

How is the self-image formed and enhanced among older Chinese people: through assimilation or contrast?

X Bai^{1,2}, N Chow¹

ABSTRACT

Background. Older people who view themselves positively, instead of accepting negative stereotyping, are more likely to achieve successful ageing. We examined the means by which elderly Chinese form and enhance their self-image, either through assimilation or downward comparison.

Methods. 445 older people in Wuhan, China were asked to fill in the revised Chinese version of the Image of Aging Scale. A canonical correlation analysis was conducted using the older people's 5 peer-image variables as predictors of the 5 self-image variables to evaluate the multivariate shared relationship between these 2 sets of variables.

Results. A positive correlation was identified between peer- and self-image in elderly Chinese, making the internalisation assumption of assimilation effect more plausible than the downward comparison assumption of contrast effect.

Conclusion. Elderly Chinese tend to form their self-image through assimilation (internalisation) rather than downward comparison. This finding enables us to help older Chinese establish a positive self-image more effectively.

Key words: Aging; Asian continental ancestry group; Self concept

¹ Department of Social Work and Social Administration, The University of Hong Kong, Hong Kong, China

² Jockey Club Centre for Positive Ageing, Chinese University of Hong Kong, New Territories, Hong Kong, China

Correspondence to: Xue Bai, Jockey Club Centre for Positive Ageing, 27 A Kung Kok Street (Block A, Shatin Hospital), Shatin, New Territories, Hong Kong. E-mail: baixue@jccpahk.com

INTRODUCTION

Older people who view themselves positively, instead of accepting negative stereotyping, are more likely to achieve successful ageing. A positive image held by older people is predictive of better memory and hearing performances,^{1,2} less depressive symptoms, stronger will to live, and better survival over time.^{3,4}

As society becomes modernised, older people are portrayed as passive, frail, stubborn, weak, and poor; these views are often shared by younger generations.^{5,6} There are limited efforts to examine older Chinese people's image perceived by themselves or others as well as how their self-

images are formed.³ The lack of such knowledge may be due to the assumption that respecting the old is treasured among the Chinese, so that older people should not have a negative image of themselves or their peers.⁷ However, the traditional form of respect for older people has faded away, particularly since 1978 after the nation's opening up and modernisation.^{8,9} Furthermore, the modernisation process was compressed in a short period, which entailed sacrificing certain traditional values, like respecting the old.¹⁰

How elderly Chinese form and enhance their self-image have different implications, although they may not be mutually exclusive. The first line of the

argument is related to cognitive theories of ageing.¹¹ In some psychology¹² and sociology^{13,14} theories, older people are likely to internalise age stereotypes.^{11,15} Through long exposure to negative stereotypes about their group, members of the stereotype-target groups might internalise those stereotypes and the subsequent sense of inadequacy and low self-esteem becomes part of their personality. The views of older people in general can also be influenced by age stereotypical information. The internalisation (or contamination) hypothesis predicts an assimilation effect that age stereotypes should be incorporated into self-image in ways that produce a positive association between both ratings.¹⁶

In theories of social comparison, elders' self-stereotypes of ageing and their self-image may not necessarily be tainted by negative age stereotypes.¹⁷ Rather, thanks to the downward comparison process, some potentially beneficial effects of negative age stereotypes may also be evident.^{18,19} By comparing oneself with typical older peers who are ascribed with a lot of negative characteristics, older people may enhance their self-perceptions. This comparison hypothesis predicts a contrast effect that should enhance positive self-image by holding a negative image of older peers.¹⁶

In the present study, self-image refers to elders' views and attitudes towards themselves, whereas peer-image represents elders' views and attitudes towards the older peers in general excluding themselves. Both self- and peer-image were assessed by the revised Chinese version of the Image of Aging Scale.²⁰ The cross-sectional design enables us to examine the relationship between participants' self-image and their peer-image and to further clarify whether assimilation or contrast effects are more close to the truth. Our findings may contribute to the formulation of relevant education programmes for the promotion of positive self-images among older people in Chinese communities.

METHODS

Wuhan is the capital of Hubei province situated along the Yangtze River in central China. It has >8 million inhabitants and is experiencing rapid population ageing. In 2009, its elderly population (≥ 60 years) was 1.14 million, accounting for 14% of the total. Wuhan consists of 13 districts (7 urban and 6 suburban).²¹

Multistage cluster sampling with stratification was used. Five (3 urban and 2 suburban) of the 13 districts in Wuhan were randomly selected. Each district was sub-divided into census blocks. Samples were selected in each block with the help of community coordinators. 445 persons aged ≥ 60 years with normal cognitive functions were interviewed; the response rate was 89%. 34% of them were from rural and 66% from urban areas. Most were community-dwelling and only 10% were living in institutions (TABLE 1).

Sociodemographic variables examined were residence location, age, gender, marital status, living arrangement, education, income, previous occupations, neighbourhood relationships, health, and daily activity levels.

The image of ageing refers to the collection of attitudes and judgements elderly people hold towards themselves and about their peers. The revised Chinese version of the Image of Aging Scale (IAS-C)²⁰ consists of 28 items, divided into 2 same sets of variables, with one measuring elderly people's self-perception, and the other perception of their peers. These 2 subscales are Self-Image Scale (SIS-C) and Peer Image Scale (PIS-C). The confirmatory factor analysis (CFA) on the SIS-C for a random half of the present sample ($\chi^2=75.285$, $df=65$, $p=0.180$, CFI=0.973, TLI=0.962, NFI=0.838, GFI=0.955, RMSEA=0.026) supported the 5-factor model with 14 items, suggested by the exploratory factor analysis (EFA) on another random half (TABLE 2).

To determine whether the factor structure of the PIS-C was consistent with the model (5-factor model) suggested by the results from the SIS-C, we further conducted CFA with the 14 items of the PIS-C, and the results also showed an acceptable overall fit with $\chi^2=120.319$, $df=65$, $p<0.001$, CFI=0.901, TLI=0.862, NFI=0.816, GFI=0.963, RMSEA=0.044. The reliability results showed that both the SIS-C and the PIS-C have acceptable internal consistencies for both the overall scales (respective Cronbach's alphas=0.729 and 0.615), and for the subscales (alphas ranged from 0.506 to 0.651). Test-retest reliability reached 0.871. A possible reason for the not-so-satisfactory reliability level was that there were only 14 items in the scale and each subscale had only 2 to 3 items. These results enabled us to use the same contents to examine elders' peer-image.²⁰

TABLE 1
Sociodemographics of the participants

Characteristics	No. (%) of participants (n=445)
Residence	
Urban	295 (66.3)
Rural	150 (33.7)
Age-group (years)	
Young-old (60-69)	267 (60.0)
Mid-old (70-79)	127 (28.5)
Old-old (≥ 80)	51 (11.5)
Gender	
Male	224 (50.3)
Female	221 (49.7)
Socioeconomic status	
Low	141 (31.9)
Moderate	221 (50.0)
High	80 (18.1)
Marital status	
Single	27(6.1)
Widowed	113 (25.5)
Married	304 (68.5)
Working status	
Retired or no longer working	280 (63.2)
Employed	144 (32.5)
Doing other things	19 (4.3)
Living arrangement	
Elderly homes	49 (11.0)
Alone	61 (13.7)
Only with spouse	131 (29.4)
With more than one generation	204 (45.8)
Neighbourhood relationship	
Bad	59 (13.3)
Normal	253 (57.2)
Good	130 (29.4)
Illness	
No	161 (36.2)
Moderate	174 (39.1)
Severe	110 (24.7)
Daily activity	
Inactive	63 (14.2)
Moderate	237(53.3)
Active	145 (32.6)

TABLE 2
Dimension reduction analysis for canonical correlation between self- and peer-images in the Chinese elderly

Roots	Wilks λ	F	Hypothesis DF	Error DF	Significance of F
1 to 5	0.518	12.517	25	1617	0.000
2 to 5	0.665	11.896	16	1333	0.000
3 to 5	0.810	10.662	9	1064	0.000
4 to 5	0.886	13.693	4	876	0.000
5 to 5	0.956	20.286	1	439	0.000

Ethical approval was obtained from The University of Hong Kong. Informed consent from each participant was obtained. As the participants either had poor vision or were illiterate, face-to-face interviews, instead of filling out the questionnaire by themselves, were undertaken. Participants rated how accurately the 14 statements in the scale characterised themselves on a Likert scale from 1 (no match) to 5 (complete match), and how accurately they characterised 'general older peers'. Five students were recruited as interviewers from the Department of Sociology of Huazhong University of Science and Technology in Wuhan. They were informed of the objectives and purposes of the study and had several sessions of training, the survey was conducted in the summer of 2009. Meetings and supervision sessions were held during the course of the survey, and the interviewers were encouraged to offer their views to avoid any misunderstandings that would lower the quality of the results.

A canonical correlation analysis was conducted using the older people's 5 peer-image variables as predictors of the 5 self-image variables to evaluate the multivariate shared relationship between these 2 sets of variables. This method honours the reality of psychological research, as most human behaviour research typically examines variables that may have multiple causes and effects.²² The second advantage is that canonical correlation analysis can provide a simple correlation coefficient (Pearson r) between elders' self- and peer-images. It also enables simultaneous comparisons of the self- and peer-images in terms of the 5 factors previously confirmed in the construct of image of ageing, so as to further capture the consistence of the correlations between each pair of the sub-factors of the image. In addition, from the perspective of statistics, this multivariate technique limits the probability of committing a type-I error,²³ as when too many statistical tests are performed on the same variables in a dataset, there is an increased risk of this to occur. If 5 sets of regression analyses were conducted for our data, the type-I error, according to the formula,²³ would be $\alpha_{EW}=1-(1-\alpha_{TW})^K=1-(1-0.05)^5=0.226$, which is quite substantial even according to those most tolerant of type-I errors.

RESULTS

The canonical correlation analysis yielded 5 functions

with canonical correlations of 0.470, 0.423, 0.292, 0.271, and 0.210 and squared correlations of 0.221, 0.179, 0.085, 0.073, and 0.044 for each successive function. Collectively, the full model across all functions was statistically significant using the Wilks $\lambda=0.518$ criterion, $F(25, 1617.46)=12.517$, $p<0.001$. For the set of 5 canonical functions, the r^2 type effect size was 0.482, indicating that the full model explained a substantial portion, about 48%, of the variance shared between the 2 sets of variables.

The dimension reduction analysis was used to test the hierarchal arrangement of functions for statistical significance. The full model (functions 1 to 5) was statistically significant, as were the following functions: 2 to 5, 3 to 5, 4 to 5, and even only the function 5. The Wilks λ with F-test results are presented in (TABLE 3). Given that functions 3, 4, and 5 explained <10% of the variance by themselves, the relationship between self- and peer-image was largely captured by the first 2 functions in this model.

TABLE 3 presents the standardised canonical function coefficients and structure coefficients for functions 1 to 5. The squared structure coefficients are also given across the 5 functions for each variable. Looking at the coefficients in function 1, the most-relevant criterion variable was S_Social Virtue, followed by S_General Physical Health. This conclusion was supported by the squared structure coefficients and these 2 dimensions of S also tended to have relatively larger canonical function coefficients. Regarding the predictor variable set in function 1, P_Social Virtue was the primary contributor to the predictor synthetic variable, with P_General Physical Health being the secondary one.

In function 2, the coefficients revealed that the criterion variable of strongest relevance was S_Psychosocial Status and the next strongest was S_General Physical Health. As for peer-image, P_Psychosocial Status was the dominant predictor, with P_General Physical Health being the secondary. Based on the structure coefficients for the entire function, both P_Psychosocial Status and P_General Physical Health were positively related to S_Psychosocial Status and S_General Physical Health. In function 3, S_General Physical Health and S_Life Attitude were the criterion variables

of strong relevance. They also tended to have high squared structure coefficients and canonical function coefficients. Regarding the set of predictor variables in the same function, P_General Physical Health, P_Life Attitude, and P_Cognition were the 3 dominant predictors.

In functions 4 and 5, the criterion variables of strongest relevance were S_Life Attitude and S_Cognition, respectively. Accordingly, P_Life Attitude and P_Cognition were dominant predictors, respectively. This was supported by their squared structure coefficients and canonical function coefficients. A slight exception was S_Life Attitude in function 4, which had modest structure and squared structure coefficients, but a high canonical function coefficient.

The canonical correlation analysis confirmed that how older participants look at themselves is positively correlated with how they look at their older peers. The 5 functions further confirmed the theoretically assumed consistence of the positive correlations between each pair of the sub-factors relating to the image of ageing.

DISCUSSION

The present study examined the means by which older Chinese people form and enhance their self-image. An assimilation hypothesis assumes that self-image of elders is tainted by the age stereotypes,

and a contrast effect suggests that negative age stereotypes serve as a reference standard for downward comparisons.

A positive correlation was revealed between self- and peer-images, using the canonical correlation analysis. Simultaneous comparisons between the self- and peer-images in terms of the 5 factors further showed the consistence of the correlations between each pair of the sub-factors of image. A positive relationship between self-views and stereotyped views towards other older peers rendered the assumption of self-enhancing contrasts less plausible than the assumption of an assimilation effect.¹⁶ There are 2 basic and relatively stable types of self-construal. One entails the western (individualist) "independent notion of self as an entity containing significant dispositional attributes and as detached from context". In contrast, the other entails eastern (collectivist) self "as interdependent with the surrounding context, where it is the 'other' or the 'self-in-relation-to-other' that is the focal in individual experience".²⁴ In this sense, our finding is consistent with the common assumption that older Chinese people, who live in a culture that upholds collectivism, are likely to define themselves as a part or aspect of the in-groups.

The interpretation in terms of an assimilation of stereotypes to self-image cannot simply be considered as conclusive. A positive relationship might also prevail when attitudes or experiences

TABLE 3
Canonical solution for peer-image (P) predicting self-image (S) for functions 1 to 5

Variable	Function 1			Function 2		
	Coefficient	r_3	$r_3^2(\%)$	Coefficient	r_3	$r_3^2(\%)$
S_General Physical Health	0.493	0.645	41.603	0.426	0.462	21.344
S_Social Virtue	0.796	0.900	81.000	-0.391	-0.212	4.494
S_Life Attitude	-0.099	0.270	7.290	0.073	0.230	5.290
S_Psychosocial Status	-0.041	0.079	0.624	0.816	0.865	74.823
S_Cognition	-0.161	0.025	0.063	-0.278	0.011	0.012
R ²			22.090			17.893
P_General Physical Health	0.323	0.488	23.814	0.369	0.431	18.576
P_Social Virtue	0.854	0.936	87.610	-0.406	-0.264	6.970
P_Life Attitude	0.079	0.440	19.360	0.167	0.234	5.476
P_Psychosocial Status	0.075	0.167	2.789	0.801	0.858	73.616
P_Cognition	-0.132	0.031	0.096	-0.224	-0.033	0.109

related to one's own ageing affect personal construal of other older peers.²⁵ Older people may also tend to externalise their own problems or other experiences to other general peers and further perceive them as 'normal' or typical for the older group. Thus, a positive relationship between self- and peer-image can be produced by either internalisation (or contamination) or externalisation effects.²⁶ To separate the 2 effects, a more powerful combination of correlational and sequential or time-lagged observations are required. The present study with a cross-sectional design was unable to distinguish between these 2 effects. This is a limitation. Another limitation lies in the relatively low reliabilities observed for the 2 subscales. A possible explanation is that both SIS-C and PIS-C have 14 items and each subscale has only 2 to 3 items. To deal with this limitation, using the whole scale to calculate a total score instead of using the subscale score is recommended.

Despite these limitations, our study successfully distinguished between the assimilation effect and the downward comparison hypothesis, based on the positive correlation between Chinese elders' perception of self- and peer-images. Thus, factors that damaged a positive self-image among our elderly included the lack of positive understanding of ageing itself. Notably, we often encountered stereotyped descriptions of the elderly such as stubborn, useless, old-fashioned, and so forth. Although people may mean no harm towards elders when using such descriptions, the self-image of older

persons may deteriorate once they internalise such negative age stereotypes. Thus, older people should be guided to protect their self-concept against these contaminating effects of stereotyped expectations of the typical old person. It is suggested that public education about ageing be mounted and that the programmes reflect both the positive and negative aspects of the ageing process, so that people have a better understanding of the older people living among them, and older people themselves may internalise more positive views concerning their age-group into their own self-image.

ACKNOWLEDGEMENTS

The authors thank Mr Liang Kun for useful suggestions for the methodology, Prof Zhang Xiaoshan for data collection, and the participants for taking part in the questionnaire survey.

REFERENCES

1. Hess TM, Auman C, Colcombe SJ, Rahhal TA. The impact of stereotype threat on age differences in memory performance. *J Gerontol B Psychol Soc Sci* 2003;58:3-11.
2. Levy, B, Langer E. Aging free from negative stereotypes: successful memory in the China and among the American deaf. *J Pers Soc Psychol* 1994;66:989-97.
3. Lai DW. Older Chinese's attitudes toward aging and the relationship to mental health: an international comparison. *Soc Work Health Care* 2009;48:243-59.
4. Levy BR, Slade MD, Kunkel SR, Kasl SV. Longevity increased by positive self-perceptions of aging. *J Pers Soc Psychol* 2002;83:261-70.
5. Bai X, Chow N. The impact of modernization and globalization on the perception of the Chinese elderly towards their image and

Function 3			Function 4			Function 5		
Coefficient	r_3	$r_3^2(\%)$	Coefficient	r_3	$r_3^2(\%)$	Coefficient	r_3	$r_3^2(\%)$
0.799	0.391	15.288	0.453	0.206	4.244	-0.188	-0.418	17.472
-0.321	-0.328	10.758	-0.471	-0.195	3.803	0.262	0.016	0.026
-0.757	-0.647	41.861	0.704	0.410	16.810	-0.432	-0.537	28.837
-0.306	-0.287	8.237	-0.536	-0.402	16.160	0.289	-0.023	0.053
0.085	0.047	0.221	-0.643	-0.483	23.329	-0.792	-0.874	76.388
		8.526			7.344			4.410
0.923	0.649	42.120	0.377	0.278	7.728	0.073	-0.28	7.840
-0.109	-0.152	2.310	-0.421	-0.174	3.028	0.192	0.017	0.029
-0.683	-0.421	17.724	0.719	0.529	27.984	-0.476	-0.542	29.376
-0.307	-0.225	5.063	-0.537	-0.431	18.576	0.120	0.000	0.000
0.123	0.226	5.108	-0.56	-0.375	14.063	-0.845	-0.898	80.640

- status. *Glob Stud J* [in press].
6. Palmore EB. *Ageism: negative and positive*. New York: Springer; 1990.
 7. Tsai DT, Lopez RA. The use of social supports by elderly Chinese immigrants. *J Gerontol Soc Work* 1997;29:77-94.
 8. Chiu S, Yu S. An excess of culture: the myth of shared care in the Chinese community in Britain. *Ageing Soc* 2001;21:681-99.
 9. Chow N. Asian value and aged care. *Geriatr Gerontol Int* 2004;4:521-5.
 10. Chow N, Bai X. Chinese elders' self-image and perceived peer image: will they self-enhance? [in submission].
 11. Rodin J, Langer EJ. Ageing labels: the decline of control and the fall of self-esteem. *J Soc Issues* 1980;36:12-29.
 12. Brill AA. *The basic writings of Sigmund Freud*. New York: Random House; 1938.
 13. Cooley CH. *Human nature and the social order*. New York: Scribner's; 1922.
 14. Mead GH. *Mind, self, and society*. Chicago: University of Chicago Press; 1934.
 15. Hippel WV. Stereotyping against your will: the role of inhibitory ability in stereotyping and prejudice among the elderly. *Pers Soc Psychol Bull* 2000;26:523-32.
 16. Rothermund K, Brandtstädter J. Age stereotypes and self-views in later life: evaluating rival assumptions. *Int J Behav Dev* 2003;27:549-54.
 17. Wood JV. Theory and research concerning social comparisons of personal attributes. *Psychol Bull* 1989;106:231-48.
 18. Heidrich SM, Ryff CD. The role of social comparisons processes in the psychological adaptation of elderly adults. *J Gerontol* 1993;48:127-36.
 19. Pinguat M. Good news about the effects of bad old-age stereotypes. *Exp Aging Res* 2002;28:317-36.
 20. Levy BR, Kasl SV, Gill TM. Image of aging scale. *Percept Mot Skills* 2004;99:208-10.
 21. Provincial Statistical Bureau of Hubei. *Hubei Statistical Yearbook 2009* [in Chinese]. Beijing: China Statistics Press; 2010.
 22. Sherry A, Henson RK. Conducting and interpreting canonical correlation analysis in personality research: a user-friendly primer. *J Pers Assess* 2005;84:37-48.
 23. Thompson B. A primer on the logic and use of canonical correlation analysis. *Meas Eval Couns Dev* 1991;24:80-95.
 24. Markus HR, Kitayama S. Culture and the self: implications for cognition, emotion and motivation. *Psychol Rev* 1991;98:224-53.
 25. Clement RW, Krueger J. Social categorization moderates social projection. *J Exp Soc Psychol* 2002;38:219-31.
 26. Wentura D, Brandtstädter J. Age stereotypes in younger and older women: analyses of accommodative shifts with a sentence-priming task. *Exp Psychol* 2003;50:16-26.