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CHENG Cheng

Singapore Management University, ccheng@smu.edu.sg

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Anticipated support from children and later-life health in the United States and China

Cheng Cheng

Department of Sociology, Office of Population Research, Princeton University

Published in *Social Science & Medicine* 179 (April 2017): 201–209

(<https://doi.org/10.1016/j.socscimed.2017.03.007>). Please cite the published version.

The author wishes to thank Sara McLanahan, Noreen Goldman, and Blair Wheaton for their valuable input to previous drafts of this article. This work was supported by the Eunice Kennedy Shriver National Institute of Child Health & Human Development of the National Institutes of Health under Award Number P2CHD047879 and Award Number T32HD007163. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health.

ABSTRACT

Past research has shown that anticipated support, the belief that someone will provide support if needed, benefits health. Few studies considered whether the relationship between anticipated support and health depends on the source of such support. This project addresses this gap and examines how anticipated support from children is related to older parents' health and whether such support can be replaced by anticipated support from other relatives and friends. Ordered logit and negative binomial regression models with lagged health outcomes were estimated using nationally representative data from the 2010 and 2012 Health and Retirement Study and the 2011 and 2013 China Health and Retirement Longitudinal Study. Results suggest that anticipated support from children is related to older parents' better self-rated health and fewer depressive symptoms in both countries. In the U.S. where filial norms are relatively weak, anticipated support from others is no less important for health than anticipated support from children. However, in China where filial norms are relatively strong, parents anticipating support only from others are no different in health from those anticipating support from no one.

Keywords: China; Social support; Aging; Cross-national comparisons; Intergenerational relationships

INTRODUCTION

Past research has extensively examined the association between social support and later-life health. Some focused on a particular source of social support, intergenerational support, and examined the relationship between support from children and older parents' health. Most research examined behavioral dimensions of intergenerational support, such as financial, emotional, and instrumental support exchanges (Cong and Silverstein, 2008; Djundeva et al., 2015). Few studies discussed how anticipated support from children, i.e., how parents' perception that their children will be there to help if needed in the future, as opposed to received support from children, may be related to parents' health. Anticipated support, independent of received support, is related to better mental health (Krause, 1997; Wethington and Kessler, 1986). However, most studies did not identify from whom one expects future support and merely examined how anticipating support from anyone is related to health. It is unclear whether the relationship between anticipated support and health depends on the source of such support. This paper thus attempts to address these gaps. How is anticipated support from children related to parents' health beyond observable support transfers? Does anticipated support from children offer any health advantage over anticipated support from others? Alternatively, is anticipated support from children a substitutable resource that can be replaced by other relatives and friends?

Furthermore, this project examines the relationship between anticipated support and health in two sociocultural contexts with distinct norms of filial obligations, the U.S. and China. While support from children induces feelings of dependency among elderly American parents (Dean et al., 1990), Chinese parents take pride in receiving support from children (Li et al., 2009). Chinese parents rely on their children for old-age support due to the cultural tradition of filial piety and inadequate social welfare system (LaFave, 2016). Intergenerational net financial

transfers flow from children to parents in China (Lei et al., 2015) but from parents to children in the U.S. (Swartz, 2009). 67% of parents over age 65 lived with adult children in China in 2005, compared to 18% in the U.S. (Zeng and Xie, 2014). While intergenerational coresidence in the U.S. helps adult children make life transitions (Swartz, 2009), intergenerational coresidence in China first responds to the need of adult children for childcare and later the need of elderly parents for old-age support (Zeng and Xie, 2014).

This study argues that in China where children's obligations to take care of their elderly parents are well-established, anticipated support from children may have an irreplaceable role concerning parents' later-life health. However, in the U.S. where filial obligations are relatively weak, parents may find anticipated support from other relatives and friends no less important for health than anticipated support from children.

THEORETICAL PERSPECTIVES

Anticipated support and health

Anticipated support is the belief that someone will provide support if needed in the future (Krause, 1997). Anticipated support differs from received support, as it is not directly observable. It is a respondent's perception. The term "perceived support," often used interchangeably with anticipated support (Wethington and Kessler, 1986), sometimes refers to perceived adequacy and satisfaction of received support (Cornman et al., 2003). However, anticipated support is one's belief about a hypothetical condition, i.e., the likelihood of getting support if needed in the future, rather than one's retrospective perception about past conditions. Although anticipated support is conceptually different from received and perceived support, those who received support when needed are more likely to believe that they will receive support if needed in the future (Lin and Wu, 2014).

Anticipated support is positively associated with psychological well-being, independent of received support in the U.S. and China (Krause, 1997; Krause et al., 1998; Wethington and Kessler, 1986). Perceived support availability produces senses of predictability, belonging, and meaning in life (Krause, 2007; Lansford et al., 2005). Believing that someone in the personal network is willing to help if needed promotes feelings of mastery and makes stressful situations seem less threatening and encourages personal problem solving (Krause et al., 1998).

However, prior research on anticipated support and health is limited in some critical ways. First, many studies were cross-sectional and could not account for reverse causality. Parents with poorer health and more depressive symptoms are less likely to anticipate support from their children probably because they do not want to burden their children (Lin and Wu, 2014). Mental illness may also alter the accuracy of one's cognitive schema for social relationships (Meadows, 2009). Hence, this study utilizes longitudinal data and controls for lagged health outcomes at baseline to reduce reverse causality.

Second, most studies focused on mental health outcomes. Few examined the relationship between anticipated support and general health status. Self-rated health is one's self-assessment of overall health status and is a better predictor of mortality than physicians' assessments in the U.S. and China (Li et al., 2011; Lynch, 2003). Received social support and perceived adequacy of received support are associated with better self-rated health in the U.S. (Krause, 1987; White et al., 2009) and China (Li et al., 2011; Liu et al., 1995). Therefore, this study examines both depressive symptoms and self-rated health. Prior depressive symptoms affect subsequent self-assessment of overall health (Han, 2002) and poorer self-rated health increases subsequent depressive symptoms (Kosloski et al., 2005). However, the association between social support and self-rated health is not entirely mediated by depressive symptoms (Zunzunegui et al., 2004).

Third, prior research had inadequate and inconsistent controls on factors associated with both anticipated support and health. Older adults may assess their chances of receiving support in the future based on their current social relationships. Older adults are more likely to anticipate support from those persons who had provided them with tangible support, who are emotionally close to them, and who live close to them (Krause, 2007; Lin and Wu, 2014). Prior instrumental and emotional support exchanges and living arrangements are related to later-life health (Cong and Silverstein, 2008; Djundeva et al., 2015). Anticipated support may also depend on the demographic and socioeconomic characteristics of older adults and their social network members, and these characteristics may be associated with health. For instance, divorced parents are less likely to anticipate support from their adult children, and divorce is related to worse health (Lin and Wu, 2014). Older parents' anticipation of future support may also depend on their children's well-being, and children's education is associated with parents' health (Torssander, 2013). Most studies were only able to control for a subset of the above factors, probably due to data limitations.

Finally, few studies identified the source of anticipated support and examined how the associations between anticipated support from various sources and health may differ. Older parents are more likely to anticipate instrumental support (i.e., help with daily activities such as eating and dressing) from their children than from others, but are no more likely to anticipate emotional support from their children than from others (Hogan and Eggebeen, 1995; Mancini and Simon, 1984). Thus if anticipating support from children offers an advantage over anticipating support from others, it would be most evident if we focus on anticipated instrumental support.

Hence, this project attempts to address these limitations in the literature. It uses longitudinal data to examine how anticipated support from children is associated with parents' general health and mental health and compares such relationships to the associations between anticipated support from others and later-life health. It accounts for prior health status, proximity and contacts with children, other relatives, and friends, past intergenerational support exchanges, and parents' and their children's demographic and socioeconomic characteristics to address the issues of endogeneity and spuriousness.

Sources of anticipated support and health

No work to the author's knowledge has examined how anticipated support from various sources may be related to later-life health. Few cross-sectional studies have compared received support from children versus others. Research in the U.S. tends to argue that support from children does not offer any health advantage over support from others. Although children are the primary source of emergency and instrumental support, American parents usually have alternative sources of support, such as friends and siblings (Hogan and Eggebeen, 1995). Support from friends exerts stronger negative effects on depressive symptoms than support from children (Dean et al., 1990). Elderly parents in frequent contact with their children but not their friends have worse health than those in frequent contact with their friends but not their children; those in regular contact with both their children and friends have the best mental health outcomes (Fiori et al., 2006). It may be because support from friends is voluntary and less constrained by norms (Matt and Dean, 1993), while intergenerational relationships are obligatory and support from children induces feelings of dependency (Dean et al., 1990).

However, in China, support from children may have an irreplaceable role concerning parents' later-life health. Filial piety, the norm that children should respect and take care of their

parents in later-life, is a central virtue (Zeng and Xie, 2014). Support from children is obligatory and socially desirable. Perceiving children as filial and receiving instrumental, financial, and emotional support from children are associated with fewer depressive symptoms and better self-rated health among elderly Chinese parents (Guo et al., 2015; Li et al., 2011; Silverstein et al., 2006; Xu et al., 2016). Furthermore, support from children may offer health advantage over support from others. Received instrumental and emotional support from children buffers the stress of spousal death while support from friends does not (Li et al., 2005). Elderly Chinese parents living with their children have better self-rated health than those living alone, while those living with others (not spouse or children) report no better health than those living alone (Li et al., 2009).

Therefore, this project hypothesizes that in the U.S., both anticipated support from children and anticipated support from others may be positively associated with later-life health, compared to no anticipated support. In China, only anticipated support from children may be positively associated with later-life health, compared to no anticipated support. Older parents anticipating support from others but not their children may be no different in health than those anticipating support from no one in China.

DATA

US data were from the Health and Retirement Study (HRS), a nationally representative survey of Americans over age 50, with interviews administered biennially since 1992. This study used 2010 and 2012 data from the HRS Core and RAND Contributed Files (v.N) (Health and Retirement Study, 2014). The HRS is sponsored by the National Institute on Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan. Chinese data were from the China Health and Retirement Longitudinal Study (CHARLS) 2011 National Baseline

and 2013 Follow-Up. The CHARLS is modeled after the HRS and uses multi-stage stratified sampling design. It is a nationally representative longitudinal survey that includes one person per household over age 45 in 2011 and his or her spouse in all Chinese provinces but Tibet, Ningxia, Hong Kong, and Macao. The baseline sample demographic characteristics match closely with the 2010 China Census (Zhao et al., 2014). Both surveys collect a wide range of data on socioeconomic, health, and family characteristics of the respondents and their spouses and the survey questions are highly comparable.

This study restricted the analyses to parents aged 50 and over with at least one living child at baseline. 19,412 such respondents and their spouses were interviewed in 2010 in the U.S. and 13,953 were interviewed in 2011 in China. 26% of the baseline sample in the U.S. and 30% in China contained missing data on at least one variable of interest. The primary cause of missing data was the loss to follow-up: 10% of the baseline sample in the U.S. and 15% in China did not respond at follow-up and thus were missing on the outcomes. Among those who were followed, 10% in both countries were proxy interviews at either baseline or follow-up, and questions on depressive symptoms were skipped for proxy interviews. Among those who responded to both waves with non-proxy interviews, 14% in the U.S. and 10% in China had missing data on at least one variable of interest.

This study applied Multiple Imputation by Chained Equations (MICE) to handle missing data for each country, using Stata's `mi impute chained` command (StataCorp, 2013). The imputation models included all covariates and outcomes in the analysis model. The number of imputations was 30 for the U.S. data and 40 for the Chinese data, as the number of imputations should be no less than the percentage of incomplete cases (White et al., 2011). In both countries, the iterations converged well, and the Monte Carlo errors were reasonably small (results not

shown). The results of analyses including imputed outcomes were almost identical to those excluding imputed outcomes (results not shown). For consistent numbers of observations across analysis models for self-rated health and depressive symptoms, this study included imputed outcomes following Johnson and Young (2011), although the imputed outcomes do not add much extra information to the analysis (Von Hippel, 2007).

The analyses excluded respondents having difficulties with Activities of Daily Living (ADL's) and Instrumental Activities of Daily Living (IADL's) at baseline because the HRS skipped the question on anticipated instrumental support for respondents who were receiving support with ADL's and IADL's. 26% of parents aged 50 and over in the U.S. and 17% in China had ADL's and IADL's at baseline. Parents who received instrumental support were initially assumed to anticipate future support from the same source. The results of analyses excluding parents with functional limitations did not differ significantly from the results under this assumption (results not shown).

The size of the final analytic sample was 14,325 for the U.S. and 11,163 for China.

MEASURES

Dependent variables

Self-rated health: This study used self-rated health as a measure of overall health status. Respondents in the U.S. rated their health status on a scale of excellent, very good, good, fair, and poor. Chinese respondents were randomly assigned to two groups to rate their health status using two different scales. One group used the scale of excellent, very good, good, fair, and poor. The other group used the scale of very good, good, fair, poor, and very poor. The proportion of either group rating their health as “fair” was 46% at baseline and 49% at follow up. This study thus assumed that the category of “fair” carried a similar meaning in both scales. Respondents

rating their health as excellent, very good, or good in either scale were combined, representing those rating their health as better than fair. Respondents rating their health as poor or very poor in either scale were combined, representing those rating their health as worse than fair. Hence, self-rated health in China was measured on an ordinal scale of better than fair, fair, and worse than fair. In both countries, higher levels denoted worse health.

CES-D: This study used the Center for Epidemiologic Studies Depression Scale (CES-D) as a measure of mental well-being. The scale was screening instruments for depressive symptoms in the general population (Radloff, 1977). The HRS used an 8-item CES-D, while the CHARLS used a 10-item CES-D. Both scales have good internal consistency, test-retest reliability, factorial validity, and construct validity in China (Boey, 1999; Chen and Mui, 2014; Lei et al., 2014) and the U.S. (Steffick, 2000). The CES-D scales in the HRS and the CHARLS have six items in common, as shown in Table 1. The HRS respondents were asked whether much of the time they experienced each condition. The CHARLS respondents rated how frequent each item occurred on a four-point scale. The CES-D for the U.S. data was thus a sum of eight dichotomous items with two items reverse coded, ranging from 0 to 8. The CES-D for the Chinese data was a sum of ten scores with two items reverse coded, ranging from 0 to 30. The integrity of the CES-D-10 can be maintained with one missing response, by substituting the missing item with the mean of the complete items (Andresen et al., 1994). In both scales, higher CES-D scores denoted greater degrees of depressive symptoms.

Independent variable

Anticipated instrumental support from children: In both HRS and CHARLS, respondents were asked “Suppose that in the future, you needed help with basic daily activities like eating or dressing. Do you have relatives or friends (besides your spouse/ partner) who would be willing

and able to help you over a long period of time? What is the relationship to you of that person or those persons?" The HRS respondents chose all that apply from four options, child/child-in-law, grandchild, other relatives, and someone else. The respondents in the CHARLS chose all that apply from a more detailed list of options than in the HRS, as shown in Table 1. Responses were categorized into four groups, anticipating support from both children (including children-in-law) and others, anticipating support only from children (and children-in-law), anticipating support only from others, and anticipating support from no one. This study does not distinguish between anticipated support from children and that from children-in-law because children often fulfill their caretaking roles through their spouses. In China, the primary caregivers of elderly parents are daughters-in-law if elderly parents have a son, and are daughters when elderly parents have no son (Cong and Silverstein, 2008). In the U.S., the primary caregivers are daughters if elderly parents have a daughter, and are daughters-in-law when elderly parents have no daughter (Peters-Davis et al., 1999). This study focused on elderly parents and excluded respondents without any living child. The relationship between childlessness and health is beyond the scope of this study.

Control variables

As discussed earlier, prior support exchanges and contacts with children and others, demographic and socioeconomic characteristics of parents and their children, and baseline health status may be related to both anticipated support and later-life health. This study controlled for these three sets of factors. Measures of baseline support exchange and contacts with support sources included proximity, contact, and financial exchange with children, the number of living siblings, and frequency of social visits. Measures of baseline health status included self-rated health, CES-D, and the number of chronic conditions. Measures of baseline demographic and socioeconomic characteristics of parents and their children included parent's gender, age, marital

status, educational attainment, work status, total household income, household size, number of living children, whether the respondent had any living son/ daughter, and whether the respondent had a college-educated child. Questionnaire wording of measures of baseline support exchange and health status is available in Table S1 in electronic supplementary materials.

MODELS

Two regression models were estimated for each country: (1) an ordered logit model of self-rated health at follow-up on baseline anticipated support and controls; and (2) a negative binomial model of CES-D at follow-up on baseline anticipated support and controls. By controlling for lagged outcome variables at baseline, the models were implicitly examining changes in the outcome variables over the follow-up period.

Past research has often used ordered logistic regressions to model self-rated health when measured as an ordinal outcome (Inagami et al., 2007) and used negative binomial regressions to model CES-D which is an over-dispersed count (Cacioppo et al., 2006). The over-dispersion parameters for the negative binomial models in both countries were significantly different from zero, which justifies the use of negative binomial models over Poisson models. As the analyses included both respondents and their spouses, Stata's cluster option was used to account for observations of spouses within the same household.

All results are unweighted. Sampling weights were initially applied to account for stratified random sampling designs of the HRS and CHARLS. The results did not differ from those without the weights.

RESULTS

Descriptive results

Table 2 shows descriptive statistics for all variables measured in the analyses.

In both China and the U.S., the main source of anticipated support was children. 94% in China and 69% in the U.S. of those who anticipated support from anyone anticipated such support either only from their children or from both their children and others. However, Chinese parents were more likely than American parents to anticipate support only from their children. Chinese parents were less likely than American parents to anticipate support only from others (6% vs. 31% among parents who anticipated support from someone). The percentage of parents without any anticipated support was remarkably similar in the U.S. and China, both around 29%. These responses suggest that there may be a trade-off in sources of anticipated support for older parents in the U.S. but not in China.

Older parents in the U.S. and China differed significantly in their proximity, contact, and support exchange with their children. A smaller proportion of parents lived with their children in the U.S. (34%) than in China (52%). However, in both countries, half of the parents with any non-resident child had at least a child living relatively close by (i.e., within 10 miles in the U.S. or the same neighborhood in China). American parents were more likely to remain in weekly contact with at least one of their non-resident children than Chinese parents (87% vs. 77% among parents with non-resident children). Net financial support flew from parents to children in the U.S. but from children to parents in China.

Elderly American parents interacted more frequently with their friends than Chinese parents: 71% of elderly American parents had at least monthly social visits to neighbors, while 49% of elderly Chinese parents engaged in some social activities in the past month.

The U.S. sample was relatively older, was less likely to be male, was less likely to be currently married, and lived in smaller households than the Chinese sample.

Regression results

Tables 3 and 4 present multivariate regression results on self-rated health and CES-D in the U.S. and China. Higher levels of self-rated health denoted worse health, and higher CES-D scores denoted more depressive symptoms. A negative coefficient indicates that the variable is associated with a decrease in levels of self-rated health and CES-D scores and better health.

Table 5 presents the “quasi standard errors” corresponding to the coefficients of sources of anticipated support in the regression models of self-rated health in Table 3 and the models of CES-D in Table 4. “Quasi standard errors”, calculated using R's `qvcalc` package, facilitate the understanding of the differences between all pairs of categories of a factor variable (Firth, 2003).

Consistent with the hypotheses, all else constant, anticipated support from children was associated with better self-rated health and lower CES-D scores in both the U.S. and China. Parents who anticipated support only from children or from both children and others had better self-rated health and fewer depressive symptoms than those who anticipated support from no one. American older parents who anticipated support only from others also reported better self-rated health and fewer depressive symptoms than those who anticipated support from no one. In the U.S., anticipating support only from others was associated with similar levels of self-rated health and CES-D as anticipating support only from children or from both children and others. However, Chinese older parents who anticipated support only from others reported no better health and no fewer depressive symptoms than those who anticipated support from no one. In China, parents who anticipated support only from others reported worse self-rated health than those who anticipated support only from children or from children and others and more depressive symptoms than those who anticipated support from children and others.

DISCUSSION

This study contributes to the existing literature on intergenerational support and health in that support from children may take the form of not only existing support transfers but also the anticipation of future support. Children remain the main source of anticipated instrumental support for elderly parents in both the U.S. and China. Anticipating support from children is associated with better general health and mental health of older parents compared to anticipating support from no one in both countries, even when baseline health status, intergenerational transfers, and socio-demographic characteristics of parents and children are held constant. While existing research on anticipated support focused primarily on mental health outcomes, this study examines both self-rated health and depressive symptoms. Anticipated support from children is associated with fewer depressive symptoms, independent of baseline self-rated health, and is associated with better self-rated health, independent of baseline depressive symptoms.

This study also extends prior research on anticipated support and health and underscores the importance of examining the source of anticipated support. Almost a third of American parents who anticipate instrumental support from anyone anticipate such support from their friends and relatives but not their children. American parents who anticipate support only from friends and other relatives are similar in their general health and mental health to their counterparts who anticipate support from both children and others or only from children. However, elderly Chinese parents typically anticipate instrumental support from their children and few anticipate such support from their friends and other relatives. Anticipated support from others is associated with better health than no anticipated support only if parents anticipate support from both others and children. Chinese parents who anticipate support only from others are no different in their health status from those who anticipate support from no one.

Due to the slight differences in the measurements of self-rated health and CES-D in the two countries, this study could not formally test whether the association between anticipated support and later-life health was statistically significantly different between the U.S. and China. The collection of high-quality nationally representative data in China on anticipated support and later-life health is recent and rare. The Chinese survey used in this study is the first of its kind with high comparability with the HRS in most measurements of the covariates. Cultural and socioeconomic structural differences between the U.S. and China may provide some suggestive insights into the health implications of anticipated support in the two countries. In China, support from children is culturally valued and economically essential. Elderly Chinese parents take pride in receiving support from children (Li et al., 2009). Over half of elderly Chinese prefer intergenerational coresidence (Sereny and Gu, 2011). Given inadequate social welfare system (LaFave, 2016), 49% of Chinese over age 65 rely on their family (mostly their children) as the primary source of income (based on the author's calculation of the 2010 China Census). In contrast, most elderly Americans value independence and privacy (Streib, 1987). They prefer to live alone (Streib, 1987) and maintain a diverse social network (Fiori et al., 2006). 98% of the income of Americans over age 65 is from Social Security, earnings, pensions, and asset income (West et al., 2014). 78% of Americans over age 60 receive no financial assistance from family or friends (White et al., 2009).

Some limitations of this project call for future research. First, the gap between the baseline and the follow-up in this study is two years. We might have been able to observe a stronger relationship had we had data over a longer period. How anticipated support influences health may depend on one's socioeconomic status (Krause, 1997). This study also examined whether the associations between anticipated support from various sources and health depended

on parents' age, gender, marital status, or education but found no interactions. This finding could be limited by the window of the study. Second, this study lacked direct controls on the emotional closeness between older parents and their social network members, although this study controlled for proximity and frequency of contact. As older parents are more likely to anticipate support from those they are emotionally close to and emotional closeness is positively related to health, the relationship between anticipated support and health may be confounded without direct controls on emotional closeness. Third, this study focused on one aspect of anticipated instrumental support, i.e., parents' anticipation of help with daily activities over a long time. This form of anticipated instrumental support is theoretically interesting because older parents are most likely to anticipate such support from their children and the health advantage of anticipated support from children over others may be most evident in the case of such support. Future research may examine alternative data sources that measure alternative/multiple forms of anticipated instrumental support. Future research may also investigate how various sources of anticipated emotional or financial support may be related to later-life health differently.

In conclusion, anticipated support from children is related to better older parents' general health and mental well-being beyond received support in both the U.S. and China. In the U.S., the value of anticipated support from children may be a substitutable resource that can be replaced by other relatives and friends. Anticipating support from anyone is better for health than anticipating support from no one. However, in China, anticipating support from children offers a unique health advantage over anticipating support from others. Anticipating support from friends and relatives other than children is just as damaging for health as anticipating support from no one.

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Table 1. Questionnaire Wording of Self-Rated Health, CES-D, and Anticipated Support

	US	China
Self-Rated Health	Would you say your health is excellent, very good, good, fair, or poor?	Would you say your health is excellent, very good, good, fair, or poor? (Random half of sample) Would you say your health is very good, good, fair, poor, or very poor? (Random half of sample)
CES-D	Now think about the past week and the feelings you have experienced. Please tell me if each of the followings was true for you much of the time the past week. Much of the time during the past week, you felt depressed; you felt that everything you did was an effort; your sleep was restless; you were happy; you felt lonely; you enjoyed life; you felt sad; you could not get going.	The 10 items below refer to how you have felt and behaved during the last week: I was bothered by things that don't usually bother me; I had trouble keeping my mind on what I was doing; I felt depressed; I felt everything I did was an effort; I felt hopeful about the future; I felt fearful; My sleep was restless; I was happy; I felt lonely; I could not get "going." Choose the appropriate response: rarely or none of the time (<1 day); some or a little of the time (1-2 days); occasionally or a moderate amount of the time (3-4 days); most or all of the time (5-7 days).
Source of Anticipated Support	Suppose in the future, you needed help with basic personal care activities like eating or dressing. Do you have relatives or friends (besides your [husband/wife/partner]) who would be willing and able to help you over a long period of time? What is the relationship to you of that person or persons? (Choose all that apply: child/child-in-law; grandchild; other relative; someone else.	Suppose that in the future, you needed help with basic daily activities like eating or dressing. Do you have relatives or friends (besides your spouse/partner) who would be willing and able to help you over a long period of time? What is the relationship to you of that person or those persons? (Choose all that apply) mother; father; mother-in-law; father-in-law; children; sibling; sibling of spouse; brother-in-law, sister-in-law; spouse of child; grandchild; other relative; paid helper (such as nanny); volunteer or employee of facility; other.

Table 2. Descriptive Statistics of Health Status, Anticipated Support, and Covariates

	US		China	
	N=14,325		N=11,163	
	%/Mean	% Imputed	%/Mean	% Imputed
Health Status at Follow-Up				
Self-Rated Health		7.6		13.2
Excellent	11.1			
Very Good	34.8		24.2	
Good	33.5			
Fair	16.4		50.9	
Poor	4.1		24.9	
CES-D (US 0-8, China 0-30)	1.2	10.4	7.7	20.4
Baseline Health				
Self-Rated Health		0.0		0.1
Excellent	12.2			
Very Good	35.7		25.1	
Good	33.4			
Fair	15.6		49.1	
Poor	3.0		25.8	
Number of Chronic Diseases (US 0-7, China 0-14)	1.7	0.7	1.6	1.0
CES-D (US 0-8, China 0-30)	1.1	3.6	7.9	8.1
Sources of Anticipated Support at Baseline				
		3.1		5.3
Children and Others	15.7		6.4	
Children Only	32.6		60.3	
Others Only	22.1		4.1	
No One	29.6		29.2	
Baseline Proximity, Contact, and Support Exchange with Children				
Had any resident child	33.5	0.0	52.1	0.0
Had any non-resident child	92.8	0.0	83.8	0.0
Had any non-resident child within 10 miles (US)/same village/neighborhood (China)	53.4	2.8	49.2	0.7
Contacted weekly with any non-resident child	87.2	2.3	77.4	0.2

Received money from any non-resident child (US: any child)	4.7	2.1	46.6	0.4
Gave money to any non-resident child (US: any child)	42.2	2.5	8.2	0.4
Baseline Proximity and Contact with Other Relatives or Friends				
Number of living siblings	3.1	0.1	3.1	0.6
Visited friends at least monthly	70.8	3.9	49.0	6.5
Baseline Child Characteristics				
Number of children	3.3	1.6	2.8	0.0
Had any son	84.4	0.0	86.9	0.0
Had any daughter	83.1	0.0	75.4	0.0
Had any college-educated child	77.9	0.1	26.8	0.5
Baseline SES and Demographics				
Highest Degree Attained		0.0		0.1
Less than Elementary	--		46.3	
Elementary/Middle	16.1		40.1	
High School	34.2		13.6	
College	49.7		--	
Household Income	71,251	0.0	15,603	0.3
Work Status		0.0		0.3
Currently Working	47.3		66.8	
Retired	43.1		12.6	
Not working, Not retired	9.6		20.6	
Age	65.5	0.0	61.5	0.0
Male	43.5	0.0	51.0	0.0
Married	65.6	0.0	87.5	0.0
Household Size	2.4	0.0	3.5	0.0
Rural Hukou	--	--	76.3	0.1
White	74.4	0.3	--	--

Table 3. Coefficients and Standard Errors of Ordered Logit Models of Self-Rated Health Status at Follow-Up

	US		China	
	N=14,325		N=11,163	
	Coef.	(SE)	Coef.	(SE)
Baseline Anticipated Support				
Sources of Anticipated Support (Ref. No One)				
Children and Others	-0.18 ***	(0.05)	-0.22 *	(0.10)
Children Only	-0.11 **	(0.04)	-0.14 **	(0.05)
Others Only	-0.13 **	(0.05)	0.08	(0.11)
Baseline Proximity, Contact, Support Exchange with Children				
Had any resident child	0.08	(0.05)	-0.02	(0.06)
Had any non-resident child	0.09	(0.08)	-0.02	(0.08)
Had any non-resident child within 10 miles (US)/same village/neighborhood (China)	0.06	(0.04)	0.02	(0.05)
Contacted weekly with any non-resident child	-0.18 **	(0.06)	0.01	(0.06)
Received money from any non-resident child (US: any child)	0.00	(0.08)	-0.04	(0.05)
Gave money to any non-resident child (US: any child)	-0.00	(0.04)	-0.09	(0.08)
Baseline Proximity and Contact with Other Relatives or Friends				
Number of siblings	0.01	(0.01)	0.00	(0.01)
Visited friends at least monthly	-0.05	(0.04)	0.02	(0.04)
Baseline Child Characteristics				
Number of children	0.00	(0.01)	0.03	(0.02)
Had any son	0.05	(0.05)	-0.11	(0.07)
Had any daughter	0.05	(0.05)	-0.06	(0.06)
Had any college-educated child	-0.06	(0.05)	-0.13 *	(0.05)
Baseline Health Status				
Self-Rated Health (Ref. in the U.S. Excellent; Ref. in China Excellent/Very Good/Good)				
Very Good	1.72 ***	(0.07)	--	--
Good	3.18 ***	(0.08)	--	--
Fair	4.48 ***	(0.10)	0.82 ***	(0.05)
Poor	6.04 ***	(0.15)	1.85 ***	(0.07)
CES-D	0.13 ***	(0.01)	0.04 ***	(0.00)
Number of Chronic Diseases	0.23 ***	(0.02)	0.29 ***	(0.02)
Baseline SES and Demographics				

Highest Degree Attained						
Less than Elementary (Ref. in China)	--	--	--	--	--	--
Elementary/Middle (Ref. in the U.S.)	--	--	--	-0.05		(0.05)
High School	-0.25	***	(0.06)	-0.18	*	(0.07)
College	-0.45	***	(0.06)	--	--	--
Log of Household Income						
Work Status (Ref. Working)	-0.07	***	(0.01)	-0.01		(0.01)
Retired	0.12	**	(0.04)	0.00		(0.08)
Not working, Not retired	0.11		(0.06)	0.11		(0.06)
Age						
Male	0.00		(0.00)	-0.00		(0.00)
Married (Ref. Divorced/Separated/Widowed/Never Married)	0.09	*	(0.03)	-0.14	**	(0.04)
Household Size	-0.02		(0.04)	0.21	**	(0.07)
Rural Hukou (Ref. Urban)	0.00		(0.02)	0.01		(0.02)
White (Ref. Non-White)	--	--	--	0.18	**	(0.07)
-0.11	*	(0.04)	--	--	--	--
Cutpoints						
Excellent vs. Very Good/Good/Fair/Poor	-0.91	***	(0.24)	--	--	--
Excellent/Very Good vs. Good/Fair/Poor	1.85	***	(0.24)	--	--	--
Excellent/Very Good/Good vs. Fair/Poor	4.16	***	(0.25)	0.14		(0.28)
Excellent/Very Good/Good/Fair vs. Poor	6.57	***	(0.25)	2.91	***	(0.28)

***p-value<0.001;**p-value<0.01;*p-value<0.05

Table 4. Coefficients and Standard Errors of Negative Binomial Models of CES-D at Follow-Up

	US			China		
	N=14,325			N=11,613		
	Coef.		(SE)	Coef.		(SE)
Baseline Anticipated Support						
Sources of Anticipated Support (Ref. No One)						
Children and Others	-0.12	**	(0.04)	-0.16	***	(0.03)
Children Only	-0.10	**	(0.03)	-0.08	***	(0.02)
Others Only	-0.10	**	(0.04)	-0.04		(0.04)
Baseline Proximity, Contact, Support Exchange with Children						
Had any resident child	0.00		(0.04)	-0.04		(0.02)
Had any non-resident child	-0.01		(0.06)	-0.04		(0.03)
Had any non-resident child within 10 miles (US)/same village/neighborhood (China)	0.02		(0.03)	0.03		(0.02)
Contacted weekly with any non-resident child	-0.04		(0.04)	-0.03		(0.02)
Received money from any non-resident child (US: any child)	0.03		(0.05)	-0.02		(0.01)
Gave money to any non-resident child (US: any child)	0.03		(0.03)	-0.01		(0.03)
Baseline Proximity and Contact with Other Relatives or Friends						
Number of siblings	0.00		(0.01)	0.00		(0.00)
Visited friends at least monthly	-0.04		(0.03)	-0.03		(0.01)
Baseline Child Characteristics						
Number of children	-0.00		(0.01)	0.02	**	(0.01)
Had any son	0.02		(0.04)	-0.00		(0.02)
Had any daughter	-0.00		(0.04)	0.01		(0.02)
Had any college-educated child	-0.10	***	(0.03)	-0.06	***	(0.02)
Baseline Health Status						
Self-Rated Health (Ref. in the U.S. Excellent; Ref. in China Excellent/Very Good/Good)						
Very Good	0.18	***	(0.05)	--	--	--
Good	0.39	***	(0.05)	--	--	--
Fair	0.55	***	(0.05)	0.11	***	(0.02)
Poor	0.60	***	(0.07)	0.18	***	(0.02)
CES-D	0.28	***	(0.01)	0.04	***	(0.00)
Number of Chronic Diseases	0.05	***	(0.01)	0.04	***	(0.01)
Baseline SES and Demographics						

Highest Degree Attained						
Less than Elementary (Ref. in China)	--	--	--	--	--	--
Elementary/Middle (Ref. in the U.S.)	--	--	--	-0.05	**	(0.02)
High School	-0.08	*	(0.03)	-0.08	**	(0.03)
College	-0.18	***	(0.04)	--	--	--
Log of Household Income	-0.03	**	(0.01)	-0.01	*	(0.00)
Work Status (Ref. Working)						
Retired	0.11	**	(0.03)	-0.03		(0.03)
Not working, Not retired	0.07		(0.04)	-0.01		(0.02)
Age	-0.01	***	(0.00)	-0.00	**	(0.00)
Male	-0.10	***	(0.03)	-0.11	***	(0.01)
Married (Ref. Divorced/Separated/Widowed/Never Married)	-0.15	***	(0.03)	-0.05	*	(0.02)
Household Size	0.01		(0.01)	0.01		(0.01)
Rural Hukou (Ref. Urban)	--	--	--	0.07	**	(0.02)
White(Ref. Non-White)	-0.10	**	(0.03)	--	--	--
constant	0.49	**	(0.17)	1.86	***	(0.10)
alpha	0.72	***	(0.03)	0.31	***	(0.01)

***p-value<0.001;**p-value<0.01;*p-value<0.05

Table 5. Coefficients and Quasi Standard Errors of Sources of Anticipated Support in Models of Self-Rated Health Status in Table 3 and Models of CES-D in Table 4

Dependent Variable	Self-Rated Health				CES-D			
	US		China		US		China	
	N=14,325		N=11,163		N=14,325		N=11,163	
Sources of Anticipated Support	Coef.	Quasi SE	Coef.	Quasi SE	Coef.	Quasi SE	Coef.	Quasi SE
No One (Reference)	0.00	0.03	0.00	0.04	0.00	0.02	0.00	0.01
Children and Others	-0.18	0.04	-0.22	0.08	-0.12	0.03	-0.16	0.03
Children Only	-0.11	0.03	-0.14	0.03	-0.10	0.02	-0.08	0.01
Others Only	-0.13	0.04	0.08	0.10	-0.10	0.03	-0.04	0.04