for gender, the age dummies, and living with at least one child.

In Model 4, we control for physical and mental health reports at Time 1. Not surprisingly, those in better physical health at Time 1 reported being in better health at Time 2. Those who were more satisfied with life at Time 1 reported better physical health at Time 2, and those who had worse depression scores at Time 1 reported worse physical health at Time 2. Once these other variables are controlled, none of the marital status variables or child proximity variables remain significant, nor does gender or most of the age dummy variables. Net of other factors, higher education and savings continue to affect physical health scores positively, however.

Including formal interactions for gender and each marital status category does not change results for Table 3 substantially (see Appendix Table A1), although the effect of becoming widowed in the interview is no longer significant. In addition, all of the coefficients for the interaction terms are non-significant, with the exception of *Female×Married in T1 -> Divorced in T2*. That coefficient is very large and negative, and likely results from the very small number of women who became divorced between the two interviews.

In regressions run separately for women and for men (see Appendix Table A2), we find further evidence that a number of the results from the analysis of the combined file may be being driven by underlying gender differences, again perhaps partly because of the number of cases in marital status categories. For example, in addition to the large negative effect of becoming divorced that is observed for women, (1) the deleterious effect of becoming widowed during the interval is statistically significant for women, but not men, (2) never having been married is significant and negatively associated with men's health reports but not women's, and (3) entering a union during the interval provides positive health benefits for men, but not women. It is

important to note that it is of course possible that a man's earlier and ongoing poor socioeconomic position and/or physical health may be part of the reason he never married. The size of the coefficient for being never-married is substantially reduced and the effect becomes non-significant once Time 1 socioeconomic variables are controlled and further reduced once physical and mental health reports are controlled.

The negative effect of higher fertility is significant only for women (Models 2–4) and the size and significance of the coefficient are reduced with SES controls (Model 3). The positive impact of living with at least one child is significant only for men, and is also somewhat mediated with SES controls.

3.1.2. Depression

In Table 4, we show OLS regressions predicting depression scores in 2012. Again, those who were married at both survey dates comprise the reference category when we analyze marital status effects. They appear to fare better than those in most other marital status categories with the exception of those in ongoing cohabiting unions, for whom significant effects are not observed, and those who entered a union during the interval, who reported lower levels of depression than those married at both points in time.

Consistent with results shown in Table 2, those who were never-married or widowed at both time points, as well as those who became divorced or widowed during the interval, reported worse depression than those who were married at both interviews. Most of these effects remain significant across models. In addition, those who were divorced at both points in time (not significant in Table 2) reported worse depression than their consistently married counterparts, and this effect is seen to strengthen when child proximity and SES variables are controlled in Models 2 and 3.

Women continue to report worse depression than men, net of other factors. Only those aged 70 and above are found to have worse depression scores than younger adults once gender and marital status are controlled, though, and that effect disappears once child proximity variables are controlled in Model 2. Those with more children reported worse depression than those with fewer living children, and although the size of the coefficient is reduced with SES and Time 1 health variables controlled, the variable remains significant in Models 2–4. Interestingly, having no child living nearby is observed to be associated with lower levels of depression in Model 2, but the effect becomes non-significant once SES variables are controlled in Model 3.

As was true of the protective effect of education and savings on physical health, those with higher levels of education and more money in savings reported lower levels of depression. While no effect of place of residence was observed for physical health, those living in rural areas reported worse depression scores than their urban counterparts. As anticipated, those who were more depressed, less satisfied with life, and in worse physical health at Time 1 also had worse depression scores at Time 2 than did their healthier and more satisfied Time 1 counterparts.

When interaction terms are added to these models, only *Female×Never married at T1 & T2* (negative in all models) and *Female×(Not in union at T1 -> In union at T2)* (positive, but only in Model 2) are statistically significant. (Again, see Appendix Table A1 for results of the full model). Runs done separately for men and women and shown in Appendix Table A3 help clarify these findings. First, across models, men who were never-married at both points in time reported higher depression scores than those who were married at both interviews, although the coefficient is reduced with the addition of the SES controls, and is weakened further when Time 1 health variables are added to the model. Among women, however, being never-married at both time points is associated with *lower* depression scores than was true for those married at both interviews, and although the size of the coefficient decreases with the addition of controls in Models 2 and 3, it is not further reduced when Time 1 health measures are controlled. Second, the effect of entering a union between 2010 and 2012 again appears to be driven primarily by the male subsample for whom finding

a partner during the interval is associated with lower depression scores, even once Time 1 depression, life satisfaction, and health measures are accounted for.

Women with more living children reported greater depression than those with fewer children, and this effect holds across models. For men, the result is in the same direction in Model 2, but the effect loses significance once other variables are controlled. Results to this point thus suggest that there is potential support both for the buffering nature of family ties and for their stressful nature. And there is evidence that gender may be important in determining which of these is true under which circumstances. We discuss this further below.

3.1.3. Life satisfaction

The ordered logistic regression models shown in Table 5 provide information about the relationship between continuity and change in marital status and life satisfaction. Once again, being never-married at both interviews is shown to adversely affect this well-being indicator, resulting in lower levels of life satisfaction than those observed for individuals who were married at both time points. This effect remains significant when child proximity and SES variables are controlled, but loses significance when Time 1 health indicators are included in the models.

Those who became divorced in the interval reported lower levels of life satisfaction than did the continuously married, and this is significant across models. Those who were widowed at both time points reported being less satisfied with life than the continuously married, but the effect is significant only in Model 1. In this case, the presence (or absence) of children may help buffer the effect of widowhood on life satisfaction. Having no child living nearby is associated with slightly elevated scores on life satisfaction (Model 2 only).

Older age is generally associated with *increasing* life satisfaction, net of all other factors; and once SES is controlled, women also reported greater satisfaction with life than did men. The effects of increased education and savings remain positive for satisfaction scores, but they lose significance once Time 1 health indicators are controlled.

Somewhat surprising is that *Female×Cohabiting at both points in time* is significant and positive across models. More consistent with expectations, *Female ×Becoming widowed in the interval* is significant and negative, also across models. Results run separately for men and women and shown in Appendix Table A4 indicate that men who were cohabiting at both time points reported lower levels of satisfaction with life than did their continuously married counterparts (significant with all other variables controlled), but this was not true among women. It is not clear why this would be the case, although because there are very few men in the sample who reported being in cohabiting unions at both surveys, this result should be interpreted with caution.

More in line with expectations, women who became widowed in the interval reported lower levels of life satisfaction than did their married counterparts. This effect is significant across models for women and is not buffered by the presence of children. The negative effect of being widowed is not observed for men. However, having no child living nearby does appear to improve life satisfaction for men. Why this would be the case is not clear. Interestingly, having more education and savings is significant and positive for men but not women. Finally, once again, as anticipated, those who were more satisfied with life, less depressed, and in better physical health at Time 1 all reported greater life satisfaction at Time 2 (true for both men and women).

4. Summary and conclusions

In analyzing recent nationally representative data for China, we have endeavored to understand whether there are differences in physical and mental health outcomes among older Chinese individuals according to marital status and changes in marital status between two points in time. We have also attempted to see whether there are

buffering (or exacerbating) effects of co-residence with or proximity to children, and if so, to ascertain whether those effects might be enhanced or reduced once socioeconomic status is controlled. We have analyzed the ways in which the answers to our research questions might vary according to the gender of the respondent. These matters are all critically important in a context in which support for the elderly is still expected to come primarily from family members, and where society is expected to face significant challenges associated with population aging, changing household structures, and inadequately developed pension, healthcare and social security systems.

We contribute to the literature in a number of ways. We have three indicators of health and well-being that, combined, provide a compelling picture of the importance of having a partner as one enters older ages in the context of China. Although one might expect analyses of depression and life satisfaction to draw similar conclusions, our results suggest that these variables capture several distinct aspects of life for older adults in China. By and large, we find that those who were formally married at both points in time fared better than those who were not, and than those whose unions dissolved through divorce or widowhood during the interval. Thus both the marital resources argument and the crisis argument have received some support (Goldman, Korenman, & Weinstein, 1995; Williams & Umberson, 2004). We find very little evidence to suggest that the presence or absence of children effectively buffers the marital status effects, although we do observe some positive effects on health of intergenerational co-residence. In addition, we find some important differences according to gender, both in the physical and emotional health reports of men and women, and in what predicts better outcomes for each at older ages. We are able to control for Time 1 health indicators to reduce the possibility that selection effects regarding health are operating.

Several specific findings pertaining to marital status are worth reemphasizing. First, counter to expectations, we observed few significant differences between being in a cohabiting partnership and being in formal/legal one, except on the measure on life satisfaction. We did find that men who were in cohabiting unions at both time points were less satisfied with life than were their legally married counterparts, net of presence of children and other factors, but this is based on a very small number of cases and, as we have said, is a finding that must be read with caution. Being without a partner at all, either because one was never-married, or because one was widowed or divorced, was much more consequential for health and emotional well-being. For example, *physical health* was adversely affected by being never married (mainly for men) and by becoming widowed in the interval (mainly for women). Becoming widowed also resulted in worse depression and lower life satisfaction, mainly for women. These findings should be a matter of ongoing policy concern. Although based on very few cases, it also appears that becoming divorced in the interval may have especially detrimental effects on women (a result that should also be interpreted with caution). We noted earlier that divorce rates have risen in China in recent years, and the effects of divorce on health should be studied in future research with larger samples of divorced respondents.

For the full sample, *depression* scores were adversely affected by being widowed, divorced, or never-married, and by having a union dissolve during the interval. Effects on depression of never having been married operated in different directions for men (positively) and women (negatively), however, and the reasons for this should be pursued in future studies, we anticipate that increasing numbers of Chinese adults will opt out of marriage, as has happened elsewhere in Asia, and that this may affect men and women differently. (Interestingly, particularly for men, those entering a marital or cohabiting union during the interval reported both lower depression scores and better physical health scores than their continuously married counterparts).

Based on these findings we cannot conclude that marriage is more protective for women or for men, but we can conclude that it is

protective for both, sometimes in different ways. Although Li et al. (2005) did not find gender differences in depression in their analysis of data from Wuhan, we have found important overall gender differences for physical health, depression and life satisfaction. We assessed the possibility that those differences would be attenuated once socioeconomic factors were controlled, in part because men exert greater control over financial resources. Although the coefficients for depression and physical health do become smaller when those variables are included in the analysis, women nonetheless remain significantly more depressed and less healthy physically than men, net of all covariates. Interestingly, once socioeconomic status is controlled, women also report being somewhat more satisfied with life than men, so socioeconomic status may partially explain some of the gender differences observed for that measure of well-being.

Although controlling for the presence or absence of children altered few of our marital status findings, we can make some observations pertaining to the direct relationship between child availability and health. For example, living with at least one child appears to exert a positive effect on older persons' physical health (significant for men, but not women), net of other factors. This finding challenges the notion that, on balance, the health of older adults may suffer due to strain or conflict when they co-reside with their adult children. Further, if selection effects were operating, the reverse would probably be observed. In the extensive literature on children's support for aging parents, it is commonly found that adult children are particularly likely to co-reside with a parent who is in poor physical or emotional health and who is thus in need of regular care.

Interestingly, however, those without a child nearby were both less depressed and more satisfied with life (both mainly true for men) than those with a child nearby. It is possible that selection effects are operating in that case. As Giles and Mu (2007) and other scholars have argued, adult children of healthier adults may be more able to migrate for employment, compared to those who must stay closer to home (or to return home) to provide assistance to an ill or disabled parent. Although we do not examine any of the child availability results separately for sons and daughters, or for biological, step, and adopted children, these matters are potentially consequential and should be considered in future research. See, for example, work done by Cong and Silverstein (2014) on the importance of gender in determining parents' preferred caregivers in rural China.

For physical health, we find evidence to suggest that the death of a spouse during the interval can result in worse outcomes than losing a spouse longer ago. This is consistent with the argument that although a spousal death has profoundly adverse effects on both mental and physical health outcomes, the consequences of a more recent loss are likely to be worse (Li et al., 2005; Lund & Dimond, 1993; Norris & Murrell, 1990; De Leon, Kasl, & Jacobs, 1994). The depression results also suggest that a more recent union dissolution may result in worse depression than a divorce or a spousal death that occurred longer ago. Although this was not the primary focus of our research, it is another important topic for further study and possible policy intervention. In addition, future research should also assess whether the negative impact of union dissolution on physical and mental health may dissipate differently by gender over time (Williams & Umberson, 2004).

Our study has some methodological strengths. First, we are able to analyze a large probability sample collected from nationally representative regions rather than using data collected in a single municipality or province. Thus, greater heterogeneity of the population is captured in this research. Second, unlike previous papers that focused mostly on the oldest old (Li et al., 2009) or those over the retirement age (Ren & Treiman, 2014), we are able to examine the effects of marriage and living arrangements on well-being among both the older old and the younger old. In addition, because we have panel data, we are able to focus not only on static marital status, but also to account for change over time. That said, looking only at a short period of time and only at

two observation points limits the story we are able to tell.

We acknowledge several other limitations in our study. First, as we have indicated, there was some selective attrition from the sample between the two interviews. This is not uncommon in panel studies, especially those in which older adults are interviewed (Li et al., 2005). Second, while we have attempted to differentiate marital status categories based on continuity and change, we have had to combine or omit several categories that might otherwise lead to interesting results. For example, because there were relatively few who transitioned from being never-married, divorced, or widowed at Time 1 to married or cohabiting at Time 2, they were pooled into a single category. It is thus not possible to distinguish the effects of union entry on well-being among people who were previously widowed, divorced or never-married. We are also not able to identify those who experienced more than one union transition within the two-year interval. Finally, we cannot say anything about the quality of the relationships that are central to this research, either spousal or intergenerational, and the benefits they might provide or the stress they might cause. We can only infer from observed patterns that having a partner (married, or in some instances, cohabiting) is physically and psychologically important. As has been done in other settings, we recommend that future research in the context of China include information that directly examines the quality of both spousal relationships and intergenerational relationships. In addition, because cohabitation may become increasingly common in China, future research should assess the extent to which cohabiting relationships compare to formal legal ones when it comes to health and emotional well-being among older Chinese.

Acknowledgements

Appendix A

See Tables A1–A4.

Table A1
Regression models with interactions of female and marital status for self-rated health, depression, and life satisfaction, 2010–2012.

	Self-rated Health Model 4 b/se	Depression Model 4 b/se	Life Satisfaction Model 4 b/se
Female **(T1)**	−0.055 (0.06)	0.067*** (0.01)	0.207*** (0.06)
Marital Status (ref=married in T1 & T2)			
Continuity			
Never married in T1 & T2	−0.175 (0.28)	0.182** (0.06)	−0.249 (0.34)
Cohabited in T1 & T2	−0.102 (0.53)	−0.199 (0.19)	−1.963** (0.64)
Divorced in T1 & T2	−0.090 (0.38)	0.143 (0.08)	−0.510 (0.33)
Widowed in T1 & T2	0.016 (0.14)	0.095** (0.03)	−0.060 (0.14)
Female× Never married in T1 & T2	0.026 (0.86)	−0.524*** (0.11)	−1.479 (0.90)
Female× Cohabited in T1 & T2	2.816 (1.72)	0.065 (0.30)	2.247* (0.88)
Female× Divorced in T1 & T2	0.031 (0.48)	0.065 (0.11)	0.275 (0.51)
Female× Widowed in T1 & T2	−0.128 (0.17)	−0.061 (0.04)	−0.056 (0.17)
Change			
Married in T1 -> Divorced	0.678	0.202	−1.325*

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Table A1 *(continued)*

	Self-rated Health Model 4 b/se	Depression Model 4 b/se	Life Satisfaction Model 4 b/se
in T2			
	(0.84)	(0.11)	(0.53)
Married in T1 - > Widowed in T2	−0.427	0.099	0.375
	(0.33)	(0.06)	(0.29)
Not in union in T1 - > In union in T2	1.109*	−0.219*	0.823
	(0.50)	(0.09)	(0.98)
Female × Married in T1 - > Divorced in T2	−21.562***	0.308	−3.407*
	(1.26)	(0.18)	(1.69)
Female × Married in T1 - > Widowed in T2	0.173	0.101	−1.107**
	(0.39)	(0.09)	(0.37)
Female × Not in union in T1 - > In union in T2	−1.155	0.193	−2.148
	(2.16)	(0.23)	(1.78)
Age Group (ref= age 50–54) (T1)			
Age 55–59	−0.122	−0.012	0.123
	(0.07)	(0.01)	(0.07)
Age 60–64	−0.237**	−0.012	0.242**
	(0.08)	(0.02)	(0.07)
Age 65–70	−0.157	−0.030	0.438***
	(0.10)	(0.02)	(0.08)
Age 70+	−0.134	−0.034	0.486***
	(0.09)	(0.02)	(0.09)
Availability of Children (T1)			
Number of children	−0.034	0.012*	−0.003
	(0.02)	(0.00)	(0.02)
Living with at least one child	0.095	0.012	0.022
	(0.06)	(0.01)	(0.06)
Having no child living nearby	0.035	−0.008	0.063
	(0.07)	(0.01)	(0.07)
SES (T1)			
Urban residence	−0.101	−0.069***	0.067
	(0.05)	(0.01)	(0.05)
Years of schooling	0.020***	−0.011***	0.011
	(0.01)	(0.00)	(0.01)
Logarithm of savings	0.034***	−0.004**	0.008
	(0.01)	(0.00)	(0.01)
Time 1 Well-being			
Life satisfaction	0.078**	−0.041***	0.423***
	(0.03)	(0.01)	(0.03)
Self-rated health	0.770***	−0.056***	0.130***
	(0.03)	(0.01)	(0.03)
Depression	−0.131**	0.167***	−0.269***
	(0.05)	(0.01)	(0.04)
Intercepts			
Cut point 1	2.155***	−	−1.098***

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Table A1 *(continued)*

	Self-rated Health Model 4 b/se	Depression Model 4 b/se	Life Satisfaction Model 4 b/se
Cut point 2	3.335***	–	0.238
Cut point 3	5.128***	–	2.255***
Cut point 4	6.576***	–	3.618***
Constant	–	1.825*** (0.04)	–
Pseudo *R*-squared	0.084	–	0.039
Adjusted *R* Square	–	0.239	–
N	9831	9831	9831

Weighted data are used.
* *p* < 0.05.
** *p* < 0.01.
*** *p* < 0.001.

Table A2
Ordered logistic regression models for self-rated physical health, by gender, 2010–2012.

	Female				Male			
	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Marital Status (ref=married in T1 & T2)								
Continuity								
Never married in T1 & T2	−0.708 (1.42)	−0.898 (1.48)	−1.301 (1.55)	−0.268 (0.80)	−0.576* (0.25)	−0.517* (0.26)	−0.369 (0.27)	−0.008 (0.30)
Cohabited in T1 & T2	3.394 (1.96)	3.305 (1.96)	3.017 (1.92)	2.614 (1.60)	−0.054 (0.58)	−0.057 (0.55)	0.226 (0.48)	−0.086 (0.49)
Divorced in T1 & T2	0.145 (0.38)	0.079 (0.38)	−0.090 (0.35)	−0.075 (0.28)	−0.078 (0.42)	−0.074 (0.42)	−0.020 (0.41)	−0.046 (0.38)
Widowed in T1 & T2	−0.152 (0.10)	−0.158 (0.10)	−0.154 (0.10)	−0.144 (0.11)	0.056 (0.14)	0.036 (0.14)	0.114 (0.14)	0.071 (0.15)
Change								
Married in T1 -> Divorced in T2	−21.299*** (0.79)	−21.419*** (0.79)	−20.963*** (0.78)	−21.666*** (0.95)	0.118 (0.54)	0.158 (0.54)	0.069 (0.51)	0.734 (0.86)
Married in T1 -> Widowed in T2	−0.520* (0.21)	−0.505* (0.21)	−0.509* (0.21)	−0.258 (0.22)	−0.198 (0.31)	−0.192 (0.31)	−0.179 (0.32)	−0.380 (0.33)
Not in union in T1 -> In union in T2	−0.518 (1.20)	−0.600 (1.19)	−0.526 (1.30)	0.000 (2.08)	1.130** (0.37)	1.169** (0.36)	1.129** (0.36)	1.162* (0.50)
Age Group (ref= age 50–54) **(T1)**								
Age 55–59	−0.182 (0.09)	−0.151 (0.10)	−0.072 (0.10)	−0.106 (0.10)	−0.333*** (0.09)	−0.313*** (0.09)	−0.205* (0.10)	−0.138 (0.10)
Age 60–64	−0.315** (0.10)	−0.232* (0.11)	−0.167 (0.11)	−0.211 (0.11)	−0.442*** (0.10)	−0.402*** (0.10)	−0.230* (0.10)	−0.243* (0.10)
Age 65–70	−0.241 (0.12)	−0.086 (0.13)	−0.021 (0.13)	0.002 (0.14)	−0.633*** (0.12)	−0.579*** (0.12)	−0.425*** (0.13)	−0.288* (0.13)
Age 70+	−0.249* (0.12)	−0.058 (0.13)	0.017 (0.13)	0.053 (0.14)	−0.727*** (0.11)	−0.657*** (0.12)	−0.425** (0.13)	−0.296* (0.13)
Availability of Children (T1)								
Number of children		−0.100*** (0.03)	−0.068* (0.03)	−0.068* (0.03)		−0.027 (0.03)	−0.011 (0.03)	0.002 (0.03)
Living with at least one child		0.147 (0.09)	0.133 (0.09)	−0.033 (0.09)		0.218** (0.08)	0.209* (0.08)	0.216* (0.09)
Having no child living nearby		0.089 (0.10)	0.042 (0.10)	0.013 (0.10)		0.130 (0.10)	0.097 (0.10)	0.058 (0.10)
SES (T1)								

Table A2 *(continued)*

	Female				Male			
	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Urban residence			0.032 (0.07)	−0.112 (0.08)			0.005 (0.07)	−0.079 (0.08)
Years of schooling			0.032*** (0.01)	0.018* (0.01)			0.037*** (0.01)	0.020* (0.01)
Logarithm of savings			0.028** (0.01)	0.027** (0.01)			0.048*** (0.01)	0.041*** (0.01)
Time 1 Well-being								
Life satisfaction				0.055 (0.04)				0.103** (0.04)
Self-rated health				0.776*** (0.04)				0.765*** (0.04)
Depression				−0.133* (0.06)				−0.127 (0.07)
Intercepts								
Cut point 1	−0.858***	−0.955***	−0.586***	2.049***	−1.502***	−1.404***	−0.710***	2.336***
Cut point 2	0.063	−0.029	0.349**	3.157***	−0.434***	−0.333**	0.376*	3.598***
Cut point 3	1.662***	1.574***	1.960***	4.936***	1.209***	1.312***	2.037***	5.407***
Cut point 4	3.031***	2.942***	3.329***	6.360***	2.620***	2.724***	3.451***	6.874***
Pseudo R-squared	0.004	0.005	0.009	0.084	0.008	0.009	0.015	0.078
N	4842	4842	4842	4842	4989	4989	4989	4989

Weighted data are used.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table A3
OLS regression models for depression, by gender, 2010–2012.

	Female				Male			
	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Marital Status (ref=married in T1 & T2)								
Continuity								
Never married in T1 & T2	−0.487*** (0.03)	−0.368*** (0.03)	−0.204*** (0.04)	−0.312** (0.09)	0.353*** (0.06)	0.398*** (0.06)	0.287*** (0.06)	0.147* (0.06)
Cohabited in T1 & T2	−0.297 (0.33)	−0.238 (0.32)	−0.150 (0.28)	−0.140 (0.23)	−0.148 (0.24)	−0.152 (0.23)	−0.225 (0.25)	−0.212 (0.19)
Divorced in T1 & T2	0.099 (0.09)	0.138 (0.08)	0.236** (0.08)	0.201** (0.07)	0.162 (0.09)	0.186* (0.09)	0.154 (0.08)	0.137 (0.08)
Widowed in T1 & T2	0.085** (0.03)	0.081** (0.03)	0.074** (0.03)	0.040 (0.02)	0.126*** (0.04)	0.128*** (0.04)	0.091** (0.04)	0.083** (0.03)
Change								
Married in T1 -> Divorced in T2	0.293*** (0.07)	0.348*** (0.08)	0.439*** (0.08)	0.511*** (0.15)	0.286* (0.14)	0.310* (0.14)	0.376** (0.13)	0.207 (0.11)
Married in T1 -> Widowed in T2	0.256*** (0.07)	0.250*** (0.07)	0.246*** (0.07)	0.203** (0.06)	0.068 (0.07)	0.067 (0.07)	0.072 (0.07)	0.088 (0.06)
Not in union in T1 -> In union in T2	0.077 (0.15)	0.111 (0.15)	0.089 (0.15)	−0.040 (0.22)	−0.219*** (0.04)	−0.216*** (0.04)	−0.189** (0.06)	−0.218* (0.09)
Age Group (ref= age 50–54) (T1)								
Age 55–59	0.023 (0.02)	0.013 (0.02)	−0.017 (0.02)	−0.013 (0.02)	0.032 (0.02)	0.029 (0.02)	−0.011 (0.02)	−0.012 (0.02)
Age 60–64	0.019	−0.012	−0.031	−0.023	0.030	0.021	−0.030	−0.006

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Table A3 (continued)

	Female				Male			
	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Age 65–70	−0.000	−0.064*	−0.082**	−0.067*	0.056*	0.034	−0.003	0.000
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)
Age 70+	0.020	−0.061	−0.072*	−0.068*	0.072**	0.037	−0.013	−0.004
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Availability of Children (T1)								
Number of children		0.046***	0.025**	0.023***		0.026***	0.006	0.001
		(0.01)	(0.01)	(0.01)		(0.01)	(0.01)	(0.01)
Living with at least one child		−0.017	−0.002	0.022		−0.016	0.001	0.004
		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
Having no child living nearby		−0.025	−0.006	0.000		−0.053*	−0.028	−0.016
		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
SES (T1)								
Urban residence			−0.079***	−0.046**			−0.107***	−0.090***
			(0.02)	(0.02)			(0.02)	(0.01)
Years of schooling			−0.015***	−0.011***			−0.017***	−0.011***
			(0.00)	(0.00)			(0.00)	(0.00)
Logarithm of savings			−0.004	−0.003			−0.006**	−0.004*
			(0.00)	(0.00)			(0.00)	(0.00)
Time 1 Well-being								
Life satisfaction				−0.053***				−0.031***
				(0.01)				(0.01)
Self-rated health				−0.058***				−0.053***
				(0.01)				(0.01)
Depression				0.163***				0.170***
				(0.01)				(0.01)
Constant	1.713***	1.639***	1.796***	1.909***	1.558***	1.527***	1.780***	1.813***
	(0.02)	(0.03)	(0.03)	(0.06)	(0.01)	(0.02)	(0.03)	(0.05)
Adjusted R Square	0.015	0.029	0.061	0.215	0.030	0.037	0.100	0.231
N	4842	4842	4842	4842	4989	4989	4989	4989

Weighted data are used.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table A4
Ordered logistic regression models for life satisfaction, by gender, 2010–2012.

	Female				Male			
	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se
Marital Status (ref=married in T1 & T2)								
Continuity								
Never married in T1 & T2	−1.569	−1.617	−1.825*	−1.720*	−0.905**	−0.856**	−0.694*	−0.102
	(0.88)	(0.89)	(0.92)	(0.87)	(0.28)	(0.30)	(0.31)	(0.36)
Cohabited in T1 & T2	0.289	0.261	0.132	0.311	−1.815***	−1.774***	−1.603***	−1.963**
	(0.74)	(0.73)	(0.70)	(0.60)	(0.41)	(0.43)	(0.47)	(0.71)
Divorced in T1 & T2	−0.119	−0.138	−0.245	−0.190	−0.638	−0.684	−0.628	−0.539
	(0.42)	(0.42)	(0.42)	(0.37)	(0.37)	(0.38)	(0.37)	(0.34)
Widowed in T1 & T2	−0.228*	−0.223*	−0.211	−0.125	−0.078	−0.071	−0.007	−0.038

Table A4 *(continued)*

	Female				Male			
	Model 1 b/se	**Model 2** b/se	**Model 3** b/se	**Model 4** b/se	**Model 1** b/se	**Model 2** b/se	**Model 3** b/se	**Model 4** b/se
	(0.11)	(0.11)	(0.11)	(0.11)	(0.14)	(0.14)	(0.14)	(0.14)
Change								
Married in T1 -> Divorced in T2	−4.006[***] (1.18)	−4.030[***] (1.19)	−4.127[***] (1.19)	−4.580[**] (1.57)	−1.684[*] (0.69)	−1.687[*] (0.68)	−1.763[*] (0.72)	−1.341[*] (0.53)
Married in T1 -> Widowed in T2	−0.799[***] (0.22)	−0.795[***] (0.22)	−0.786[***] (0.22)	−0.734[***] (0.22)	0.494 (0.32)	0.512 (0.32)	0.523 (0.31)	0.409 (0.30)
Not in union in T1 -> In union in T2	−1.647 (1.44)	−1.665 (1.44)	−1.682 (1.44)	−1.313 (1.43)	0.809 (0.79)	0.799 (0.75)	0.737 (0.83)	0.826 (1.04)
Age Group (ref= age 50–54) (T1)								
Age 55–59	0.151 (0.09)	0.154 (0.09)	0.188[*] (0.09)	0.161 (0.09)	0.022 (0.10)	0.026 (0.10)	0.115 (0.10)	0.093 (0.10)
Age 60–64	0.256[**] (0.10)	0.266[**] (0.10)	0.284[**] (0.10)	0.227[*] (0.10)	0.276[**] (0.10)	0.281[**] (0.10)	0.399[***] (0.10)	0.278[**] (0.11)
Age 65–70	0.425[***] (0.11)	0.448[***] (0.11)	0.468[***] (0.12)	0.424[***] (0.12)	0.389[***] (0.11)	0.410[***] (0.11)	0.513[***] (0.11)	0.480[***] (0.12)
Age 70+	0.516[***] (0.13)	0.544[***] (0.13)	0.553[***] (0.14)	0.505[***] (0.13)	0.409[***] (0.12)	0.429[***] (0.12)	0.583[***] (0.13)	0.500[***] (0.13)
Availability of Children (T1)								
Number of children		−0.018 (0.03)	0.006 (0.03)	−0.005 (0.03)		−0.032 (0.03)	−0.009 (0.03)	−0.003 (0.03)
Living with at least one child		0.000 (0.09)	−0.021 (0.09)	−0.067 (0.09)		0.139 (0.09)	0.122 (0.09)	0.122 (0.09)
Having no child living nearby		0.018 (0.10)	−0.006 (0.10)	−0.057 (0.10)		0.281[**] (0.10)	0.247[*] (0.10)	0.186 (0.10)
SES (T1)								
Urban residence			0.094 (0.08)	0.025 (0.08)			0.098 (0.07)	0.110 (0.07)
Years of schooling			0.016 (0.01)	0.009 (0.01)			0.030[***] (0.01)	0.012 (0.01)
Logarithm of savings			0.005 (0.01)	0.002 (0.01)			0.028[**] (0.01)	0.018 (0.01)
Time 1 Well-being								
Life satisfaction				0.404[***] (0.04)				0.443[***] (0.04)
Self-rated health				0.085[*] (0.03)				0.184[***] (0.04)
Depression				−0.231[***] (0.06)				−0.329[***] (0.06)
Intercepts								
Cut point 1	−2.782[***]	−2.814[***]	−2.633[***]	−1.506[***]	−2.871[***]	−2.807[***]	−2.281[***]	−0.826[**]
Cut point 2	−1.518[***]	−1.550[***]	−1.367[***]	−0.199	−1.577[***]	−1.510[***]	−0.979[***]	0.549[*]
Cut point 3	0.316[***]	0.285[**]	0.471[***]	1.738[***]	0.366[***]	0.437[***]	0.983[***]	2.657[***]
Cut point 4	1.561[***]	1.529[***]	1.717[***]	3.046[***]	1.702[***]	1.775[***]	2.327[***]	4.080[***]
Pseudo *R*-squared	0.005	0.005	0.006	0.033	0.007	0.008	0.011	0.048
N	4842	4842	4842	4842	4989	4989	4989	4989

Weighted data are used.

[*] $p < 0.05$.
[**] $p < 0.01$.
[***] $p < 0.001$.

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