

The Relationship Between Age and Subjective Well-Being: Evidence from Five Capital Cities in Mainland China

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Abstract Since the mid-60s of the twentieth-century, the researchers have made lots of studies on the relationship between age and subjective well-being (SWB), and yielded some contradictory conclusions. By using an urban sample ($N = 3,099$) from five capital cities in Mainland China, this paper presents some new evidence on this issue in the Chinese context. The paper reconfirms a significant relationship between age and subjective well-being, and argues that different measure instruments of subjective well-being lead to different types of relationship. It is partly testified that subjective well-being follows approximate U-shape across age groups, and the minimum point lies in the age band 45–49. It is also found that age is not always a strong significant predictor of subjective well-being when a different dependent variable was adopted to multiple regression analysis. It is suggested that the researchers should pay more attention to the specific content of subjective well-being while examining the relationship between age and subjective well-being.

Keywords Subjective well-being · Personal well-being · Age · Mainland China

1 Introduction

The western researchers have made lots of studies on the relationship between age and subjective well-being since the mid-60s of the twentieth-century, and reached some contradictory conclusions. According to Wilson (1967), there is a negative relationship between

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age and subjective well-being, and the young tend to be happier than the old. This has been partly confirmed by some researches. Larson (1978) found that some factors are associated with the decline in SWB in older adults, including loss of friends, widowhood, deteriorating health, decreased activity level, and the decline in their financial resource. The data from World Value SurveyII (WVSII) showed an apparent decline on the pleasant effect across age cohorts (Diener and Suh 1998). Smith and Baltes (1993) found there is a decline in happiness as people grow older. Ferring and Filipp (1995) reported that there is a decrease in positive affect among the old—old age group when being compared to the younger. However, a much more empirical study challenges Wilson's conclusion. Diener et al. (1999) reviewed the previous studies and concluded that life satisfaction usually increases or at least doesn't drop with age. This conclusion is also supported by some international studies (Veenhoven 1984; Inglehart 1990; Diener and Suh 1998). This could be explained by adaptation theory. According to adaptation theory, the elder people may report more positive SWB even in undesirable conditions (Diener and Suh 1998). In the mid-90s of last century Clark and Oswald (1994) firstly reported that mental well-being follows U-shape across age, and the happiness minimum along the U is reached around a person's mid-30s. Since then, a body of research confirmed the U-shape of subjective well-being in age (Gerlach and Stephan 1996; Oswald 1997; Theodossiou 1998; Di Tella et al. 2001; Frey and Stutzer 2002; Helliwell 2003; Blanchflower and Oswald 2004; Frijters et al. 2005; Clark and Oswald 2006). However, Mroczek and Spiro (2005) suggested that subjective well-being follows an inverted U-shape and peaks at around the age of sixty. In recent years the research on the subjective well-being of Chinese residents has gradually increased, and the relationship between age and subjective well-being was explored preliminarily by some researchers. For example, Smyth et al. (2010) examined the personal well-being (PWI) of Chinese urban residents and found that the highest PWI was reported by the oldest age group (56–60), while the lowest PWI was reported by the younger age group (18–25).

In general, the most prominent problem of the previous research is that the definition of subjective well-being is inconsistent. Different understandings of subjective well-being, as well as different measures that are used to evaluate it, lead to different interpretations of the relationship between age and subjective well-being. This research redefines subjective well-being, and uses a sample of five capital cities in mainland China to explore the relationship between age and subjective well-being in Chinese context. Using three measures of subjective well-being, the study evaluates the level of SWB among different age groups in the sample. The specific aims of the research are to (a) Ascertain the distribution trend of subjective well-being among different age groups. (b) Explore whether age can be used as a predictor of subjective well-being. (c) Examine whether researcher's different understanding and definition of SWB would affect the relationship between age and subjective well-being.

2 Methods

2.1 Participants and Procedure

The investigation was carried out from October 2005 to January 2006. The sample was selected through the method of stratified sampling. Purposive sampling method was used in the first stage. According to the soliciting opinion from the experts of related disciplines, Beijing, Shenyang, Guangzhou, Xi'an and Kunming were selected. From the historical and developmental point of view, the selected cities are quite representative in China. Random sampling

method was used in the second stage to determine the sampling point. In the third stage, according to the fifth census data of the country, approximately 620 people were randomly selected in each city. The final sample size is 3,099 people. Participants completed the face-to-face interview questionnaire in a one-by-one or small group setting with at least 2 interviewers from the research team, and all the interviewers accepted standard training before the survey was carried out. The questionnaire included self-reported measures of SWB and items to measure some demographic and socioeconomic variables: gender, age, marital status, educational level, owner-occupied housing area, personal annual income, annual household income, and number of households. Table 1 summarizes the demographic and socioeconomic characteristics of the participants from each city and the total. The sample was divided into 10 age groups. These age groups and the participants included in each age group were as follows: 24 and under, 507 participants; 25–29, 549 participants; 30–34, 472 participants; 35–39, 429 participants; 40–44, 357 participants; 45–49, 277 participants; 50–54, 156 participants; 55–59, 127 participants; 60–64, 107 participants; 65 and above, 99 participants.

2.2 Measures

2.2.1 Subjective Well-Being Scale for Chinese Citizens (SWBS-cc)

The SWBS-cc was developed for the Chinese context. It contains 20 items in ten dimensions, and the respondents are required to respond to each item with a 6-grade

Table 1 Demographic and socioeconomic characteristics of participants

	Beijing	Shenyang	Xi'an	Guangzhou	Kunming	Total
Gender (%)						
Male	50.9	53.9	56.7	48.7	47.1	51.4
Female	49.1	46.1	43.3	51.3	52.9	48.6
Marital status (%)						
Married	66.2	77.5	63.6	54.9	70.2	66.6
Single	33.8	22.5	36.4	45.1	29.8	33.4
Age (years old)						
Mean	38.1	38.2	32.5	38.0	37.2	36.8
SD	13.4	12.1	11.2	13.9	10.1	12.5
Educational level (%)						
Junior middle school or below	16.6	18.9	10.7	22.7	21.7	18.1
Senior middle school	40.5	32.4	31.2	38.5	31.2	34.7
College or above	42.9	48.6	58.1	38.8	47.1	47.2
Participant's average owner-occupied housing area (m ²)						
Mean	19.3	27.5	24.4	24.5	27.0	24.5
SD	12.6	15.3	17.8	16.9	15.3	15.7
Participant's average annual income (RMB, %)						
8,000 or below	20.5	21.9	22.1	23.3	21.2	21.8
8,000–12,000	24.8	22.6	21.4	23.5	25.3	23.5
12,000–20,000	15.7	16.7	18.1	17.3	19.6	17.5
20,000–30,000	26.3	22.7	19.8	22.2	17.1	21.4
30,000 or above	12.7	16.1	18.6	13.7	16.9	15.7

selection (Xing 2009). The ten subscales are as follows: experience of satisfaction and abundance (ESAb), experience of mental health (EMH), experience of confidence over society (ECS), experience of growth and progress (EGP), experience of goal and personal value (EGPV), experience of self-acceptance (ESAc), experience of physical health (EPH), experience of psychological balance (EPB), experience of adaptation to interpersonal relationship (EAIR), experience of family atmosphere (EFA). Some studies have shown that SWBS-cc has ideal psychometric properties (Chen and Wu 2005; Zhang and Xing 2005; Xiao and Ding 2008; Pan 2008; Liao and Xing 2009; Li and Li 2009; Zhang 2011). SWBS-cc is also testified to have good reliability (Cronbach's $\alpha = 0.89$) and validity in this sample.

2.2.2 Personal Well-Being Index (PWI)

The PWI contains seven items of satisfaction, each corresponding to a quality of life domain: standard of living, health, life achievement, personal relationships, personal safety, community-connectedness, and future security (Cummins et al. 2003). Some researchers have reported that PWI shows good psychometric characteristic when administering to urban residents from Hong Kong and Mainland China (Lau et al. 2005; Huang and Xing 2005; Chen and Davey 2009; Smyth et al. 2010; Nielsen et al. 2010). PWI also exhibits ideal reliability (Cronbach's $\alpha = .79$) and validity in this sample.

2.2.3 Satisfaction with Life Scale (SWLS)

The SWLS is a five-item scale where participants rate themselves on the degree to which they agree with these items regarding global life satisfaction (Diener 1984). SWLS has been testified as a valid and reliable scale for measuring global life satisfaction (Pavot and Diener 1993), and it is proved to have good psychometric characteristic in the Chinese context (Xing 2002). It also shows ideal reliability (Cronbach's $\alpha = .71$) and validity in this sample.

3 Results

3.1 Distribution of SWB Among Different Age Groups

Table 2 presents mean scores on SWBS-cc according to age. The highest mean score was reported by the oldest age group (65 and above): 67.7 (SD = 11.0), while the lowest mean score was reported by age 45–49: 57.1 (SD = 10.1). There were significant differences in the SWBS-cc scores between age groups [$F(9, 2973) = 12.518, p = 0.000$].

A Tukey's HSD post hoc test found that those aged 65 and above scored higher than all the other age groups. Those aged 60–64 and aged 35–39 scored higher than those aged 25–29. Besides the oldest age group, those aged 45–49 scored lower than three of the remaining age groups (age 24 and under, age 35–39, and age 60–64).

Table 3 presents mean scores on PWI according to age. The highest mean score was reported by the oldest age group (65 and above): 73.0 (SD = 19.2), while the lowest mean score was reported by age 25–29: 54.7 (SD = 17.5). There were significant differences in the PWI scores between age groups [$F(9, 3016) = 16.656, p = 0.000$]. A Tukey's HSD post hoc test found that those aged 65 and above scored higher than all other age groups.

Table 2 Distribution of SWBS-cc by age

Age group (years)	Mean	SD	Tukey's HSD test
24 and under	60.2	11.2	Age 65 and above > all the other age groups, $p = 0.000$
25–29	58.3	11.3	
30–34	58.5	10.4	Age 60–64 > age 25–29, $p = 0.045$
35–39	60.8	10.7	Age 60–64 > age 45–49, $p = 0.004$
40–44	59.0	11.2	Age 35–39 > age 25–29, $p = 0.016$
45–49	57.1	10.1	Age 35–39 > age 45–49, $p = 0.001$
50–54	59.5	10.9	Age 24 and under > age 45–49, $p = 0.005$
55–59	57.2	12.4	
60–64	62.0	11.0	
65 and above	67.7	10.3	

$F(9, 2973) = 12.518, p = 0.000$

Table 3 Distribution of PWI by age

Age group (years)	Mean	SD	Tukey's HSD test
24 and under	57.1	16.9	Age 65 and above > all the other age groups, $p = 0.000$
25–29	54.7	17.5	
30–34	56.2	16.3	Age 60–64 > all the age groups below age 50, $p < 0.033$
35–39	59.1	17.9	
40–44	59.3	18.1	Age 50–54 > age 25–29, $p = 0.006$
45–49	56.3	17.6	Age 40–44 > age 25–29, $p = 0.006$
50–54	60.8	18.0	Age 35–39 > age 25–29, $p = 0.004$
55–59	59.3	19.6	
60–64	65.6	15.7	
65 and above	73.0	19.2	

$F(9, 3016) = 16.656, p = 0.000$

Those aged 60–64 scored higher than all the age groups below 50 years old. Besides the eldest age group and 60–64 age group, those aged 25–29 scored lower than three of the remaining age groups (age 35–39, age 40–44, and age 50–54).

Table 4 presents mean scores on SWLS according to age. The highest mean score was also reported by the oldest age group (65 and above): 21.4 (SD = 6.7), while the lowest mean score was reported by age 24 and under: 15.8 (SD = 5.9). There were significant differences in the SWLS scores between age groups [$F(9, 3064) = 16.221, p = 0.000$]. A Tukey's HSD post hoc test found that those aged 65 and above scored higher than other age groups except those aged 60–64. Those aged 60–64 scored higher than the age groups below 50 years old except those aged 40–44. Those aged 55–59 scored higher than the two age groups below 30 years old. Those aged 50–54 scored higher than the three age groups below 35 years old. Those 45–49 scored higher than those aged 24 and under. Those aged 40–44 scored higher than the three age groups below 35 years old. Those aged 35–39

Table 4 Distribution of SWLS by age

Age group (years)	Mean	SD	Tukey's HSD test
24 and under	15.8	5.9	Age 65 and above > all the age groups below age 60, $p < 0.029$; age 60–64 > all the age groups under age 40, $p < 0.009$; age 60–64 > age 45–49, $p = 0.036$; age 55–59 > all the age groups under age 30; $p < 0.037$; age 50–54 > all the age groups below 35, $p < 0.042$; age 45–49 > age 24 and under, $p = 0.000$; age 40–44 > all the age groups below 35, $p < 0.026$; age 35–39 > age 24 and under, $p = 0.000$
25–29	16.7	5.7	
30–34	17.1	5.3	
35–39	17.7	6.0	
40–44	18.0	6.4	
45–49	17.9	6.0	
50–54	18.7	6.1	
55–59	18.8	6.3	
60–64	20.1	6.1	
65 and above	21.4	6.7	

$F(9, 3064) = 16.221, p = 0.000$

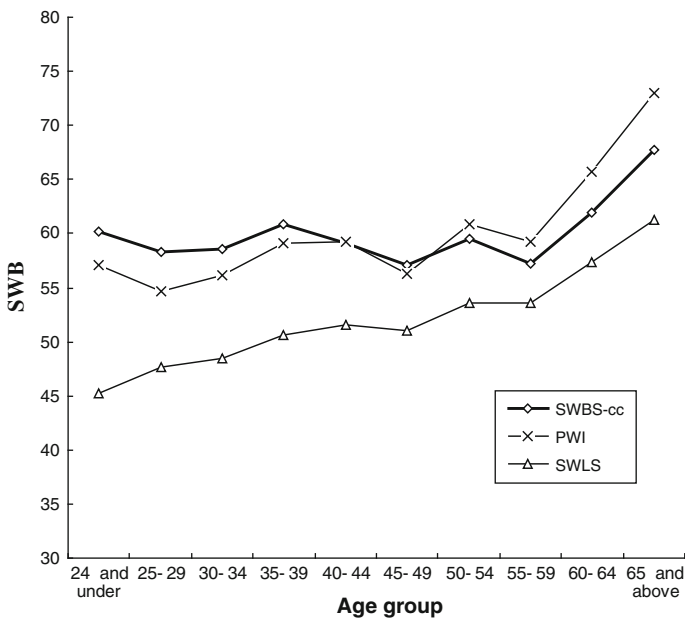


Fig. 1 The relationship between SWB and age under different measures. The score of SWBS-cc was transformed into a 0–100 distribution through the formula $[(\text{score}/X) \times 100]$

scored higher than those aged 24 and under. Besides the eldest age group and 60–64 age group, those aged 25–29 scored lower than three of the remaining age groups (age 35–39, age 40–44, and age 50–54). In general, the greater the age, the higher the global life satisfaction.

Is there a U-shape distribution of subjective well-being across age groups? Different measures of subjective well-being provided different answer in this sample. From Fig. 1, the mean score of SWBS-cc follows approximate U-shape across age groups, and it reaches a minimum in the age group 45–49. Another lower mean score of SWBS-cc

appears in the age group 55–59. As to PWI and SWLS, the situation is different from this. Although there is a lower mean score of PWI in the age group 45–49, the lower one appears in the age group 25–29. In general, the trend that scores of PWI and SWLS increase with age is more clearly.

3.2 Contribution of Age to Predict SWB: Multiple Regression

To examine whether age could be used as a predictor of SWB, a multiple regression analysis was conducted. The scores of SWBS-cc, PWI and SWLS were used as dependent variables respectively. Each dependent variable was regressed on age, gender, education, marital status, income, and housing area. Table 5 shows the definition and description of the explanatory variables.

Using scores of SWBS-cc as the dependent variable, income, housing room, age and education eventually entered into the regression equation by the stepwise regression method (see Table 6). Table 6 shows that age was not the strongest predictor of SWBS-cc score in this sample, but its influence on score of SWBS-cc reached statistically significant. The U-shape relationship between score of SWBS-cc and age was testifying, and score of SWBS was at its lowest in the age group 45–49. As important components of objective well-being, income and housing room exhibit much stronger prediction on score of SWBS-cc than age. There is a positive relationship between education and the score of SWBS-cc. Participants with higher education level reported higher scores on SWBS-cc.

Tables 7 and 8 present the regression result of using PWI and SWLS as dependent variables respectively. Age is the strongest predictor of dependent variables in both regression equations. But in general, either PWI or SWLS does not follow a U-shaped

Table 5 Definition and description of the explanatory variables

Variable	Definition	Descriptive statistic
Age	Age of the participant in year	Min = 16, Max = 85; Mean = 36.80, SD = 12.54
Gender	A dummy variable where 1 = male; 0 = female	51.4 % of participants were male
Education	Education of participant 1 = Junior middle school or below 2 = Senior middle school 3 = College or above	1 = 18.1 %, 2 = 34.7 %, 3 = 47.2 %
Married	A dummy variable where 1 = married; 0 = single	66.5 % of participants were married
Income	Participant's average annual income (RMB) 1 = 8000 or below, 2 = 8000–12,000 3 = 12,000–20,000, 4 = 20,000–30,000 5 = 30,000 or above	1 = 21.8 %, 2 = 23.5 %, 3 = 17.5 %, 4 = 21.4 %, 5 = 15.7 %
Housing	Participant's average owner-occupied housing area (m ²)	Min = 0, Max = 180; Mean = 24.52, SD = 15.68

Table 6 Regression of demographic and socioeconomic variables on SWBS-cc

Variable	Unstandardized Coef.	Standardized Coef.	t	Sig.
Constant	52.728		44.447	0.000
Income	0.926	0.120	5.018	0.000
Housing room	0.069	0.101	4.599	0.000
Age	0.065	0.078	3.478	0.001
Education	0.101	0.071	2.918	0.004

Multiple $R = 0.221$; Adjusted $R^2 = 0.047$; $F(4,2110) = 26.97$, $p = 0.000$

Table 7 Regression of demographic and socioeconomic variables on PWI

Variable	Unstandardized Coef.	Standardized Coef.	t	Sig.
Constant	44.168		30.475	0.000
Age	0.247	0.177	8.500	0.000
Income	1.650	0.129	5.984	0.000
Housing room	0.104	0.092	4.293	0.000

Multiple $R = 0.251$; Adjusted $R^2 = 0.062$; $F(3,2171) = 48.67$, $p = 0.000$

Table 8 Regression of demographic and socioeconomic variables on SWLS

Variable	Unstandardized Coef.	Standardized Coef.	t	Sig.
Constant	10.717		16.321	0.000
Age	0.084	0.171	7.466	0.000
Housing room	0.060	0.152	7.308	0.000
Marital status	2.009	0.141	6.391	0.000
Income	0.652	0.146	6.361	0.000
Gender	-1.078	-0.086	-4.271	0.000
Education	-0.040	-0.049	-2.107	0.035

Multiple $R = 0.367$; Adjusted $R^2 = 0.132$; $F(6,2178) = 56.47$, $p = 0.000$

relationship with age. Besides age, income and housing room also exhibit a positive relationship with the scores of PWI and SWLS. Participants who were married reported higher scores of SWLS than those who were single. Females reported higher scores of SWLS than male. In contrast to the relationship between education and the score of SWBS-cc, there is a negative relationship between education and the score of SWLS.

3.3 Specific Contents of SWB and Their Relationship with Age

From the above results, it is not difficult to find that the relationship between subjective well-being and age could be interpreted differently if different measuring methods are adopted. Age was found to be a much stronger predictor of the scores of PWI and SWLS, but its contribution to predict scores of SWBS-cc is much weaker. SWLS is a multiple

scale to evaluate global life satisfaction, and it is much more abstract. In contrast, SWBS-cc and PWI is more specific. It is necessary to explore the specific contents of SWBS-cc and PWI, and to examine the relationships between the scores of their subscales and the age.

Table 9 shows the distribution of the specific contents of SWBS-cc (the ten subscales included) and the bivariate correlations between the scores of each subscale and age. Most subscale scores correlate significantly with age. But as to EMH (experience of mental health), EPB (experience of psychological balance) and EAIR (experience of adapting to interpersonal relationships), the scores on these subscales correlate insignificantly with age.

Regression analysis was used to determine the relationships between the subscales of SWBS-cc and age. Age was found to make a significant contribution to seven subscales of SWBS-cc, namely, 'experience of satisfaction and abundance' (standardized Coef. = 0.128), 'experience of confidence over society' (standardized Coef. = 0.074), 'experience of growth and progress' (standardized Coef. = -0.051), 'experience of goal and personal value' (standardized Coef. = 0.082), 'experience of self-acceptance' (standardized Coef. = 0.071), 'experience of adapting to interpersonal relationship' (standardized Coef. = 0.081), 'experience of family atmosphere' (standardized Coef. = 0.074). Age predicted ESAb score more strongly than predicting other subscale scores, but the predict is weak (Adj. $R^2 = 1.6\%$).

Table 10 shows the distribution of the specific contents of PWI (the seven domains included in it) and the correlations between the score of each domain and age. Most domains score correlate significantly with age, except the domain of health. Regression analysis was used to determine the relationships between the domains of PWI and age. Age was found to make a significant contribution to six domains score of PWI, namely, 'Standard of living' (Standardized Coef. = 0.151), 'life achievement' (standardized Coef. = 0.175), 'personal relationships' (standardized Coef. = -0.129), 'personal safety' (standardized Coef. = 0.045), 'Community-connectedness' (standardized Coef. = 0.149), 'future security' (standardized Coef. = 0.136). Age predicted score of 'life achievement' stronger than predicting other subscale scores, but the predict is still weak (Adj. $R^2 = 3\%$).

4 Discussion

Consistent with many studies from western and Chinese researchers, this research shows that the statistically significant relationship between age and subjective well-being is indeed existing, although the relationship is somewhat weak. An approximate U-shape is found in the relationship between the score of SWBS-cc and age, but is not found from the examining of PWI and SWLS. Clark and Oswald (2006) indicated a minimum of the U-shape in the age range 40–49. Similar to their findings, those aged 45–49 in this research reported the lowest score on SWBS-cc. This result could be easily interpreted in current China. From the social perspective, This age group in China is more likely to occupy important positions in society and be charged with greater responsibility. In China, this age range is usually identified as 'age of success', and the people in this age range might face higher expectation from the society. From the family perspective, family is a very important part both in the Chinese cultural background and in Chinese real social life. This age group has to take greater responsibility in the family. They usually serve as the backbone of the family. In all, the people in this age range usually experience more pressure than others, and they are more likely to report lower subjective well-being.

Table 9 Distribution of the subscales of SWBS-cc by age

Age group (years)	ESAb Mean (SD)	EMH Mean (SD)	ECS Mean (SD)	EGP Mean (SD)	EGPV Mean (SD)	ESAc Mean (SD)	EPH Mean (SD)	EPB Mean (SD)	EAIR Mean (SD)	EFA Mean (SD)
24 and under	4.55 (1.96)	5.14 (1.79)	6.21 (1.95)	7.09 (1.79)	6.35 (2.14)	6.19 (1.79)	5.84 (1.94)	5.48 (1.75)	6.43 (1.84)	6.80 (1.83)
25–29	4.39 (2.00)	4.76 (1.85)	6.30 (1.77)	6.83 (1.70)	6.09 (2.21)	6.23 (1.63)	5.78 (1.92)	5.25 (1.77)	5.84 (1.98)	6.58 (1.83)
30–34	4.46 (2.01)	4.83 (1.84)	6.06 (1.83)	6.87 (1.59)	6.27 (2.07)	6.11 (1.59)	5.67 (1.79)	5.39 (1.79)	6.16 (1.75)	6.75 (1.66)
35–39	4.72 (2.16)	4.84 (1.95)	6.50 (1.82)	7.24 (1.45)	6.57 (2.09)	6.52 (1.50)	5.74 (1.98)	5.38 (1.83)	6.38 (1.89)	6.89 (1.71)
40–44	4.67 (2.26)	4.52 (1.88)	6.37 (1.78)	6.92 (1.44)	6.43 (2.09)	6.47 (1.58)	5.65 (1.83)	5.18 (1.88)	6.22 (1.84)	6.70 (1.70)
45–49	4.66 (2.09)	4.41 (1.82)	6.33 (1.75)	6.58 (1.65)	6.07 (2.14)	6.27 (1.50)	5.39 (1.81)	4.72 (1.82)	6.01 (1.84)	6.59 (1.72)
50–54	4.91 (1.95)	4.70 (1.82)	6.32 (1.80)	6.67 (1.90)	6.52 (1.95)	6.51 (1.36)	5.56 (1.82)	4.84 (1.85)	6.55 (1.49)	6.81 (1.61)
55–59	4.75 (1.77)	4.89 (1.85)	5.98 (1.72)	6.11 (1.86)	6.62 (1.85)	5.79 (1.74)	5.69 (1.75)	4.95 (1.90)	6.04 (1.80)	6.39 (1.72)
60–64	5.39 (2.08)	5.52 (1.88)	6.43 (2.10)	6.45 (1.81)	6.69 (1.83)	6.08 (1.67)	6.14 (1.55)	5.81 (1.92)	6.70 (1.65)	7.02 (1.58)
65 and above	5.98 (2.01)	5.61 (1.82)	7.24 (1.74)	7.25 (1.47)	7.18 (1.55)	7.14 (1.44)	6.30 (1.71)	6.00 (1.84)	7.19 (1.42)	7.64 (1.32)
Correlation with age	0.128***	0.010	0.074***	-0.051***	0.082***	0.071**	0.010	-0.014	0.081**	0.058**

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Table 10 Distribution of the domains of PWI by age

Age group (years)	Standard of living Mean (SD)	Health Mean (SD)	Life achievement Mean (SD)	Personal relationships Mean (SD)	Personal safety Mean (SD)	Community-connectedness Mean (SD)	Future security Mean (SD)
24 and under	45.0 (27.6)	63.4 (28.1)	51.6 (26.3)	65.8 (25.5)	66.0 (25.1)	55.0 (25.7)	52.1 (24.0)
25–29	59.7 (29.9)	48.9 (26.3)	62.4 (23.4)	63.6 (24.8)	53.5 (26.6)	51.3 (26.5)	59.7 (29.9)
30–34	59.0 (27.1)	51.9 (25.3)	64.7 (23.0)	63.9 (25.6)	55.5 (24.6)	53.1 (25.6)	59.0 (27.1)
35–39	61.9 (29.4)	56.0 (28.1)	69.9 (25.4)	67.6 (26.0)	58.7 (27.2)	51.4 (28.4)	61.9 (29.4)
40–44	61.0 (29.2)	56.3 (28.1)	69.3 (26.3)	66.8 (25.8)	58.3 (24.9)	55.8 (25.7)	61.0 (29.2)
45–49	56.4 (27.6)	55.2 (27.2)	66.2 (25.8)	62.1 (26.9)	59.2 (25.7)	50.3 (27.0)	56.4 (27.6)
50–54	60.4 (27.3)	59.6 (27.2)	68.3 (25.6)	68.3 (23.7)	59.3 (25.3)	56.5 (25.7)	60.4 (27.3)
55–59	59.9 (28.4)	56.2 (27.1)	68.8 (24.4)	60.9 (27.4)	60.8 (28.4)	55.8 (30.0)	59.9 (28.4)
60–64	63.6 (24.7)	64.8 (23.1)	72.5 (17.3)	66.6 (23.1)	67.2 (21.3)	64.9 (24.1)	63.6 (24.7)
65 and above	68.1 (27.2)	72.5 (25.7)	80.9 (20.4)	76.1 (22.3)	72.3 (26.5)	73.2 (26.9)	68.1 (27.2)
Correlation with age	0.151**	0.015	0.175**	0.129**	0.045*	0.149**	0.136**

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Another lower score of SWBS-cc was reported by the age group 54–59. This may be related to the retirement age in Mainland China. In current Mainland China, 55 or 60 years old are usually regarded as a cutoff point of retirement in many agencies or in people's minds. Various maladjustments toward the retirement might cause people in this age range experience lower subjective well-being.

Consistent with many studies (Gerlach and Stephan 1996; Oswald 1997; Theodossiou 1998; Di Tella et al. 2001; Frey and Stutzer 2002; Helliwell 2003; Blanchflower and Oswald 2004; Frijters et al. 2005; Clark and Oswald 2006; Smyth et al. 2010), this research shows that the age group 65 and above reported the highest subjective well-being in the three kinds of measure. This phenomenon can be partly explained by Confucianism. Confucius once said to his disciples, "... ..At forty, I had no doubts; At fifty, I knew the decrees of heaven; At sixty, my ear was an organ for the reception of truth; At seventy, I could follow my heart desired, without transgressing what was right"(Analects, 2:4). This refers not only to the development of a person's intelligence, but also to a person's mentality maturity. Having experienced many vicissitudes of life, the elderly people are more likely to understand the implication of "content is happiness".

In general, age is not a strong predictor of subjective well-being in this research. When we examine whether different measures of SWB would affect the relationship between age and subjective well-being, age show stronger predict on SWLS and PWI. Satisfaction with life scale and personal well-being index are essentially measuring some kinds of life satisfaction. Life satisfaction was regarded as the cognitive component of subjective well-being, and it reflects which degree of human's need should be satisfied. A person's own evaluation criteria would play an important role in this cognitive evaluation process (Diener et al. 1999). Thus the relationship between age and SWLS/PWI was once again verified. With the growth of age, the criteria of a person's evaluating things meeting his or her need would be more realistic and more objective. In other words, he or she would more likely to be aware of the gap between dream and reality. Therefore, the elderly are more likely to report higher life satisfaction than the young.

However, life satisfaction is only one important part of happiness. According to Diener (1984), subjective well-being refers to how people experience the quality of their lives and includes both emotional reactions and cognitive judgments. It includes people's emotional responses, domain satisfactions, and global judgments of life satisfaction (Diener et al. 1999). Ryff (1995) criticized that the researchers of subjective well-being ignored the people's 'striving for perfection that represents the realization of one's true potential'. According to the view of subjective well-being measurement based on experience (Xing 2009), subjective well-being could be redefined as a person's positive experience of his or her existential state. This state indicates whether a person lives normally and to which degree this person achieved, both materially and spiritually. The former exhibits the experience of one's physical and mental health state. The latter exhibits the experience of one's enjoyment and development state. It is obvious that the exploration into the relationship between specific contents of age and subjective well-being would provide the policy-makers with more specific proposal to promote the related public well-being. This modified definition enables us to understand subjective well-being from a more integrative way. It might be regarded as an organic whole composed of satisfaction, pleasure and self-worth. Based on this definition, the exploration of the relationship between age and subjective well-being would be rooted on a more solid foundation. Different patterns of relationship between age and subjective well-being have been discovered under the modified framework. Age was found to be a weaker predictor of the scores of SWBS-cc, and this pattern of relationship seems more reliable and could better reflect the reality.

5 Limitations

Consistent with some studies from the western and the Chinese researchers, this research shows a statistically significant relationship between age and subjective well-being. But the findings in this study are built upon cross-section researches, therefore, they are still to be testified by longitudinal studies. Another limitation of this research is that the respondents of the survey merely come from five Chinese capital cities, so the conclusions of the survey research need to be verified in a wider range. This research remains an exploratory research, which is designed to find some evidences of the relationship of age and subjective well-being from China background, so there were no hypotheses to be put forward. Further explanatory research need to be conducted in the future.

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Appendix: Subjective Well-being Scale for Chinese Citizens (SWBS-cc)

The following items are related to something you have encountered in life or your attitudes towards life. Please read each question carefully and give an answer to it as soon as possible according to your intuition. Six options (from "strongly disagree" to "strongly agree") are provided.

1. The society is providing us with more and more opportunities.
2. My wisdom grows with my age, and this makes me stronger and more capable.
3. Most of my life goals keep me feel refreshed, instead of making me depressed.

4. I often feel I am just being alive, not living a life.
5. I don't know the meaning of my life.
6. I often feel there must be something wrong with some of my physical organs.
7. I feel contented with my life when I compare myself against the others around.
8. I am satisfied with my family income.
9. I am often annoyed by trifling matters.
10. I am a lot worried about my own health.
11. I often find it very difficult for me to make friends with someone else.
12. I like myself.
13. I think most people have more friends than I do.
14. I really enjoy being with my family.
15. I am not as lucky as the people around.
16. I have great confidence in the development of the society.
17. I feel I did not get what I deserve, when comparing myself against the other people around.
18. It takes me a long time to get over unhappy experiences.
19. I am happy to find that I'm becoming more and more mature.
20. Sometimes I find it is very hard to communicate with other family members.

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