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## **Social Change and Psychological Well-being in Urban and Rural China**

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## Social change and psychological well-being in urban and rural China

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## Social change and psychological well-being in urban and rural China

**Abstract:** The economic reforms of the past two decades have initiated a major social transition in China, characterized by unprecedented social mobility and stratification. Meanwhile, the privatization of health care has increased costs to the consumer and further changed familial and social norms. While such changes would logically affect individuals' psychological well-being, little attention has been paid to their impact in this regard. Using data from the Chinese General Social Survey (CGSS 2005), this paper looks at the relationships between social change, social support and the psychological well-being of individuals in both urban and rural areas, as well as the role of marital status in Chinese society. We find that an increasing health care burden is significantly reducing individuals' psychological well-being. Perceptions of social status, especially as it changes over time and when compared against peers, also have an effect. Social support has protective function for psychological well-being, and also compensates for the negative effect of increasing health-care burden and relative deprivation during social change on psychological well-being. Marital status is also significantly correlated with psychological well-being, and moderates the relationships between social change, other social support and psychological health, especially in rural cases.

**Keywords:** Social transition; health care expenditure; social comparison; psychological well-being; marriage.

Since the 1980s China has experienced rapid social and demographic changes initiated by economic reform, resulting in fundamental shifts in all aspects of social lives. The opening of markets has improved the overall socioeconomic environment by providing more economic opportunities and stimulating growth through competition. As people expect future economic gains and benefits, their mental health and psychological well-being are seen to improve (Mirowsky & Ross, 2003). However, the transition to a market economy also implies fundamental changes in the government's social contract with society, as it no longer promises a supply of essential goods and services such as health care and housing (Tang & Parish, 2000). Economic reform spurred the privatization of medical services, leading to a rapid increase in the price of health care; yet incomes have not increased proportionally (Mu & Xu, 2009; Wei & Gustafsson, 2005). The 2010 China Health Statistical Yearbook indicates that total annual health-care expenditure increased from 74.74 billion in 1990 to 1720.49 billion in 2009, and the individual expenditure has increased from 26.70 billion in 1990 to 657.08 billion in 2009. With the government sharply reducing financial support for public health services, the rapid increase in

health-care costs obviously adds to every individual's health-care burden. For those with serious or chronic conditions, prohibitive health-care costs have led to deteriorating economic stability and increasing psychological pressure (Zimmer & Kwong, 2004; Banister & Hill, 2004).

In recent years, the government of China has taken more responsibility for medical care again. Have people's overall mental health and psychological well-being improved or deteriorated during China's transition to a market economy? Can individual psychological well-being be effectively improved by strengthening government responsibility for health care? So far there is no direct evidence pertaining to these questions. A study by Yu (2008), focusing on urban areas, found that individuals (such as self-employed workers) whose personal conditions exposed them to the risk and uncertainty brought about by market reform, were more likely to suffer from psychological distress. Meanwhile, residents in more marketized areas felt more satisfied with their economic conditions and therefore had lower distress levels. This implies that there is a disparity in psychological well-being as affected by social change, and that the benefits and costs brought about by market reforms are not distributed evenly across society. In a survival-of-the-fittest regime, subgroups with a resource advantage are more likely to benefit, due to the "Matthew Effect" (Sun, 2005); by contrast, socially vulnerable groups are more likely to suffer increasing risk and economic burdens, negatively impacting their psychological well-being. Moreover, individuals may assess their economic condition based on changes they have experienced since the reforms rather than on their current income (Yu, 2008).

Focusing on China's rural-urban divide, it is observed that farmers have low economic and social status and also less access to public health insurance; as a result, they are more likely to suffer mental distress than urban residents (Liu & Sun, 2008). Whether rural residents face more psychological pressure than urban residents overall cannot be inferred from Yu's (2008) study, as it makes a macro-level comparison of the markets in various areas rather than a comparison of individual economic conditions. In fact, when individuals assess their comparatively economic situations, they do it with reference to specific people instead of the total population of an entire area (Wegner, 1991).

Market reform not only augments regional disparity but also social stratification and mobility (Bian, 2002; Nee, 1996), leading to a widening gap between the rich and the poor and a feeling of deprivation among the latter. Under the psychological set pattern of "not fearing deficiency but un-equalization", perceptions of unfairness and deprivation may cause people with poor adaptive ability to suffer psychological disorders or disease (Li, 2003).

Along with China's social transitions, the high sex ratio at birth and mortality

rate of baby girls have resulted in a serious gender imbalance in China. Surplus men who cannot find brides form a new kind of socially vulnerable group. Within China's dual urban-rural structure, the problem of surplus men in developed urban areas might be alleviated by marriage migration, and forced bachelors will aggregate mainly in under developed rural areas (Tucker & Henderson et al., 2005; Das Gupta et al., 2010). These forced bachelors might suffer more deteriorated psychological well-being due to both economic disadvantage and single situation. In this paper we analyze the relationships between social changes, social support and psychological well-being. We explore the difference between urban and rural areas, and investigate the moderate role of social support including marriage status to these relationships.

### **Social Change, Social Status and Psychological Well-being**

The transactional theory of stress, as proposed by Lazarus & Folkman (1984), states that any life or social event can be potentially stressful; whether or not it actually affects psychological and self rated health is a function of people's cognitive appraisal of the event, and the availability of coping resources. If people judge that the event is not threatening or they have the necessary resources to offset the threat, stress will not occur; alternatively, the event may result in deterioration of mental health or psychological well-being (Lazarus & Folkman, 1984). However, during social transition, not all members of a society experience the effects of social change at the same time, to the same degree, or in the same way; in fact, only certain people actually experience such macro-level changes in their daily lives. Even when people are objectively affected by certain changes, they may not be aware of them (Trommsdorff, 2000).

In sum, the impact of social change on psychological well-being depends on an individual's perception of events and his or her coping resources. During China's social and economic transition, vulnerable groups with lower socioeconomic status have been the first to be affected by the privatization of medical services, and express more psychological pressure during their risk assessments due to a lack of coping resources (Xu & Zhang, 2008). Previous studies, both in developing and developed countries, have also indicated that psychological health problems tend to be more prevalent among those of lower socioeconomic status (Friedman & Thomas, 2007). Meanwhile, Chinese farmers, who have lower socioeconomic status as a whole, have received little economic benefit from the opening of markets (He et al., 2010). Based on these points we propose the following hypotheses:

*Hypothesis 1.* Increasing health care expenditure is more likely to reduce the psychological well-being of relatively low-income families.

*Hypothesis 2.* People of lower socioeconomic status are more likely to suffer

reduced psychological well-being.

*Hypothesis 3.* Rural residents' psychological well-being is more likely to be reduced by the health-care burden than that of urban residents.

Emerging research indicates that it is not necessarily poverty itself but adverse changes in socioeconomic status that predict psychological stress (Das et al., 2007). Individuals may assess their economic condition based on changes they have experienced since the reform policies were implemented rather than their current income (Yu, 2008). In other words, if people acquire less and lose more, the feeling of deprivation will occur (Stouffer et al., 1949). The relative deprivation theory claims that individual assessment of status is not based on absolute and objective standards, but on the comparison of benefits and costs against a benchmark. This reference point may be information from the local area, previous life experience, or the living conditions of people nearby such as friends and peers (Whyte, 2009). One study confirmed that comparing one's present economic status against both one's previous status and that of peers strongly affects one's perception of fairness (Ma & Liu, 2010). Two additional hypotheses are:

*Hypothesis 4.* People who perceive that their economic status has improved over time have better psychological well-being;

*Hypothesis 5.* People who perceive their economic situation as better than that of their peers have better psychological well-being.

### **Social support, Marital status and Psychological Well-being**

Resources for coping with social changes are not limited to the individual. According to Lin's (1999) theory, social capital, as an aggregate of real and potential resources, can be divided into individual resources and social resources. Individual resources refer to those factors –such as wealth, physical health, knowledge, and status- that are possessed by an individual. Social resources refer to those embedded in individual social networks; they exist in relationship and can only be acquired through social interaction with others. One can make effective use of the resources of members in one's social networks to achieve one's own goal (Lin, 1999).

Social resources provide protection – or at least a buffer- against stress, helping individuals maintain a generally positive emotional state (Wang, 2004). As a buffer, social support alleviates the impact of stress on psychological health by helping to resolve stressful problems and lightening the impact of events (Cohen & Wills, 1985; Turner & Turner, 1999). Recent studies have also confirmed that social support has a direct influence on psychological health, by reducing the risk of mental disease and increasing psychological well-being (Cohen & Wills, 1985; Seeman, 2000; Hogan et al., 2002). In addition, the influence of social support on psychological well-being is based

on its perception more than its actuality (Wethington & Kessler, 1986). During stressful events, different kinds of social support have different effects on psychological health; intimate social relationships seem to provide the greatest sense of protection (Thompson & Heller, 1990). Social integration is strongly related to the acquisition of individual social capital, and integration is a key to maintain a positive emotional state. We propose two additional hypotheses:

*Hypothesis 6.* Social support (including intimate relationships, social integration), is associated with psychological well-being;

*Hypothesis 7.* Social support (including intimate relationships, social integration) can buffer the negative effects of health-care costs and perceived social status and its changes on psychological well-being.

Among social networks, the family is more likely to protect psychological health than other kinds of social relations (Thompson & Heller, 1990). Especially in China, kin provide more social support than other relationships due to the social interaction pattern of “diversity-orderly structure” which describing the Chinese human relationship based on distance to an individual. Economic protection by the family (including the extended family based on kinship and marriage) defends against risks and defused crises (Xu & Zhang, 2008).

One social support mechanism known to influence health is marriage, which provides financial and emotional support to the individual concerned (Gove et al., 1983; Umberson, 1992; Ross, 1995). On the grounds that two can live almost as cheaply as one, marriage may work simply because it provides higher real income per partner. Poorer standards of living are correlated with mental health problems (Ross et al., 1990) and married people have the lowest incidence of economic hardship (Ross, 1995). In addition, Spouses provide intimacy, companionship, and day-to-day interaction, which seem to reduce the incidence of depression and mental illness, and could provide an important buffer against stress (Berkman, 1988). Marriage represents a social contract and can offer its partners a sense of permanence, belonging and purpose (Waite & Gallagher, 2000; Stanley et al., 2004). Hence the psychological well-being of married people is protected to some extent.

In addition, married individuals connect their partners to larger networks of friends, kin, and community that can be drawn on in times of need, and the public nature of marriage – often entered into in the presence of family, friends, and religious congregants – creates what Cherlin (2000) has called “enforceable trust.” Indeed, studies have found that married persons have larger social networks and greater social support than unmarried persons (Hurlbert & Acock, 1990; Pearlin & Johnson, 1977), which not only increases psychological health directly through emotional support, but also through economic support. Some researchers observe that because the emotional

and financial support derived from marriage can also be acquired from other social relationships, the social network, acting as a kind of substitute for marriage, is more important to unmarried persons (Wilson & Oswald, 2005). Previous studies have confirmed that compared to people who are unmarried, divorced or widowed, the married are less likely to suffer psychological disorders (Stack & Eshleman, 1998; Di Tella et al., 2003; Lipowicz & Lopuszanska, 2005). Hence, we propose several follow-up hypotheses:

*Hypothesis 8.* The psychological well-being of married people is more likely to be better than that of single people.

*Hypothesis 9.* The burden of health-care expenditure is more likely to reduce the well-being of single people.

*Hypothesis 10.* Compared to married people, single people's social support has a stronger correlation to their psychological well-being.

## **Data, Variables and Methods**

### **Data**

Data for this study come from the 2005 Chinese General Social Survey (CGSS), which is an annual or biannual survey of China's urban and rural households designed to gather longitudinal data on social trends and the changing relationship between social structure and quality of life in China. This survey was conducted by Renmin University of China and Hong Kong University of Science and Technology. Using the sampling frame from the fifth census of China and a staged probability proportionate to size [PPS] design, a questionnaire interview was administered covering cities and towns in 28 provinces, municipalities, and autonomous regions. The interview subjects were between 18 and 69 years of age and this procedure yielded 10,372 representative samples. To compare differences in psychological well-being between urban and rural residents, and analyze the role of marital status, 31 cases were excluded due to lack of information about their Hukou or marital status. Of the 10,341 valid samples used for the analysis (mean age, 45 years), 5,781 respondents were urban residents accounting for 55.9% of total samples; 15.4% were single individuals (including those unmarried, divorced or widowed); 52.6% were female; and 67.1% and 54.9% had an education level below that of junior high school and income below 500 (RMB), respectively. Both education level and income was higher in urban areas than in rural, and higher in the unmarried group than in the married group (see Table 1 for details). Because there are missing values in health-care expenditure and income, only 9,195 samples were included in the ordinary least squares (OLS) regression.

*<Table 1 about here>*

### **Variables and measurement**



### *Psychological well-being*

The outcome of interest in this study is an individual's perception of psychological well-being. Psychological well-being is a broad concept and refers to an individual's personal evaluation of his or her life. The most common definition includes three general components: life satisfaction, positive emotions and negative emotions (Hansson et al., 2008). In our study, psychological well-being is measured using three criteria: life satisfaction, happiness and psychological distress. We used a five-point scale of responses to three questions "how do you feel about your life?", "how much happiness do you feel in your life?" and "were you been bothered by some emotional problems last month such as being nervous, depressed or angry?" One modification done is that the ten-point scale for the second question is merged to a five-point scale and the value for the third question is converted reversely before summing. The total score of psychological well-being ranges from 5 to 15, and its reliability is 0.644, as measured by Cronbach's alpha.

### *Social change*

In this study, social change refers to the social transition initiated by economic reform using objective and subjective indices. Health-care expenditure, for example, is measured by the total amount of medical care expenditure made the previous year excluding free medical care and insurance. The health-care burden, defined as health-care expenditure divided by the family's total income the previous year, is used as the objective index for social change. The subjective indices include perceptions of socioeconomic status, social mobility and social stratification. We measure perception of socioeconomic status on a five-point scale according to response to the question "what is the level of your family's social economic status?" Social mobility and stratification are measured by comparing the present social status with that of three years ago as well as that of peers; responses are on a three-point scale: "lower," "no difference or difficult to identify," and "higher."

### *Social support*

Social support includes three indices: social integration, intimate relationships and marital status. The former two indices are assessed on a five-point scale measured by responses to two questions: "how do your opinions agree with others in the society?" and "how frequently do you contact your relatives and friends?" An important social support issue also relevant to China's future demography is marital status. As the social problem of gender structure imbalance becomes more serious, forced bachelorhood will be a common phenomenon and have an impact on marriage stability and the remarriage market. Marital status is divided into single and married; single includes unmarried, divorced or widowed without re-marriage, while married includes first marriage and re-marriage.

### *Self-rated health*

Self-rated health is measured on a five-point scale according to responses to three questions: “have you felt pain in any part of your body in the past month?”, “have your daily activities been affected by health problems?” and “has your daily work (including work at home and outside) been affected by health problems?” The score for the third question is converted reversely before summing up. The total score for perception of self-rated health ranges from 5 to 15, and its reliability is 0.899, as measured by Cronbach’s alpha.

### *Socio-demographic characteristics*

In this study, the socio-demographic variables of education, income, sex and age are controlled for analysis. Education is measured as the highest education level completed and divided into 5 categories: informal education, primary school, junior high school, senior high school or technical secondary school, and junior college and above. Income is measured by the total amount of earnings the previous month including bonuses, subsidies and dividends, and divided into categories as follows: 0= “no”, 1=“1-250”, 2=“251-500”, 3=“501-1000”, 4=“1001-2000” and 5=“more than 2000”. Sex is coded as a dummy variable: 0=female, 1=male. Age is assessed as a continuous variable.

### **Analytic strategy**

We first compare the difference in core variables such as psychological well-being, healthcare burden, socioeconomic status, status change, status comparisons and social support between single and married people in urban and rural areas by *t*-test and the chi-squared test. Then OLS regression is used to analyze the relationship between social changes, social support, and psychological well-being. Analyses are conducted on the urban and rural samples separately, to identify whether there are urban-rural differences. Four models are used for the analyses: (i) model 1 includes control variables of self-rated health and socio-demographic variables, (ii) model 2 includes model 1 and the variables of social changes, (iii) model 3 includes model 2 and social support variables, and (iv) model 4 includes model 3 and interaction effect of social changes and social support except marital status. Finally, the moderating role of marriage in social change, other social support and psychological well-being is analyzed, and we concerned whether psychological well-being factors differ between single and married residents in urban and rural areas, respectively. All analyses are conducted using SPSS version16.0 software.

## **Results**

### **Difference across urban and rural Area**

Psychological well-being, status comparison with peers, social integration, and all

the other variables of social change and social support show significant urban-rural differences (P value is not shown in Table 1). Both married and single people in urban areas have better psychological well-being and self-rated health than those in rural areas. Although rural residents have a heavier healthcare burden than urban residents, they perceive that their socioeconomic status has improved more, and they have more intimate social relationships. Further comparison between the single and the married among urban and rural residents shows that the psychological well-being, health-care burden, social integration of married urban residents are significantly higher than those of single urban residents (Table 1). However, the self-rated health of married urban residents is worse, and there are no significant differences in perceptions of socioeconomic status, status change, status comparison, and social relationship between those two groups. For rural residents, all the variables are significantly different between the married and the single groups. Psychological well-being, perception of socioeconomic status, status change, status comparison, and all the social supports variables of married rural residents are significantly higher than that of those of single residents. However, the self-rated health and health-care burden of the married are worse than those of the single.

### **The connection of social change, social support and psychological well-being**

Table 2 shows the result of OLS regression for psychological well-being in urban and rural China separately. The impacts of self-rate health and socio-demographic variables on psychological well-being both in urban and rural samples are examined in model 1. All of the control variables are significantly correlated to psychological well-being. Men have worse psychological well-being than women, and the psychological well-being of people with older age, higher education and income are better than that of their counterpart.

Model 2 examines the impact of social change on psychological wellbeing controlled for socio-demographic characteristics and self-rated health. There is a significantly negative association between burden of health-care and psychological well-being, which confirms the hypothesis 1 that increasing health-care costs are more likely to reduce the psychological well-being of people in lower-income families. Social status, status change and comparison are positively correlated to psychological well-being; people with higher social status and those who have moved up during the social transition are more likely to have better psychological well-being. But if one's social status dropped below that of one's peers in the process of social stratification, then one's psychological well-being deteriorates. The hypotheses 2, 4, and 5 are confirmed too. Compared with urban residents, increasing burden of health-care is more likely to reduce the psychological well-being of rural residents.

Model 3 add social support variables. In both urban and rural cases, the positive

impacts of social integration and intimate relationship on psychological well-being are statistically significant. Hypothesis 6 is confirmed. Additionally, there is significant association between marital status and psychological well-being controlled for other social support variables. Compared with single people, married people are more likely to have better psychological well-being.

The moderating effects of social integration and intimate relationship are examined in model 4. In urban cases, the main effects of social change and social support except burden of health-care on psychological well-being are significant, and there are no statistically significant association between interaction variables and psychological well-being. This indicates that social integration and intimate relationship don't moderate the impact of social change on psychological wellbeing of urban residents. In rural cases, the interaction effect of social integration and burden of health-care is positively significant, and the main effects of social integration and burden of healthcare are no longer significant, which indicates that social integration could buffer the negative impact of increasing health-care expenditure on psychological well-being. The interaction effect of intimate relationship and burden of health-care is marginally significant at 10% level, and the coefficient for intimate relationship is still significant. The interaction effect of intimate relationship and status comparison is also marginally significant at 10% level, and the coefficient for status comparison is no longer significant. These indicate that intimate could moderate the relationships of burden of health-care, status comparison and psychological well-being except its direct protective function. However, more intimate relationship buffers the negative effect of lower social status compared with their peers on psychological well-being, strengthens the negative effect of heavier burden of healthcare on psychological well-being.

*<Table 2 here>*

### **The role of marriage in social changes and psychological wellbeing**

To identify the moderating effect of marital status on social change, other social support and psychological well-being, the urban and rural areas samples were further divided into married and single cases for OLS regression. As Table 3 shows, in urban and rural China, the influence of the health-care burden on psychological well-being is significantly different between the married and the single. Contrary to hypothesis 9, the health-care burden is more likely to reduce the psychological well-being of married responders. An increase in health-care costs is more likely to reduce the psychological well-being of both married and single rural residents, which further confirms hypothesis 3. In urban areas, there is no difference in the relationships of socioeconomic status, status change and comparison, social support and psychological well-being between the married and the single. In rural areas, marital status shows a significant moderating

effect. Upward mobility of social status and social integration are more likely to improve the psychological well-being of married rural residents. In addition, the psychological well-being of married urban resident improves as their income and age increases. In contrast, the psychological well-being of single urban residents is not related to age, and declines as their income increases. The psychological well-being of married rural residents improves as education and age increases, but this effect is not seen among single rural residents.

*<Table 3 here>*

## **Conclusion and discussion**

This study systematically examines the relationship between social change and psychological well-being using a nationally representative sample in urban and rural areas of China, and the moderating roles of social support including marriage in the relationship between social change and psychological well-being are also examined. Our findings provide important direction and a reference for understanding the psychological cost of China's economic, social, and demographic transition spurred by economic reform, and for understanding the role of social support especially marriage in China's aging and increasingly gender-imbalanced society.

The relationships between an increasing health-care burden, perception of social change, and psychological well-being are tested. Our results show that in both urban and rural areas of China, the health-care burden is a very important index for psychological well-being, and its influence is greatest in rural areas, where the correlation coefficient is triple that of urban areas. This is can be partly attributed to the urban-rural difference in the medical care system. Free medical care and labor-protection medical care limited to government institutions and state-owned enterprises relieve the health-care burden in urban areas. In contrast, health-care costs are fully borne by individuals in rural areas since the collapse of cooperative health care in the 1980s. Public funds for medical expenditure have also been concentrated in the health-care departments of developed cities (Wei & Gustafsson, 2005). Along with the establishment of new rural cooperatives medical insurance and the advancement of urban resident medical insurance, China's government has continually expanded financial investment in, and taken more responsibility for, medical care in recent years. Based on the findings of this study, reduction of the health-care burden is expected to relieve Chinese psychological stress due to the medical care reform, especially in rural areas.

Results also show that perceptions of socioeconomic status, status change, and status comparison are more likely to influence psychological well-being than increasing health-care costs. Not only does lower social status correlate with worse psychological

well-being, but also downward mobility and disparity in social status create a feeling of deprivation, which deteriorates psychological well-being. This pattern emerges both in urban and rural areas, and among married and single subgroups. Thus, as a consequence of the social transition, a new social pattern of broadly disparate levels of psychological well-being – with pockets of serious psychological imbalance – are likely to occur. As the income gap continues to widen, individuals' increasing feelings of deprivation promise to further worsen their psychological wellbeing, which undoubtedly will become the psychological basis for social conflict and amplified risk (Liu & Li, 2010).

Social support, as an important coping resource, buffers the impact of social change on psychological well-being. This is in agreement with the conclusion of Kim (2008), who points out the role of social relationship networks in mitigating the scope and pace of social change's negative effects on psychological well-being. Social integration buffers the influence of increasing health-care expenditure on psychological stress, and more intimate social relationship and social integration are more likely to buffer the feeling of deprivation as well. However more intimate relationship also worsens the impact of increasing health-care burden on psychological well-being. One reasonable explanation is that people with intimate social relationships are more likely to acquire economic support when in economic difficulty, often in the form of loans. When compounded by health-care costs, the carrying of such debts negatively affects psychological well-being.

Previous studies have confirmed that intimate social relationships, particularly marriage, relieve psychological stress. Findings in this study also show that the psychological well-being of married people is better than that of single people controlled for other social support variables. In rural areas, the relationships between social integration, status comparison and psychological well-being are stronger in the married subgroup than the single subgroup, which confirms the idea of Hurlbert & Acock (1990) that marriage acting as a important protective mechanism could improve psychological well-being directly, as well by keeping relatively higher social status, extending the social network and promoting social integration indirectly. Hence, along with China's increasing gender imbalance, single males unable to find partners will inevitably suffer more psychological stress and disturbance. Marriage status also significantly moderates the relationship of health-care burden and psychological well-being; health-care burden is more likely to deteriorate the psychological well-being of the married subgroup in both urban and rural areas. This is partly due to our measurement of the health-care burden, which is based on the family rather than the individual. It also can be attributed to the system of medical care and elder support, which lags behind the aging of China's population. In China's family-based culture, marriage is not only a resource of support, but also fosters responsibility. It is assumed

that married children will support their elderly parents more than single children. So, the health-care expenditure of aged parents is probably an important part of family health-care costs, increasing the psychological burden of the married subgroup. However, along with the demographic transition, the one-child family is the norm. If the system of medical care and social support still lags behind the aging of the population, forced bachelors will have to face the problem of supporting their elderly parents, including taking on their health-care costs.

One limitations of this study is the use of cross-sectional data. A lack of longitudinal data makes it difficult to determine the causal relationship between social change, social support, and psychological well-being. Further longitudinal data are necessary to explore such causal relationships. In addition, whether marriage has a selection effect on psychological well-being – that is, whether people with worse psychological well-being are more likely to be single because they have difficulty finding spouses – is hard to test using cross-sectional data. In China, the selection effect of marital status on self-rated health is more obvious. Our study shows that the self-rated health of married people is worse than that of single people, which is a reverse selection. A possible explanation is that people who physical health is in bad situation are more likely to keep marital stability. In addition, the role of marriage in psychological well-being is more complicated than can be explored in this study. To consider the effect of gender imbalance, it is necessary to compare the psychological well-being of forced bachelors with those who voluntarily delay marriage.

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Table 1 Sample Characteristics and Differences

Variables	Urban residents (N=5,781)			Rural residents (N=4,560)		
	Married (N=4,682)	Single (N=1,099)	T-test (P value)	Married (N=4,070)	Single (N=490)	T-test (P value)
<b>Core variables</b>						
<b>(mean)</b>						
Psychological well-being	10.82(2.09)	10.63(2.37)	0.008	10.62(2.08)	10.15(2.41)	0.000
Physical health	12.79(2.51)	13.07(2.65)	0.001	12.44(2.80)	12.55(3.02)	0.002
Medical care burden	2.72(1.48)	2.37(1.63)	0.000	3.27(1.49)	3.02(1.80)	0.000
Social status	2.28(0.89)	2.25(0.93)	0.268	2.41(0.94)	2.19(0.96)	0.000
Status change	2.08(0.74)	2.12(0.72)	0.055	2.33(0.72)	2.22(0.74)	0.003
Status comparison	1.68(0.57)	1.68(0.57)	0.691	1.72(0.57)	1.59(0.55)	0.000
Social integration	3.35(0.70)	3.22(0.74)	0.000	3.37(0.68)	3.22(0.68)	0.000
Social relations	3.62(0.74)	3.57(0.78)	0.086	3.74(0.75)	3.59(0.83)	0.000
<b>Education (%)</b>						
Informal education	5.20	8.60		18.50	23.30	
Primary school	15.70	10.30		40.80	28.60	
Junior school	30.70	19.70		31.20	32.40	
Senior school	32.80	35.80		9.10	14.70	
Junior college and above	15.70	25.70		0.30	1.00	
<b>Income (%)</b>						
No income	6.30	8.10		17.00	17.60	
1–250(RMB)	7.10	10.00		35.60	35.70	
251–500	19.70	21.60		23.90	16.10	
501–1,000	35.80	29.60		13.00	18.80	
1,001–2,000	21.80	20.50		3.50	5.10	
2,000 and above	6.20	7.00		1.30	2.00	
<b>Sex (%)</b>						
Male	47.20	48.90		45.60	60.60	
Female	52.80	51.10		54.40	39.40	
<b>Age (mean)</b>	47.15(13.72)	37.34(19.42)		44.45(12.67)	40.27(20.96)	

Table 2 OLS Regression Results for Psychological Well-being

Variables	Urban samples (N=4,663)				Rural samples (N=4,258)			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
<b>Control variables</b>								
Gender (female for reference)	-0.069***	-0.038**	-0.032**	-0.032**	-0.049***	-0.016	-0.006	-0.006
Age	0.050***	0.061***	0.046***	0.047**	0.070***	0.036**	0.031*	0.030*
Education	0.067***	0.037**	0.026*	0.026*	0.079***	0.042**	0.036**	0.036**
Income	0.122***	0.005	0.005	0.004	0.084***	0.013	0.013	0.013
Self-rated health	0.511***	0.450***	0.428***	0.429***	0.582***	0.483***	0.469***	0.469***
<b>Variables of social changes</b>								
Burden of healthcare		-0.023+	-0.036**	0.092		-0.068***	-0.078***	-0.097
Social status		0.163***	0.144***	0.210**		0.119***	0.106***	-0.028
Social status change		0.153***	0.142***	0.193*		0.157***	0.139***	0.206*
Social status comparison		0.161***	0.145***	0.158*		0.180***	0.168***	0.156
<b>Variables of social support</b>								
Social integration			0.115***	0.177***			0.084***	-0.020
Intimate relationship			0.102***	0.160***			0.095***	0.152**
Marital status (single for reference)			0.037**	0.037**			0.044***	0.045***
<b>Interaction variables</b>								
Burden of healthcare ×social integration				-0.081				0.123*
Burden of healthcare ×intimate relationship				-0.057				-0.102+
Social status ×social integration				0.028				0.115
Social status ×intimate relationship				-0.107				0.046
Social status change ×social integration				0.021				-0.051
Social status change ×intimate relationship				-0.038				0.068
Social status comparison ×social integration				-0.115				0.069
Social status comparison ×intimate relationship				0.051				-0.154+

<b>df</b>	5	9	12	20	5	9	12	20
<b>Adjusted R<sup>2</sup></b>	0.301	0.424	0.452	0.452	0.364	0.483	0.504	0.504
<b>F</b>	432.151	409.354	344.042	206.864	455.900	412.558	336.540	202.898

*Note:* \*\*\* P<0.001, \*\*P<0.01, \*P<0.05, +P<0.1.

Table 3. OLS regression results for the moderating effect of marital status on psychological health

Independent variables	Urban married (N=3,599)	Urban single (N=736)	Rural married (N=4,137)	Rural single (N=448)
<b>Health and social changes</b>				
Physical health	0.423***	0.451***	0.469***	0.481***
Burden of health care	-0.040**	-0.016	-0.074***	-0.091*
Perception of social status	0.148***	0.116***	0.100***	0.168***
Social status changes	0.131***	0.187***	0.146***	0.103*
Social status comparison	0.152***	0.109***	0.173***	0.161***
<b>Social support</b>				
Social integration	0.116***	0.116***	0.093***	0.034
Social relationship	0.097***	0.125***	0.097***	0.144***
Community support	0.000	-0.028	-0.038**	-0.045
<b>Sociodemographic variables</b>				
Education	0.022	0.033	0.038**	0.015
Income	0.028*	-0.070*	0.016	-0.037
Age	0.057***	0.012	0.028*	0.049
Sex (female)	-0.032*	-0.062*	-0.003	0.005
<b>Adjusted R<sup>2</sup></b>	0.442	0.495	0.502	0.508
<b>F</b>	270.103	75.677	299.381	36.171

Note: \*\*\* P<0.001, \*\*P<0.01, \*P<0.05.