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SHORT NOTE

Measuring subjective well-being: A comparison of China and the USA

Jin Zhang,[1] Yu Yang[2] and Hui Wang[3]

[1]*School of Economics and Management, Tsinghua University,* [3]*Guanghua School of Management, Peking University, Beijing, China, and* [2]*Johnson Graduate School of Management, Cornell University, Ithaca, New York, USA*

In this article the structure of subjective well-being (SWB), the relationship between household income and SWB and mean differences in components of SWB in China and the USA are investigated. Both China and the USA were characterized in a three-factor model of SWB (life satisfaction, positive affect and negative affect). Household income was more strongly positively correlated with the three major components of SWB in China than in the USA. Lower levels of SWB were generally reported by participants in China than in the USA; however, there were mean differences in different regions of China.

Key words: culture, satisfaction, subjective well-being.

Introduction

The study of subjective well-being (SWB) has attracted tremendous interest from psychologists, sociologists and economists from a variety of different countries. Over the past decades variations in SWB across nations and cultures in particular has attracted much interest (Diener, Oishi & Lucas, 2003). In the present research we seek to understand three issues surrounding SWB and culture: (i) the structural properties of SWB in different cultures (e.g., whether SWB has the same structure in China and the USA); (ii) the relationship between household income and SWB in different cultures (e.g., whether household income correlates similarly with the specific components of SWB in China and the USA); and (iii) mean differences of SWB components between cultures (e.g., whether there are mean differences between China and the USA in the specific components of SWB).

The first objective of the present study is to test whether SWB has the same structure in China and the USA. In western societies the multidimensionality of SWB has been well recognized. Andrews and Withey (1976), for example, suggested that SWB 'involves both a cognitive evaluation and some degree of positive and/or negative feelings, i.e. affect' (p. 478). Diener *et al.* (1999) conceptualized SWB as a multidimensional construct consisting of three major components: (i) the cognitive evaluation of the global and domain life satisfaction; (ii) the frequent experience of positive affect; and (iii) the low frequency or intensity of negative affect. As the validity of such structures is critical to cross-cultural measurement of SWB, we test whether SWB has the same three-factor structure in China and the USA.

Many people believe that SWB should increase as household income grows. Some studies showed that this is indeed the case (Veenhoven, 1988, 1991; Hagerty & Veenhoven, 2003; Headey & Wooden, 2004). Other studies, however, suggest that the opposite is true in East Asian countries such as China (Brockmann, Delhey, Welzel & Yuan, 2008; Easterlin, 1995, 2005). As most studies investigating the relationship between income and SWB only employed single-item assessments of SWB, the second objective of the present study is to examine whether household income is correlated similarly in China and the USA with the specific components of SWB.

Finally, cross-cultural studies tend to use measurement tools developed in one culture that may or may not have sufficient construct validity in a different culture (Van de Vijver & Leung, 1997; Ho & Cheung, 2007; Triandis, 2007). A third objective of the present study therefore is to test whether there are mean differences of the components of SWB between China and the USA using indigenous measures developed in the USA and China. Moreover, to gain an understanding of between-culture as well as within-culture differences, we test whether there are mean differences in the components of SWB between two subsamples in China.

Correspondence: Jin Zhang, Department of Human Resources and Organizational Behavior, School of Economics and Management, Tsinghua University, Beijing 100084, China. Email: zhangjin@sem.tsinghua.edu.cn

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Methods

Participants and procedure

A total of 348 Chinese students from two public universities in Beijing and Xi'an, China and 394 US students from a private university in Los Angeles, USA participated in the present study in exchange for an extra course credit. The mean age in the Chinese sample was 24.3 (*SD* = 6.42) and 20.6 (*SD* = 2.79) in the US sample. The ethnic breakdown of the US sample was 46% Caucasian, 24% Asian, 11% Hispanic, 6% African-American, 8% mixed ethnicity and 4% other. All participants filled out a self-report questionnaire containing the study measures in Chinese or English.

Measures

Characteristics. Table 1 presents the characteristics of each sample.

Cognitive component of SWB. Participants completed the five-item satisfaction with life scale (SWLS; Diener, Emmons, Larsen & Griffin, 1985). The SWLS is a one-factor measure that assesses at the cognitive level, an individual's overall life satisfaction. Specifically, it includes five items: 'In most ways my life is close to my ideal', 'The conditions of my life are excellent', 'I am satisfied with my life', 'So far I have gotten the important things I want in life' and 'If I could live my life over, I would change almost nothing'. Responses are given on a seven-point scale (one = strongly disagree; seven = strongly agree) and are summed into a single index for each participant. Past research has shown that SWLS is a reliable and relatively stable measure (Pavot & Diener, 1993). In the present study, the reliability (Cronbach's α) of the SWLS was 0.76 in the Chinese sample and 0.88 in the US sample.

Table 1 Description of the research samples

Variables	China	USA
N	348	394
Age	M = 24.3; SD = 6.42	M = 20.6; SD = 2.79
Men (%)	47.7	18.8
Women (%)	52.3	81.2
Household income in $* (%)		
5000 or less	5.2	1.5
5001 to 10 000	5.5	4.1
10 001 to 15 000	4.6	4.1
15 001 to 20 000	2.3	7.6
20 001 to 25 000	4.9	3.6
25 001 to 30 000	2.0	2.0
30 001 to 35 000	1.4	2.8
35 001 to 40 000	1.4	1.5
40 001 to 50 000	2.9	4.8
50 001 to 75 000	3.7	5.8
75 001 to 100 000	3.7	8.1
More than 100 000	10.1	25.1
Don't know	28.6	24.0
Refuse to answer	23.7	5.0

*Household income was measured in terms of RMB in China and USD in the USA.

Affective component of SWB. Participants completed the 20-item positive and negative affect schedule (PANAS; Watson, Clark & Tellegen, 1988). The PANAS is a two-factor measure consisting of a 10-item positive affect (PA) sub-scale (e.g., inspired, determined) and a 10-item negative affect (NA) sub-scale (e.g., hostile, scared). Participants are asked to rate each item on the extent to which they generally feel this way on a five-point scale (one = very slightly or not at all; five = extremely). The PA index is computed by averaging scores on the 10 positive affect items and the NA index is computed by averaging scores on the 10 negative affect items. In the present study the reliability of the PA sub-scale was 0.86 in the Chinese sample and 0.81 in the US sample. The reliability of the NA sub-scale was 0.84 in the Chinese sample and 0.83 in the US sample.

Chinese happiness inventory. Participants completed the 20-item Chinese happiness inventory (CHI; Lu & Shih, 1997). The CHI was originally developed in Taiwan, an ethnically Chinese society. The measure taps into both global and domain-specific satisfaction and contains six subscales: (i) overall evaluation with life (e.g. life is very good.); (ii) harmony of interpersonal relationships (e.g. I think I look very attractive); (iii) praise and respect from others (e.g., I feel that life is overflowing with rewards); (iv) achievement at work (e.g., my job always gives me a sense of achievement); (e) downward social comparisons (e.g., I never have a positive influence on events); and (v) peace of mind (e.g., I am constantly in a state of joy and elation). Each item of the CHI contains a group of four statements and each statement represents a particular level of happiness coded as 0, 1, 2 and 3; for example, 'I do not feel happy' (0), 'I feel fairly happy' (1), 'I am very happy' (2) and 'I am incredibly happy' (3). The CHI index is computed by averaging scores on the 20 items. A higher CHI score indicates a higher level of happiness. In the present study the reliability of the CHI was 0.90 in the Chinese sample and 0.91 in the US sample.

Results

Objective 1: structures of SWB in China and the USA

To test whether SWB has the same three-factor structure (i.e., life satisfaction, positive affect and negative affect)

Table 2 Standardized factor loadings of SWLS, PA and NA items

	Factors					
	SWLS		PA		NA	
Items	China	USA	China	USA	China	USA
Ideal	0.65	0.84				
Excellent	0.72	0.82				
Satisfied	0.79	0.85				
Important	0.53	0.72				
Change nothing	0.51	0.65				
Interested			0.61	0.59		
Excited			0.58	0.61		
Strong			0.50	0.55		
Enthusiastic			0.77	0.35		
Proud			0.72	0.69		
Inspired			0.76	0.68		
Determined			0.67	0.68		
Attentive			0.57	0.64		
Active			0.58	0.63		
Distressed					0.51	0.60
Upset					0.63	0.69
Guilty					0.43	0.34
Scared					0.56	0.63
Hostile					0.53	0.41
Irritable					0.67	0.55
Ashamed					0.56	0.44
Nervous					0.61	0.69
Jittery					0.72	0.50
Afraid					0.62	0.65

SWLS, satisfaction with life scale; PA, positive affect; NA, negative affect. The item 'alert' was removed from the three-factor model. All factor loadings were significant at 0.05 level.

in China and the USA, we first conducted a confirmatory factor analysis with all 25 items in the SWLS, PA and NA scales. The item 'alert' loaded on both positive affect and negative affect in the Chinese sample, presumably because the literal translation of alert has a negative connotation in Chinese. Thus, we removed this item from both the Chinese and US samples in all analyses. Missing data did not exceed 1.2% for any single item (the item was 'proud' from the PA scale). Table 2 shows the standardized factor loadings of the 24 items in the SWLS, PA and NA scales. Table 3 shows the intercorrelations between the three factors. The three-factor model reached a satisfactory level of fit in the Chinese sample, $\chi^2 = 500.25$, d.f. = 246, χ^2/d.f. ratio = 2.03, comparative fit index (CFI) = 0.90, root mean square error of approximation (RMSEA) = 0.06 and in the US sample, $\chi^2 = 583.22$, d.f. = 246, χ^2/d.f. ratio = 2.37, CFI = 0.90, RMSEA = 0.06. Thus, it can be argued that the structures of SWB are generally the same in China and the USA.

Table 3 Inter-correlations between measures

Measures	HI	SWLS	PA	NA	CHI
HI	–	0.19*	0.05	–0.08	0.01
SWLS	0.24*	–	0.40*	–0.35*	0.67*
PA	0.27*	0.36*	–	–0.14*	0.60*
NA	–0.08	–0.27*	–0.01	–	–0.37*
CHI	0.23*	0.52*	0.59*	–0.33*	–

*$p < 0.01$.

Inter-correlations between measures in China sample are shown in the lower left triangle of the table. Inter-correlations between measures in the USA sample are shown in the upper right triangle of the table.

HI, household income; SWLS, satisfaction with life scale; PA, positive affect; NA, negative affect; CHI, Chinese happiness inventory.

Objective 2: relations between household income and SWB in China and the USA

As Table 3 further illustrates, household income significantly correlated with SWLS in both the Chinese and the US samples and the two correlations were not significantly different ($z = 0.71$, $p = 0.24$). Household income significantly correlated with PA in the Chinese sample, but not in the US sample and the two correlations were significantly different ($z = 3.01$, $p < 0.01$). Household income did not correlate with NA in either the Chinese or the US sample and the two correlations were not significantly different ($z = 0.00$, $p = 0.50$). Lastly, household income significantly correlated with CHI in the Chinese sample but not in the US sample and the two correlations were significantly different ($z = 3.04$, $p < 0.01$).

These results seem to suggest that, at least in China, household income influences SWB in significant and pervasive ways. Those with a higher household income reported being more satisfied with their lives, experiencing more positive affect and being happy in a range of specific life domains. In the USA, however, household income only influenced people's overall life satisfaction, but not their affect or happiness in specific life domains. These results are particularly interesting, considering household income significantly correlated with the multi-item indigenous Chinese measure of CHI in the Chinese sample, while most of the past research investigating the relationship between income and SWB only employed single-item measures of SWB (Brockmann *et al.*, 2008). Thus, it may be the case that household income is an important source of SWB in China and is much more so that in the USA.

It must be noted, however, that this observation is limited in its own ways. Specifically, 52.3% participants in the Chinese sample and 29% participants in the US sample did not report their household income (Table 1). Independent samples *t*-tests showed that in the US sample, participants who reported their household income scored no differently on SWLS, PA, NA or CHI from those who did not report their household income. In the Chinese sample, however, the patterns were slightly more complicated. Participants who reported their household income scored higher on SWLS ($M = 3.98$, $SD = 1.08$) than those who did not report their household income ($M = 3.58$, $SD = 1.13$), $t(343) = 3.36$, $p < 0.001$. Participants who reported their household income scored no differently on PA ($M = 2.84$, $SD = 0.81$) from those who did not report it ($M = 2.68$, $SD = 0.77$), $t(327) = 1.83$, $p = 0.07$. Participants who reported their household income also scored no differently on NA ($M = 1.83$, $SD = 0.65$) from those who did not report it ($M = 1.93$, $SD = 0.66$), $t(333) = -1.24$, $p = 0.22$. Lastly, participants who reported their household income scored higher on CHI ($M = 1.57$, $SD = 0.43$) than those who did not report it ($M = 1.43$, $SD = 0.47$), $t(321) = 2.84$, $p < 0.005$. Together, these results seem to suggest that in the Chinese sample, participants who reported their household income were generally happier than those who did not report it. However, it was unclear whether participants who reported their household income were actually more affluent than those who did not report their household income. Consequently, the conclusion that household income is an important source of SWB must be treated with caution.

Objective 3: mean differences of SWB components between China and the USA

To test whether there were mean differences in the specific components of SWB between China and the USA, a series of *t*-tests were conducted. Participants from China scored lower on SWLS ($M = 3.78$, $SD = 1.12$) than those from the USA ($M = 5.10$, $SD = 1.12$), $t(737) = 15.48$, $p < 0.001$. Furthermore, participants from China scored lower on PA ($M = 2.83$, $SD = 0.84$) than those from the USA ($M = 3.32$, $SD = 0.78$), $t(718) = 8.13$, $p < 0.001$. Participants from China scored lower on NA ($M = 1.88$, $SD = 0.65$) than those from the USA ($M = 2.11$, $SD = 0.67$), $t(719) = 4.55$, $p < 0.001$. Finally, participants from China scored lower on CHI ($M = 1.50$, $SD = 0.46$) than those from the USA ($M = 1.66$, $SD = 0.45$), $t(690) = 4.63$, $p < 0.001$. In short, participants from China scored lower on all four measures of SWLS, PA, NA and CHI than those from the USA. These results may suggest that, compared with those from the USA, participants from China may be less satisfied with their lives, experience less positive affect and are less happy in the specific life domains. Again, these findings were particularly interesting when the participants from China showed a lower degree of happiness than those from the USA even in the indigenous Chinese measure of CHI.

Beijing has been widely considered as the cultural, economic and political centre of modern China . By contrast, Xi'an is a relatively less developed region in modern China. In our study the average household income of the Beijing sample ($M = 7.93$, $SD = 3.92$) was significantly higher than the Xi'an sample ($M = 4.02$, $SD = 3.05$), $t(164) = 6.30$, $p < 0.001$. We therefore also tested whether there are mean differences in the components of SWB between these two samples. Participants from Beijing scored higher on SWLS ($M = 4.09$, $SD = 1.08$) than those from Xi'an ($M = 3.23$, $SD = 1.00$), $t(343) = 6.94$, $p < 0.001$. Furthermore, participants from Beijing scored higher on PA ($M = 3.10$, $SD = 0.79$) than those from Xi'an ($M = 2.44$, $SD = 0.77$), $t(328) = 7.13$, $p < 0.001$. Participants from Beijing scored no differently on NA ($M = 1.84$, $SD = 0.64$) than those from Xi'an ($M = 1.96$, $SD = 0.67$), $t(333) = -1.59$, $p = 0.11$. Finally, participants from Beijing scored higher on CHI ($M = 1.59$, $SD = 0.44$) than those from Xi'an ($M = 1.35$, $SD = 0.45$), $t(321) = 4.82$, $p < 0.001$. In short, participants from Beijing scored higher on SWLS, PA and CHI than

those from Xi'an. These results again suggest that, at least in China, household income or other factors associated with development may be important contributors to SWB. These latter findings highlight the importance of paying attention to cross-cultural differences as well as within-cultural differences.

Conclusion

In this article we showed that SWB can be well conceptualized into three major factors (life satisfaction, positive affect and negative affect) in China and the USA; that household income is a particularly important source of SWB in China and is more so than in the USA and that there are significant differences on the specific components of SWB between China and the USA as well as between the subsamples in the PRC. Furthermore, our results suggest that while culture may be an important factor in determining SWB, the influences of household income, at least in the developing world and culture-specific methods for conceptualizing and measuring SWB may have been underestimated.

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References

Andrews, F. M. & Withey, S. B. (1976). *Social indicators of well-being*. New York: Plenum Press.

Brockmann, H., Delhey, J., Welzel, C. & Yuan, H. (2008). The China puzzle: Falling happiness in a rising economy. *Journal of Happiness Studies*, [Cited 17 Jun 2009.] Published online DOI 10.1007/s10902-008-9095-4.

Diener, E., Emmons, R. A., Larsen, R. J. & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49,* 71–75.

Diener, E., Suh, E., Lucas, R. E. & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125,* 276–302.

Diener, E., Oishi, S. & Lucas, R. E. (2003). Culture, personality, and subjective well-being. *Annual Review of Psychology, 54,* 403–425.

Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior and Organization, 27,* 35–47.

Easterlin, R. A. (2005). Feeding the illusion of growth and happiness: A reply to Hagerty and Veenhoven. *Social Indicators Research, 74,* 429–443.

Hagerty, M. R. & Veenhoven, R. (2003). Wealth and happiness revisited – growing national income does go with greater happiness. *Social Indicators Research, 64,* 1–27.

Headey, B. & Wooden, M. (2004). The effects of wealth and income on subjective well-being and ill-being. *Economic Record, 80,* S24–S33.

Ho, S. M. Y. & Cheung, M. W. L. (2007). Using the combined etic-emic approach to develop a measurement of interpersonal subjective well-being in Chinese populations. In: A. D. Ong & M. H. M. van Dulmen, eds. *Oxford handbook of methods in positive psychology*, pp. 139–152. New York: Oxford University Press.

Lu, L. & Shih, J. (1997). Personality and happiness: Is mental health a mediator? *Personality and Individual Differences, 22,* 453–462.

Pavot, W. & Diener, E. (1993). Review of the satisfaction with life scale. *Psychological Assessment, 5,* 164–172.

Triandis, H. C. (2007). Culture and psychology: A history of the study of their relationship. In: S. Kitayama & D. Cohen, eds. *Handbook of cultural psychology*, pp. 59–76. New York: Guilford Press.

Van de Vijver, F. & Leung, K. (1997). *Methods and data analysis for cross-cultural research*. Thousand Oaks, CA: Sage.

Veenhoven, R. (1988). The utility of happiness. *Social Indicators Research, 20,* 333–354.

Veenhoven, R. (1991). Is happiness relative? *Social Indicators Research, 24,* 1–34.

Watson, D., Clark, L. A. & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070.