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Perceptions of Aging Across 26 Cultures and Their Culture-Level Associates

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College students (N = 3,435) in 26 cultures reported their perceptions of age-related changes in physical, cognitive, and socioemotional areas of functioning and rated societal views of aging within their culture. There was widespread cross-cultural consensus regarding the expected direction of aging trajectories with (a) perceived declines in societal views of aging, physical attractiveness, the ability to perform everyday tasks, and new learning; (b) perceived increases in wisdom, knowledge, and received respect; and (c) perceived stability in family authority and life satisfaction. Cross-cultural variations in aging perceptions were associated with culture-level indicators of population aging, education levels, values, and national character stereotypes. These associations were stronger for societal views on aging and perceptions of socioemotional changes than for perceptions of physical and cognitive changes. A consideration of culture-level variables also suggested that previously reported differences in aging perceptions between Asian and Western countries may be related to differences in population structure.

Keywords: aging, stereotypes, cross-cultural, values, national character stereotypes

Perceptions of aging influence societal behaviors and expectations toward older people (e.g., Pasupathi & Löckenhoff, 2002) as well as older adults' well-being and coping with the aging process (e.g., Levy, 2003; Levy & Myers, 2004). The majority of studies in this field have focused on individual differences in perceptions of aging within (mostly Western) cultures, but there is growing evidence that views of aging may differ across cultures as well (e.g., Arnhoff, Leon, & Lorge, 1964; Giles et al., 2000). The present study extends previous research by comparing multiple aspects of aging perceptions across 26 cultures and examining their culture-level associates. To provide the background for this work, we review previous research on intercultural differences in perceptions of aging and discuss theoretical perspectives on the causes of such differences.

According to social representations theory (Moscovici, 1984, 1988) the views of aging held within a given culture are a form of shared cultural representation. They constitute systems of ideas, values, and customs related to aging that are treated by members of the society as if they were established reality. Perceptions of aging are multidimensional in nature (e.g., Hummert, 1990), encompass both positive and negative characteristics (e.g., Heckhausen, Dixon, & Baltes, 1989; Hummert, 1990; McTavish, 1971), and reflect a mix between accurate depictions of age-related changes and distorted views of older people (Kite, Stockdale, Whitley, & Johnson, 2005). Healthy aging is associated with predictable biological changes (DiGiovanna, 2000) that lead to systematic age differences in physical abilities and cognitive performance (for reviews, see Christiansen & Grzybowski, 1999; Salthouse & Davis, 2006). To the extent that aging perceptions reflect such biologically based differences in functioning, one might expect to see comparatively little variation across cultures. Age-related changes in socioemotional characteristics and social status, in contrast, appear to depend less on biology and more on motivational priorities (Fung, Rice, & Carstensen, 2005) and societal roles (Eagly, Wood, & Diekman, 2000). Perceptions of age-related changes in these characteristics may therefore show a greater extent of cross-cultural variation.

Previous research has explored several potential explanations for intercultural differences in perceptions of aging. Early studies that focused on socioeconomic predictors found that higher levels of economic development and industrialization are associated with less favorable attitudes toward aging and a lower societal status of older adults (e.g., Arnhoff et al., 1964; Bengtson, Dowd, Smith, & Inkeles, 1975; Maxwell, 1970; Palmore & Manton, 1974; Simmons, 1945). Modernization theory (Cowgill, 1972, 1986) explained such findings by arguing that a shift toward industrialized modes of production undermines the societal status of older adults, devalues their experience-based knowledge, breaks up traditional extended families through urbanization, and shifts control over the means of production from family elders to industrial entities (Cowgill, 1972). Although intuitively appealing, modernization theory has been criticized as an oversimplification (e.g., Quadagno, 1982). In particular, the theory ignores cross-cultural differences in values and belief systems that may shape the way in which a given culture responds to advanced socioeconomic development (Inglehart & Baker, 2000).

Research on the influence of cultural values and beliefs on aging attitudes has been dominated by comparisons between Eastern or Asian versus Western cultures (see Giles et al., 2003, for a review). This body of work was inspired by the idea that Asian societies are influenced by Confucian values of filial piety and the practice of ancestor worship, which were thought to promote positive views of aging and high esteem for older adults (e.g., Davis, 1983; Ho, 1994; Sher, 1984; see Sung, 2001, for a review). Western societies, in contrast, were thought to be youth-oriented and to hold more negative views about the aging process and the elderly (e.g., Palmore, 1975). Empirical evidence for the proposed East–West differences is scarce. Although some studies have found support for the notion that aging attitudes are more positive in Asian compared to Western cultures (e.g., Levy & Langer, 1994; Tan, Zhang, & Fan, 2004), others have reported effects in the opposite direction (e.g., Giles et al., 2000; Harwood et al., 2001; Sharps, Price-Sharps, & Hanson, 1998; Zhou, 2007) or failed to find any marked cultural differences (e.g., Boduroglu, Yoon, Luo, & Park, 2006; Chappell, 2003; McCann, Cargile, Giles, & Bui, 2004; Ryan, Jin, Anas, & Luh, 2004).

In summary, there is some evidence that both socioeconomic development and cultural values and beliefs may matter for cross-cultural differences in aging attitudes. However, findings are limited in several important aspects. For one, most previous studies included only small groups of countries. In fact, the vast majority of the literature consists of pairwise comparisons. Among the exceptions are one study that compared five countries (Harwood et al., 2001), four studies that each compared six countries (Arnhoff, Leon, & Lorge, 1964; Bengtson et al., 1975; Giles et al., 2003; Harwood et al., 1996), and one study that compared 11 countries

(Giles et al., 2000). Conclusions that can be drawn from the previous literature are also limited because studies used a wide array of measures, ranging from open-ended descriptions of older and younger adults (Boduroglu et al., 2006) to macroeconomic markers of older adults' societal status (Palmore & Manton, 1974). This makes it difficult to integrate findings into a generalized cross-cultural pattern of aging attitudes. Moreover, cultural differences in values and beliefs have frequently been inferred from the broad classification of countries into Eastern versus Western (see Giles et al., 2000, 2003, for exceptions). This approach glosses over variations among individual Asian cultures, ignores cultures that cannot be classified as Eastern or Western, confounds cross-cultural differences in socioeconomic factors and value systems, and fails to pinpoint the specific aspects of cultural values that are most relevant in shaping perceptions of aging. Decades of cross-cultural research have yielded comprehensive data regarding culturally shared values (e.g., Hofstede, 1980; House, Hanges, Javidan, Dorfman, & Gupta, 2004; Inglehart & Norris, 2003; Leung & Bond, 2004; Schwartz, 1994; Smith, Dugan, & Trompenaars, 1996) and aggregate psychological characteristics (e.g., Diener, Diener, & Diener, 1995; McCrae, Terracciano, & the Personality Profiles of Cultures Project, 2005) across a wide range of cultures. To date, this rich body of knowledge has not been adequately linked to cross-cultural differences in aging perceptions.

The present study extends previous research by examining perceptions of aging among college students from 26 different cultures in six continents. Participants rated their perceptions of age-related changes in physical, cognitive, and socioemotional characteristics and evaluated societal views about aging within their cultures. Because contact with a stereotyped group may influence perceptions of that group (Pettigrew & Tropp, 2006), we also assessed participants' frequency of contact with older adults.

Going beyond dichotomous comparisons between Eastern and Western cultures, we related ratings of aging perceptions obtained in the present study to culture-level scores of possible associates derived from previous work (see Hofstede, 2001; Leung & Bond, 2004; McCrae et al., 2005, for examples of this analytical approach). This allowed us to disentangle the relative influence of socioeconomic factors (i.e., wealth, population structure, and education levels) compared to cultural values and beliefs.

To capture cultural differences in values, we adopted Hofstede's (1980, 2001) dimensions and Schwartz's (1994) seven value types, which both cover a large range of cultures and have been cross-validated with alternative classification systems (e.g., Hofstede, 2001; Leung & Bond, 2004). We also included Inglehart and Norris's (2003) dimensions of secular-rational versus traditional values and self-expression versus survival values, which are thought to capture systematic changes in value systems in response to modernizing influences (Inglehart & Baker, 2000). Finally, to examine culture-level associations between perceptions of aging and other forms of stereotypical beliefs, we included national character stereotypes (Terracciano et al., 2005), which capture people's stereotypical perceptions of the personality traits of a typical member of their culture.

In general, we predicted that perceptions about aspects of aging that are strongly linked to biological changes (i.e., physical aging and changes in fluid cognitive abilities) would show less variation across cultures and fewer associations with culture-level variables than perceptions of socioemotional aspects of aging (e.g., family relations and life satisfaction) and societal views of the aging process. For culture-level associations with socioeconomic characteristics, we expected to replicate previous research indicating that advanced development is associated with less favorable perceptions of aging. To the best of our knowledge, this is the first study to examine culture-level associations between values, national character stereotypes, and perceptions of aging. We therefore adopted an exploratory approach and did not postulate specific hypotheses regarding the direction of the effects. Also, given the equivocal research record on East–West differences (see above), we did not expect to find strong differences in aging perceptions between Asian and Western countries. Instead, we expected to find a more complex pattern, such that East–West differences in aging perceptions are related to both socioeconomic factors and cultural values and beliefs.

Method

Participants and Procedure

Questionnaires were administered to samples of college students from 26 cultures on six continents. Participants were informed about the general nature of the project and completed the questionnaires in a quiet environment, typically in a group setting.[1] All data were collected anonymously, and apart from age, gender, and citizenship status (native-born citizen or not), no personal information was recorded. Thirty participants were excluded because they missed more than two items on the aging perception measures or failed to indicate their gender, leaving a total of 3,435 participants. The vast majority (94.4%) were native-born citizens of their respective countries. The demographic composition of the samples is described in Table 1. On average, participants were in their early 20s, and about two thirds were female.

Measures

Previous research has indicated that perceptions of aging are multifaceted and involve divergent trajectories for different aspects of functioning (e.g., Heckhausen et al., 1989; Hummert, 1990; McTavish, 1971). To capture this complexity, we assembled a perceptions-of-aging measure (POA), consisting of a short list of characteristics that would be understood across a wide range of cultural contexts. The specific characteristics were adapted from existing measures assessing attitudes about aging and age-related changes in functioning (i.e., Harwood et al., 2001; Heckhausen et al., 1989; Laidlaw, Power, Schmidt, & the WHOQOL Group, 2007; Rosencranz & McNevin, 1969). It is important to note that we did not aim to create an internally consistent scale but selected a set of conceptually related but distinct items that would allow us to capture divergent patterns in specific aspects of aging perceptions. The final scale consisted of the following eight characteristics: physical attractiveness, ability to do everyday tasks, ability to learn new information, general knowledge, wisdom, respect received from others, authority in the family, and life satisfaction. Participants were given the following instructions: "Below you see

[1] In the same session, participants also completed questionnaires describing the personality traits of a typical adolescent, adult, and older adult within their culture. These findings will be reported elsewhere.

Table 1
Sample Characteristics

Culture	*N*	Age *M* (*SD*)	% Male	Contact with older adults *M* (*SD*)
Argentina	131	23.2 (5.8)	15.3%	4.0 (1.1)
Australia	98	21.6 (7.6)	20.4%	3.8 (0.9)
Chile	95	19.4 (1.7)	48.4%	3.7 (1.0)
Croatia	102	21.0 (1.3)	15.7%	3.6 (1.0)
Czech Republic	222	22.5 (2.1)	22.5%	3.7 (0.9)
United Kingdom	95	20.3 (2.5)	20.0%	2.9 (1.1)
Estonia	113	22.1 (4.0)	27.4%	3.7 (1.0)
France	103	22.3 (6.3)	24.3%	2.8 (1.0)
Hong Kong	182	20.7 (1.5)	61.5%	2.6 (1.2)
India	50	19.4 (1.5)	0.0%	4.1 (1.0)
Islamic Republic of Iran	124	28.0 (5.5)	41.9%	3.2 (1.1)
Italy	101	25.3 (4.1)	49.5%	3.6 (1.2)
Japan	293	19.7 (1.7)	18.4%	3.0 (1.4)
Mainland China	98	21.6 (2.7)	38.8%	2.8 (0.9)
Malaysia	111	22.0 (2.5)	27.0%	4.0 (0.8)
New Zealand	100	19.5 (3.0)	25.0%	3.2 (1.0)
Peru	139	19.0 (2.8)	47.5%	3.9 (1.1)
Poland	202	23.6 (4.4)	28.2%	3.6 (1.2)
Portugal	103	23.4 (3.7)	23.3%	3.7 (1.0)
Russian Federation	100	23.0 (6.8)	28.0%	3.7 (1.0)
South Korea	120	25.9 (8.1)	45.0%	2.7 (1.2)
Serbia	100	20.5 (2.3)	17.0%	3.8 (1.0)
Slovakia	144	20.0 (1.7)	31.3%	3.6 (1.0)
Switzerland (French-speaking)	101	20.9 (4.1)	19.8%	3.1 (1.1)
Uganda	99	23.3 (3.1)	44.4%	3.0 (1.1)
United States	309	21.1 (4.2)	43.0%	3.5 (1.2)
Total	3,435	21.8 (4.5)	31.3%	3.4 (1.2)

Note. Contact frequency was rated on a scale from 1 = *almost never* to 5 = *almost every day*.

a list of characteristics that may or may not change as people grow old. For each characteristic, please place a check mark to indicate whether the characteristic decreases, stays the same, or increases in older people." Participants responded on a 5-point Likert scale from −2 = *decreases a lot* to 2 = *increases a lot*, with a score of 0 indicating the absence of age-related change.[2]

Participants also rated their society's views of aging. For this purpose they were asked: "In general, how positively or negatively does your culture view old age?" Responses were given on a 5-point Likert scale from −2 = *very negative* to 2 = *very positive*. They further rated their frequency of contact with older adults ("How often do you speak or do things with older people?") on a 5-point Likert scale from 1 = *almost never* to 5 = *almost every day*.

For administration in non-English-speaking cultures, the original English version of the scale was translated by our collaborators, most of whom are bilingual psychologists native to the culture. Independent back-translations were created by a person other than the original translator, reviewed by two of the authors (Filip De Fruyt and Robert R. McCrae), and modified as needed to achieve equivalence across languages.

Culture-Level Associates

Indicators of socioeconomic development assessing wealth, population structure, and education levels were drawn from the 2007–2008 Human Development Report (United Nations Development Programme, 2007). As an economic indicator, we used per capita gross domestic product (GDP; in U.S. dollars). As an indicator of demographic composition, we examined the percentage of the population age 65 and over. We selected this measure over the more commonly used indicator of life expectancy because, unlike life expectancy, it is relatively independent of infant mortality, shows a weaker association with GDP, and presents a direct assessment of the proportion of older adults in the population. As a measure of education levels, we examined the combined gross enrollment ratio for primary, secondary and tertiary education.

Hofstede (1980) defined four value dimensions based on worldwide responses to IBM surveys: *power distance* (i.e., acceptance of differences in status and power), *uncertainty avoidance* (i.e., low tolerance for ambiguity and endorsement of strict laws and rules as a means of stress reduction), *individualism* (i.e., emphasis on self and low integration into group or family), and *masculinity* (i.e.,

[2] Initially, two negatively phrased and reverse-coded items assessing age-related changes in health problems and social isolation were included as well. However, preliminary analyses found unusually high standard deviations and bimodal distributions for these items across several cultures. It is possible that the lower anchor of the scale, *decreases a lot*, carries an implication of *worsens a lot* in some languages. As a result, participants who believed that health problems and social isolation increased with age may have erroneously marked the lower end of the scale. Because of this concern, these two items were excluded from further analyses.

focus on assertive and egoistic versus socially oriented roles).[3] The scores used in the present study were drawn from Hofstede (2001).

Schwartz (1994) characterized cultures according to seven value types: *embeddedness* (emphasis on tradition and embeddedness in a collective), *affective autonomy* (focus on individual pursuit of pleasure), *intellectual autonomy* (creativity, tolerance), *hierarchy* (deference to power and authority), *mastery* (focus on success and self-assertion), *egalitarian commitment* (valuing freedom and social justice), and *harmony* (focus on environmental protection and unity with nature). Recent value type data that corrected for endorsement frequency differences were obtained from the Israel Social Sciences Data Center (Schwartz, 2005).

Inglehart and Baker (2000) described two broader dimensions derived from the World Values Surveys: *Traditional values* (emphasis on religion, national pride, and respect for authority) versus *secular-rational values* and *survival values* (emphasis on material well-being) versus *self-expression values*. The scores used in the present study were drawn from Inglehart and Norris (2003).

National character stereotypes representing people's stereotypical perceptions of the personality traits of a typical member of their culture were drawn from Terracciano et al. (2005).[4]

When integrating culture-level variables drawn from different studies we had to account for recent changes in national boundaries as well as differences in how narrowly different authors defined the boundaries of cultures. When multiple matches were possible, we used the most specific available matches (e.g., French-speaking Swiss compared to French-speaking Swiss). Hofstede's (2001) data for Yugoslavia were paired with Croatia and Serbia, and data from the Soviet Union were matched with Russia but not Estonia. Finally, data from Uganda were matched with Hofstede's (2001) East African region.

With the exception of the demographic variables, the culture-level associates described above were measured at the interval level. Table 2 shows intercorrelations among culture-level markers of demographics, values, and national character stereotypes. Specific scores on the culture-level associates for each individual culture are available from the authors.

Results

Preliminary Analyses

Intercorrelations among the eight POA items in the pooled sample were all positive but generally low, with a mean correlation of $r = .21$. This suggests that, consistent with our intentions, the different items assess conceptually related but separate aspects of aging perceptions. Given these considerations, we report item-level results for the POA instead of creating summary scores.

As seen in Table 1 (fourth column), the relative proportions of male and female respondents varied across cultures, and in one culture (India) only female raters were available. To examine the extent to which cross-cultural patterns of aging perceptions differ by gender, we computed separate culture-level means on each of the individual POA items for each gender. For each POA item, we then examined the correlations between male and female profiles across the 26 cultures. Correlations were moderate to high (ranging from $r = .46$ to $r = .89$, mean r across items $= .77$). However, to account for any gender differences, further culture-level analyses used means that controlled for unequal gender distributions. In the case of India, the mean response for women was used.

Whereas culture-level means on the POA items were normally distributed (Kolmogorov-Smirnov $Z < .8$), individual-level POA scores showed considerable deviations from normality. Attractiveness, everyday tasks, new learning, knowledge, wisdom, and respect showed substantial skewness and underwent logarithmic transformation. Authority and life satisfaction showed moderate skewness and underwent square-root transformation. Transformed scores were used for all analyses requiring normal distribution of the scores (i.e., analyses of variance and mixed models). For illustrative purposes, descriptive reports (e.g., Table 3) use untransformed scores.

Consensus Across Cultures

Table 3 shows gender-weighted means for perceived societal views of aging and POA scores across the different cultures. Respondents from most cultures thought that aging was viewed negatively within their societies (Table 3, last column). The exceptions were Mainland China, India, Malaysia, Russia, and New Zealand, where participants reported neutral or slightly positive views. The most negative perceived societal views were reported in Serbia, Argentina, the Czech Republic, and the United Kingdom.

Culture-level scores on individual POA items suggested that participants held divergent expectations for age trajectories in specific aspects of life (see Figure 1). As indicated by the consistently negative scores for attractiveness, everyday tasks, and new learning (cf. Table 3), there was cross-cultural consensus that these characteristics decrease with age. In turn, consistently positive scores for general knowledge, wisdom, and respect indicate that across cultures, these characteristics were believed to increase with age. The picture was less clear-cut for the remaining items, but in general, family authority was seen as increasing and life satisfaction was viewed as stable.

To examine if some aspects of aging perceptions show greater cross-cultural variability than others, we computed for each of the POA items the squared deviations of the mean scores in each culture from the cross-cultural mean. Using these deviation scores as the dependent variable, we then performed an analysis of variance with the eight POA items as the repeated-measures variable. Because we were interested in relative variability across cultures, we performed this analysis at the culture level (i.e., each of the 26 cultures was treated as a single case). Consistent with our expectations, some aspects of aging perceptions showed significantly less variability across cultures

[3] A fifth dimension of long-term orientation identified by Hofstede and Bond (1988) was not included in the analyses, because the overlapping number of cultures was small ($n = 16$).

[4] Note that although national character stereotypes are described in terms of Five Factor personality traits, they are not empirically related to aggregate personality profiles (i.e., mean personality ratings of actual members of a given culture; Terracciano et al., 2005). For comparison purposes, we conducted preliminary analyses that examined associations between aging perceptions and aggregate personality. Only sporadic associations were found, and the effects of aggregate personality profiles derived from self ratings (McCrae, 2002) and observer ratings (McCrae et al., 2005) did not converge. Aggregate personality profiles were therefore not considered in further analyses.

Table 2
Correlations Among Culture-Level Associates of Aging Perceptions

Criterion	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Sociodemographic characteristics (n = 26)																					
1. GDP	—	.61**	.65**	−.49*	−.11	.65**	.33	−.61**	.52**	.57**	−.38	−.31	.47*	.14	.32	.63**	.03	−.13	−.18	−.23	.37
2. % > 65	.61**	—	.54**	−.27	.38	.46*	.22	−.71**	.63**	.71**	−.68**	−.29	.30	.54**	.51**	.26	.18	−.18	−.29	−.17	.10
3. Educ.	.65**	.54**	—	−.60**	.30	.58**	.00	−.46*	.40*	.32	−.54**	−.45*	.60**	.36	.09	.53**	−.09	.09	.04	−.06	.06
Hofstede (2001) value dimensions (n = 26)																					
4. Power	−.49*	−.27	−.60**	—	.06	−.59**	.06	.37	−.31	−.14	.19	.02	−.43*	−.11	.16	−.72**	.16	−.05	.06	.31	−.17
5. Uncert.	−.11	.38	.30	.06	—	−.22	−.30	−.15	.02	.24	−.42*	−.30	.20	.44*	−.09	−.17	.40*	.06	−.06	−.02	−.50*
6. Indiv.	.65**	.46*	.58**	−.59**	−.22	—	.37	−.41*	.54**	.34	−.44*	−.38	.43*	.34	.04	.66**	−.23	.10	.17	−.14	.31
7. Masc.	.33	.22	.00	.06	−.30	.37	—	−.26	.22	.32	−.02	.05	−.12	.11	.31	.25	.09	−.14	−.17	.13	.28
Schwartz (1994) value types (n = 26)																					
8. Emb	−.61**	−.71**	−.46*	.37	−.15	−.41*	−.26	—	−.82**	−.85**	.61**	.00	−.46	−.37	−.27	−.50*	.13	.03	.30	.09	−.10
9. Aff. aut.	.52**	.63**	.40*	−.31	.02	.54**	.22	−.82**	—	.65**	−.49*	.10	.19	.21	.27	.44*	−.29	.10	−.07	.01	.20
10. Int. aut.	.57**	.71**	.32	−.14	.24	.34	.32	−.85**	.65**	—	−.59**	−.23	.43*	.39*	.34	.37	.09	−.17	−.37	−.08	.10
11. Hierarchy	−.38	−.68**	−.54**	.19	−.42*	−.44*	−.02	.61**	−.49*	−.59**	—	.47*	−.57**	−.64**	.00	−.31	−.16	−.16	.05	.20	.24
12. Mastery	−.31	−.29	−.45*	.02	−.30	−.38	.05	.00	.10	−.23	.47*	—	−.55**	−.61**	−.06	−.11	−.31	.28	.04	.16	−.02
13. Egal.	.47*	.30	.60**	−.43*	.20	.43*	−.12	−.46*	.19	.43*	−.57**	−.55**	—	.52**	−.35	.56**	−.03	.09	.06	−.09	−.12
14. Harmony	.14	.54**	.36	−.11	.44*	.34	.11	−.37	.21	.39*	−.64**	−.61**	.52**	—	.07	.15	.09	−.18	−.05	.11	−.07
Inglehart & Norris (2003) values (n = 24)																					
15. Sec.	.32	.51*	.09	.16	−.09	.04	.31	−.27	.27	.34	.00	−.06	−.35	.07	—	−.25	−.04	−.45*	−.28	.09	.54**
16. Self	.63**	.26	.53**	−.72**	−.17	.66**	.25	−.50*	.44*	.37	−.31	−.11	.56**	.15	−.25	—	−.13	.15	−.03	−.06	−.01
Terracciano et al. (2005) national character stereotypes (n = 25)																					
17. N_{NCS}	.03	.18	−.09	.16	.40*	−.23	.09	.13	−.29	.09	−.16	−.31	−.03	.09	−.04	−.13	—	−.43*	−.49*	−.55**	−.36
18. E_{NCS}	−.13	−.18	.09	−.05	.06	.10	−.14	.03	.10	−.17	−.16	.28	.09	−.18	−.45*	.15	−.43*	—	.77**	.26	−.32
19. O_{NCS}	−.18	−.29	.04	.06	−.06	.17	−.17	.30	−.07	−.37	.05	.04	.06	−.05	−.28	−.03	−.49*	.77**	—	.38	−.06
20. A_{NCS}	−.23	−.17	−.06	.31	−.02	−.14	.13	.09	.01	−.08	.20	.16	−.09	.11	.09	−.06	−.55**	.26	.38	—	.16
21. C_{NCS}	.37	.10	.05	−.17	−.50*	.31	.28	−.10	.20	.10	.24	−.02	−.12	−.07	.54**	−.01	−.36	−.32	−.06	.16	—

Note. GDP = gross domestic product; % > 65 = percentage of the population age 65 and above; Educ. = educational enrollment; Power = power distance; Uncert. = uncertainty avoidance; Indiv. = individualism; Masc. = masculinity; Emb = embeddedness; Aff. aut. = affective autonomy; Int. aut. = intellectual autonomy; Egal. = egalitarian committment; Sec. = secular-rational; Self = self-expression; N_{NCS}, E_{NCS}, O_{NCS}, A_{NCS}, C_{NCS} = national character stereotypes of neuroticism, extraversion, openness, agreeableness, and conscientiousness.
* $p < .05$. ** $p < .01$.

Table 3
Mean Perceptions of Aging by Culture

Culture	Attractiveness	Everyday tasks	New learning	General knowledge	Wisdom	Received respect	Family authority	Life satisfaction	Societal views
Argentina	−1.4 (0.7)	−0.6 (1.0)	−1.1 (0.8)	0.7 (1.2)	1.0 (0.8)	0.3 (1.3)	−0.2 (1.2)	−0.2 (1.0)	−0.9 (0.9)
Australia	−1.3 (0.7)	−1.0 (0.9)	−0.6 (1.0)	1.4 (0.8)	1.4 (0.6)	0.9 (1.0)	0.6 (1.3)	0.5 (0.9)	−0.3 (0.8)
Chile	−1.5 (0.7)	−0.9 (0.8)	−1.0 (0.9)	1.0 (1.1)	1.3 (0.9)	0.7 (1.2)	0.2 (1.2)	0.2 (1.1)	−0.8 (0.8)
Croatia	−1.3 (0.8)	−1.0 (0.7)	−1.3 (0.7)	0.6 (1.0)	1.4 (0.7)	0.8 (1.1)	0.4 (1.2)	−0.6 (0.9)	−0.7 (0.7)
Czech Republic	−1.4 (0.6)	−0.8 (0.8)	−1.3 (0.8)	0.1 (1.0)	0.6 (1.0)	0.4 (1.1)	0.1 (1.0)	−0.4 (0.9)	−0.8 (0.7)
United Kingdom	−1.5 (0.7)	−1.0 (0.8)	−0.9 (0.6)	1.2 (0.9)	1.3 (0.8)	0.5 (1.2)	0.3 (1.2)	0.1 (0.9)	−0.8 (0.9)
Estonia	−1.2 (0.7)	−0.4 (0.9)	−0.9 (0.9)	1.2 (0.9)	1.6 (0.6)	1.2 (0.7)	0.4 (1.0)	−0.1 (0.9)	−0.2 (0.8)
France	−1.4 (0.8)	−1.1 (0.6)	−1.0 (0.8)	0.7 (1.1)	1.0 (0.8)	0.5 (1.3)	−0.1 (1.1)	−0.3 (0.9)	−0.8 (0.8)
Hong Kong	−1.2 (0.9)	−0.6 (1.0)	−1.2 (0.7)	0.5 (1.0)	0.4 (1.0)	0.8 (1.0)	0.6 (1.0)	0.1 (1.0)	−0.3 (0.8)
India	−1.3 (0.8)	−0.6 (1.1)	−0.1 (1.4)	0.6 (1.2)	0.5 (1.2)	1.1 (1.2)	0.8 (1.2)	0.1 (1.2)	0.3 (1.3)
Islamic Republic of Iran	−1.6 (0.7)	−1.0 (0.8)	−1.4 (0.7)	0.3 (1.2)	0.5 (1.2)	1.3 (1.0)	0.7 (1.2)	−0.6 (1.1)	−0.3 (1.1)
Italy	−1.5 (0.9)	−1.1 (0.8)	−0.8 (1.1)	1.1 (1.0)	1.6 (0.8)	1.2 (1.1)	0.4 (1.3)	0.0 (1.1)	−0.5 (1.0)
Japan	−1.4 (0.8)	−0.7 (0.8)	−0.9 (1.0)	1.1 (0.9)	1.1 (0.8)	1.0 (0.8)	0.2 (1.0)	0.0 (1.0)	−0.5 (0.9)
Mainland China	−1.4 (0.9)	−0.4 (1.2)	−1.1 (0.8)	1.1 (0.8)	1.0 (1.0)	1.4 (0.8)	1.3 (0.9)	0.5 (1.1)	0.3 (1.0)
Malaysia	−1.3 (0.9)	0.0 (1.4)	−0.5 (1.1)	0.9 (1.2)	0.4 (1.2)	1.3 (1.0)	1.0 (1.1)	0.5 (1.2)	0.2 (1.0)
New Zealand	−1.4 (0.8)	−0.6 (1.1)	−0.7 (0.8)	1.3 (0.9)	1.4 (0.8)	1.1 (1.0)	0.7 (1.2)	0.5 (1.1)	0.1 (1.0)
Peru	−1.3 (0.8)	−0.7 (1.2)	−0.6 (1.1)	0.8 (1.3)	1.2 (1.1)	0.9 (1.1)	0.3 (1.3)	0.4 (1.2)	−0.5 (0.9)
Poland	−1.5 (0.6)	−0.8 (1.0)	−1.2 (0.8)	0.4 (1.1)	0.9 (1.0)	0.7 (1.1)	0.9 (1.0)	−0.5 (0.9)	−0.5 (0.9)
Portugal	−1.4 (0.8)	−0.7 (0.9)	−0.9 (0.6)	1.0 (0.9)	1.2 (0.9)	1.0 (0.9)	0.3 (1.1)	−0.2 (0.9)	−0.7 (0.8)
Russian Federation	−1.1 (1.0)	−0.4 (1.1)	−0.9 (1.1)	1.2 (1.1)	1.6 (0.7)	1.0 (0.9)	0.7 (1.1)	−0.3 (1.0)	0.2 (0.9)
South Korea	−1.5 (0.7)	−1.2 (0.7)	−1.2 (0.8)	0.5 (1.2)	1.0 (1.0)	0.7 (0.9)	−0.2 (1.1)	−0.2 (1.0)	−0.2 (0.9)
Serbia	−1.3 (0.8)	−0.7 (1.1)	−1.2 (0.8)	0.6 (1.2)	0.9 (0.9)	0.7 (1.2)	0.1 (1.3)	−0.7 (1.0)	−1.1 (0.9)
Slovakia	−1.3 (0.7)	−0.9 (0.6)	−1.3 (0.6)	0.1 (1.0)	0.4 (0.8)	0.5 (1.0)	0.2 (1.0)	−0.8 (0.8)	−0.5 (0.7)
Switzerland	−1.5 (0.7)	−0.7 (1.1)	−1.1 (0.7)	0.6 (1.0)	0.9 (0.8)	0.5 (1.2)	−0.3 (1.1)	−0.2 (0.9)	−0.4 (0.9)
Uganda	−1.6 (0.8)	−1.4 (1.1)	−0.8 (1.2)	0.6 (1.3)	1.1 (1.2)	1.7 (0.7)	0.9 (1.3)	0.5 (1.2)	−0.1 (1.1)
United States	−1.3 (0.9)	−0.6 (1.1)	−0.6 (0.9)	1.4 (0.8)	1.5 (0.7)	1.1 (1.1)	0.8 (1.1)	0.4 (1.1)	−0.6 (0.9)

Note. *SD*s are shown in parentheses. Perceptions of aging were rated on a scale from −2 = *decreases a lot* to 2 = *increases a lot*. Perceived societal views on aging were rated on a scale from −2 = *very negative* to 2 = *very positive*. Mean scores are weighted to account for unequal gender distribution across cultures.

than others, after Greenhouse-Geisser correction, $F(4.35, 108.72) = 3.16$, $p < .01$, $\eta^2 = .11$. Post hoc tests revealed that variability across cultures was smaller for attractiveness than for all of the other characteristics (ps $< .01$), smaller for performance in everyday tasks than for family authority and life satisfaction (ps $< .05$), and smaller for new learning than for life satisfaction ($p < .05$).

Culture-Level Associates of Aging Perceptions

The associations between aging perceptions and culture-level indicators of sociodemographic variables, values, and national character stereotypes were examined using a mixed-model approach nesting individuals within cultures. Initial unconditional means models entered culture as a random factor and aging perception scores as dependent variables. In these models, each individual score on the aging perception measures (Y_{ij}) was expressed as the sum of the overall mean (γ_{00}), the effect of culture (u_{0j}), and the effect of variations at the participant level (r_{ij}). Estimates of the variability among culture means (τ_{00}), and the variability among students in cultures (σ^2) indicated that there were significant effects of culture on each of the dependent variables (see top rows of Table 4). Also, consistent with the analyses reported above, the proportion of total variance in aging perceptions that was explained by culture [$\tau_{00}/(\tau_{00} + \sigma^2)$] varied for different aspects of aging perceptions and ranged from around 3% for attractiveness to more than 15% for wisdom.

In the next step, we added culture-level associates as fixed factors (γ_{01}) at the culture level. As seen in Table 2, a considerable portion of the intercorrelations between culture-level variables reached significance, and preliminary analyses revealed moderate to severe collinearity when multiple culture-level variables were included in the same analysis. Therefore, culture-level predictors were examined one at a time. The bottom part of Table 4 presents the estimated coefficients for the effects of each of the culture-level variables on aging perceptions. We also present the proportion of explainable variation in culture-level means explained by a given culture-level predictor.[5]

When we compared the relative strength of associations with culture-level predictors across different aspects of aging perceptions, the predicted pattern emerged. Perceptions of physical aspects of aging (i.e., attractiveness and ability to perform everyday tasks) did not show any significant relations to culture-level variables. For perceptions of cognitive aspects of aging (i.e., new learning, general knowledge, and wisdom), only 16% of the pos-

[5] To examine if the findings reported in Table 4 would hold up using alternative analytical approaches, we computed Pearson correlations between gender-weighted culture-level means of aging perceptions and each of the culture-level variables (see Hofstede, 2001; Leung & Bond, 2004; McCrae et al., 2005, for examples of such analyses in the context of cross-cultural research). Ninety percent of the significant findings in Table 4 were replicated with this approach.

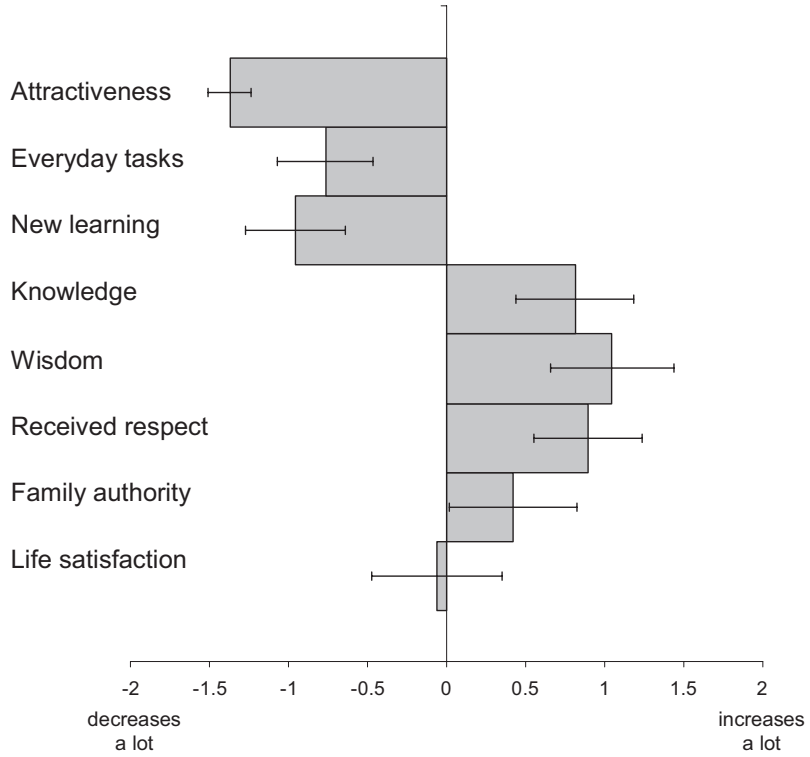

Figure 1. Means and standard deviations of aging perceptions at the culture level (controlling for unequal gender distribution).

sible associations with culture-level predictors reached significance. For perceptions of socioemotional aspects of aging (i.e., received respect, family authority, and life satisfaction), 30% of the associations were significant; and for societal views of aging, 38% of possible associations reached significance. Thus, associations between perceptions of aging and culture-level markers appear to be weak for physical and cognitive aspects of aging, more pronounced for socioemotional aspects of aging, and strongest for participants' perceptions of their societies' views on aging. We now discuss the effects for each type of culture-level associate in more detail.

GDP showed no significant associations with any of the aging perception variables, but the proportion of older adults (age $>$ 65 years) in the population was associated with less favorable perceptions of societal views on aging. As seen in Figure 2, which plots the proportion of older adults against societal views of aging, European cultures with high rates of population aging are clustered in the lower right quadrant of the graph, indicating that these cultures are thought to view aging as more negative. In contrast, cultures with younger populations, such as Malaysia, India, or Mainland China, are mostly found in the upper left quadrant, indicating more favorable views of aging. It is particularly interesting that Japan, the Asian culture with the highest percentage of older adults, is found in the same cluster as European countries. With regard to specific POA items, participants from cultures with older populations and higher education levels were less likely to report an age-related increase in respect and family authority but more likely to report an increase in wisdom. Participants from cultures with higher education levels also held more positive views of age trajectories in general knowledge.

Regarding Hofstede's (2001) value dimensions, participants from cultures with greater uncertainty avoidance reported more negative societal views of aging. Uncertainty avoidance was also associated with less favorable expectations about age-related changes in family authority and life satisfaction. Further, participants from cultures higher in power distance reported less favorable views of age-related changes in knowledge and wisdom.

Regarding Schwartz's (1994) value types, higher levels of hierarchy and embeddedness and lower levels of intellectual autonomy were associated with more favorable societal views on aging. Only two of the specific POA items showed significant association with Schwartz's value types: The perception that received respect and family authority increase with age was associated with higher cultural levels of embeddedness and hierarchy but lower levels of intellectual autonomy. Perceived increases in family authority were also linked to lower levels of egalitarian commitment and harmony, and perceived increases in respect were linked to higher levels of mastery.

Inglehart and Norris's (2003) values showed no significant associations with perceived societal views of aging, but participants from cultures high in self-expression reported more favorable aging trajectories for new learning and life satisfaction, whereas participants from cultures high in secular–rational values reported more negative views of new learning in advanced age.

National character stereotypes were significantly associated with several aspects of aging perceptions. In cultures stereotyped

as low in neuroticism there were more favorable perceptions of age trajectories in new learning, general knowledge, received respect, family authority, and life satisfaction. Perceptions about age trajectories in new learning were also more favorable in cultures that viewed their typical member as high in openness. Finally, participants' ratings of societal views of aging were more positive in cultures who view their typical member as open, agreeable, and low in neuroticism.

Additional analyses added gender (γ_{02}) and frequency of contact with older adults (γ_{03}) as fixed factors at the individual level. Age of the rater was not included because the focus on student samples resulted in a restriction of range for that variable. Compared with male respondents, women had more favorable opinions of age-related changes in everyday tasks ($\gamma_{02} = .011$, $p < .0001$). Further, participants who had more frequent contact with older adults had more favorable perceptions of age-related changes in attractiveness ($\gamma_{03} = .012$, $p < .0001$), everyday tasks ($\gamma_{03} = .011$, $p < .0001$), new learning ($\gamma_{03} = .007$, $p < .05$), authority in the family, ($\gamma_{03} = .017$, $p < .01$), life satisfaction ($\gamma_{03} = .009$, $p < .05$), and societal views of aging ($\gamma_{03} = .049$, $p < .0001$). However, even after gender and contact frequency were added to the models, the pattern of findings reported in Table 4 remained largely unchanged. The only effects that were no longer significant were the associations of Schwartz's (1994) hierarchy scale with societal views of aging and national stereotypes of openness with POA learning.

Because previous research has found that cultural values are associated with sociodemographic variables (e.g., Hofstede, 2001; Leung & Bond, 2004), we examined in supplemental analyses if the associations between aging perceptions, cultural values, and national stereotypes remained significant when demographic characteristics were added to the models as culture-level variables. Because of concerns regarding multicollinearity (see Table 2), demographic predictors were added one at a time. When we added GDP, only half of the associations of aging perceptions with values but all of the associations with national character stereotypes remained significant. When we added educational enrollment, only 40% of the associations of aging perceptions with values but 89% of associations with national character stereotypes remained significant. Finally, after we added population age, 25% of associations with values but 44% of associations with national stereotypes remained significant. This suggests that cross-cultural differences in sociodemographic factors, and particularly in population aging, can largely account for the association between aging perceptions and values. However, they cannot fully explain the association between aging perceptions and national character stereotypes.

Comparing Aging Perceptions in Asian Versus Western Cultures

To integrate findings from the present study with the previous literature, we also examined gross-level Eastern versus Western contrasts. To group the cultures in our sample according to broad Asian or Eastern versus Western categories, we drew on the United Nations geographical regions (United Nations Statistics Division, 2008). According to these guidelines, we classified the following countries as Eastern or Asian: Hong Kong, India, Islamic Republic of Iran, Japan, Mainland China, Malaysia, and South Korea. The Western group was composed of European cultures (Croatia, Czech Republic, Estonia, France, United Kingdom, Poland, Portugal, the Russian Federation, Serbia, Slovakia, and Switzerland) and the United States. Following previous studies (e.g., Giles et al., 2000), Australia and New Zealand were also classified as Western. Because they could not be clearly classified in either category, the South American cultures (Argentina, Chile, and Peru) and the sole African culture in our sample (Uganda) were excluded from this comparison.

Again, we used a mixed model approach nesting individuals within cultures where culture was entered as a random factor and the East–West classification was entered as a fixed factor at the culture level. Compared with Western countries, participants in Eastern countries reported more positive societal views of aging ($\gamma_{\text{EastWest}} = .42$, $p < .01$) but less favorable perceptions of age-related changes in wisdom ($\gamma_{\text{EastWest}} = -.10$, $p < .05$).[6]

In the next step, we examined to what extent East–West differences in aging perceptions are explained by differences in sociodemographic structure, culturally shared values, and national stereotypes. For this purpose, we focused on the culture-level variables that were found to have significant associations with POA wisdom and societal perceptions of aging (see Table 4). East–West differences remained significant even when values, national stereotypes, and education levels were added as culture-level predictors. In contrast, when we added the proportion of older adults in the population, East–West differences were rendered insignificant (all $p > .3$).

Discussion

The present study extends the literature by comparing perceptions of aging across 26 cultures from six continents. Perhaps the most striking finding was the widespread cross-cultural consensus regarding the direction of aging trajectories in different characteristics (e.g., consistent increases in wisdom vs. consistent decreases in the ability to perform everyday tasks). This suggests that basic patterns of aging perceptions are shared across cultures. Many of the perceived changes are also consistent with age trajectories on standardized measures that suggest age-related declines in fluid cognitive abilities (McArdle, Ferrer-Caja, Hamagami, & Woodcock, 2002; Salthouse & Davis, 2006) and physical functioning (DiGiovanna, 2000) but relative stability in crystallized intelligence (McArdle et al., 2002), socioemotional skills, and well-being (Charles & Carstensen, 2007). This implies that, in contrast to other culturally held stereotypes such as perceptions of national character (e.g., Terracciano et al., 2005), culture-level perceptions of the aging process appear to contain more than just a "kernel of truth" (Brigham, 1971, p. 1). Nevertheless, there was considerable variance in aging perceptions across cultures, warranting a closer examination of the possible causes of such differences.

In general, results supported the prediction that the effects of culture would be strongest for those aspects of aging perceptions (i.e., socioemotional functioning and perceived societal views on aging) that are least influenced by age-related biological changes. An examination of the culture-level associates of aging perceptions also provided some support for the prediction that advanced

[6] Patterns of effects were comparable when using a narrower definition of Eastern cultures that excluded India and the Islamic Republic of Iran or when South American countries were grouped with the Western countries.

Table 4
Summary of Mixed Models Examining the Effects of Culture-Level Associates on Different Aspects of Aging Perceptions

Models and predictors	Attractiveness		Everyday tasks		New learning		General knowledge	
Unconditional means models	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$
Culture	0.172*	.027	0.302*	.077	0.268*	.087	1.418*	.112
Models adding culture-level predictors	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$
Sociodemographic characteristics ($n = 26$)								
GDP	.000	.020	.000	.000	.000	.000	.000	.009
% > 65	.001	.045	.000	.000	−.001	.000	.003	.000
Educ.	−.010	.029	.000	.000	.000	.000	.003*	.149
Hofstede (2001) value dimensions ($n = 26$)								
Power	.000	.000	.000	.000	.000	.022	−.002*	.181
Uncert.	.000	.000	.000	.000	.000	.066	.000	.000
Indiv.	.000	.000	.000	.000	.001	.056	.001	.068
Masc.	.000	.000	.000	.000	.000	.000	.000	.000
Schwartz (1994) value types ($n = 26$)								
Emb.	−.010	.000	.009	.000	.004	.000	−.056	.000
Aff. aut.	.023	.057	.013	.000	.012	.000	.046	.036
Int. aut.	−.009	.000	−.016	.000	−.023	.000	−.008	.000
Hier.	−.011	.000	.011	.000	.001	.000	−.019	.000
Mast.	.014	.000	.024	.000	.030	.000	.049	.000
Egal.	−.014	.000	−.034	.000	.060	.071	.067	.037
Harm.	−.005	.000	−.017	.000	−.011	.000	.001	.000
Inglehart & Norris (2003) values ($n = 24$)								
Sec.	.009	.103	.019	.181	−.027*	.303	−.015	.000
Self	−.010	.042	−.010	.105	.026*	.335	.028	.068
Terracciano et al. (2005) national character stereotypes ($n = 25$)								
N_{NCS}	−.001	.115	−.001	.000	−.005*	.254	−.007*	.227
E_{NCS}	.001	.113	−.001	.000	.003	.146	.003	.044
O_{NCS}	.000	.096	.000	.000	.004*	.211	.003	.032
A_{NCS}	.001	.094	.001	.000	.004	.155	.002	.000
C_{NCS}	.001	.113	.002	.000	.002	.077	.000	.000

Note. γ_{00} = estimated intercept for unconditional means models; γ_{01} = estimated fixed effects of culture-level associates; $\tau_{M1} = \tau_{00}$ for unconditional means models; $\tau_{M2} = \tau_{00}$ for models including culture-level predictors; $\tau_{M1}/(\tau_{M1} + \sigma^2)$ = proportion of total variance in aging perceptions explained by culture; $(\tau_{M1} - \tau_{M2})/\tau_{M1}$ = proportion of explainable variation in culture-level means explained by a given culture-level predictor; Educ. = educational enrollment; Power = power distance; Uncert. = uncertainty avoidance; Indiv. = individualism; Masc. = masculinity; Emb = embeddedness; Aff. aut. = affective autonomy; Int. aut. = intellectual autonomy; Hier. = hierarchy; Mast. = mastery; Egal. = egalitarian committment; Harm. = harmony; Sec. = secular-rational; Self = self-expression; N_{NCS}, E_{NCS}, O_{NCS}, A_{NCS}, C_{NCS} = national character stereotypes of neuroticism, extraversion, openness, agreeableness, and conscientiousness.
* $p < .05$.

levels of socioeconomic development would be associated with less favorable perceptions of aging. Our findings suggest that economic growth is less relevant in this regard than educational enrollment and population aging. It has been argued that growing numbers of older adults in Western nations may trigger intergenerational conflicts over limited resources (e.g., Silverstein, Parrott, Angelelli, & Cook, 2000). In support of this idea, young adults from cultures with a higher proportion of older adults reported less favorable societal views on aging and smaller age-related increases in family authority. However, our findings do not indicate a uniformly negative effect of demographic change on aging perceptions: Respondents from cultures with older and more educated populations endorsed larger increases in wisdom with age.

In part, these results are consistent with revised forms of modernization theory that predict an association between advanced societal development and cultural changes toward rational, tolerant, and participatory values (Inglehart & Baker, 2000). Conceivably, shifts toward progressive values may erode traditional notions that older adults deserve respect and authority just because of their age. Consistent with this idea, perceptions that family authority increases with age were positively associated with embeddedness and hierarchy, but negatively associated with intellectual autonomy and egalitarian commitment. A comparable though weaker pattern was found for perceived respect. At the same time, increasing emphasis on self-expression and individual well-being may lead to greater appreciation of older adults' experience-based knowledge and greater concern for their well-being. In support of this view, participants from cultures with greater emphasis on self-expression (Inglehart & Norris, 2003) expected more positive age trajectories in knowledge and life satisfaction, whereas cul-

Table 4 (*continued*)

Wisdom		Received respect		Family authority		Life satisfaction		Societal views	
γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$	γ_{00}	$\tau_{M1}/(\tau_{M1} + \sigma^2)$
1.464*	.155	1.436*	.101	1.677*	.120	1.683*	.122	2.591*	.136
γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$	γ_{01}	$(\tau_{M1} - \tau_{M2})/\tau_{M1}$
.000	.000	.000	.102	.000	.056	.000	.000	.000	.077
.007*	.123	−.006*	.145	−.014*	.229	−.008	.071	−.038*	.242
.004*	.249	−.003*	.156	−.005*	.140	.000	.000	−.010	.049
−.002*	.270	.000	.000	.000	.000	−.002	.091	.004	.000
.000	.043	−.001	.106	−.003*	.341	−.002*	.213	−.080*	.233
.001	.056	.000	.000	.000	.000	.000	.000	−.003	.000
−.001	.074	.000	.000	.000	.000	.000	.000	.000	.000
−.087	.039	.117*	.166	.256*	.247	.034	.000	.567*	.152
.042	.011	−.046	.041	−.094	.062	−.032	.000	−.212	.030
.022	.000	−.090*	.122	−.229*	.266	−.087	.014	−.520*	.175
−.054	.052	.073*	.204	.169*	.326	.077	.058	.467*	.352
−.012	.000	.137*	.144	.225	.097	.165	.059	.497	.052
.089	.071	−.069	.049	−.179*	.135	.053	.000	−.414	.090
.069	.018	−.086	.095	−.224*	.228	−.123	.064	−.409	.079
−.017	.121	−.019	.098	−.029	.053	−.044	.200	.045	.050
.018	.134	−.005	.040	−.012	.017	.052*	.279	−.12	.144
−.004	.065	−.006*	.167	−.011*	.122	−.010*	.203	−.047	.395
.002	.025	.002	.009	.005	.000	.002	.035	.010	.000
.002	.014	.004	.069	.008	.040	.003	.038	.032	.138
−.001	.000	.004	.051	.004	.000	.002	.029	.043	.289
−.004	.037	.001	.000	.002	.000	.003	.031	.031	.078

tures with a traditional emphasis on status differences (power distance; Hofstede, 2001) reported less favorable views of age trajectories in general knowledge and wisdom.

In this context, we also explored the role of intergenerational contact. At the individual level, more frequent contact with older adults was associated with more positive aging perceptions. However, at the culture level, a higher proportion of older adults did not translate into more frequent intergenerational contacts ($r = -.11$, *ns*). This finding is consistent with the notion that modernizing influences erode multigenerational family structures.

In contrast to values, which appear to be strongly intertwined with sociodemographic variables, national character stereotypes seem to have an association with aging perceptions that is relatively independent of national wealth and population structure. In fact, the single most consistent relation between culture-level associates and aging perceptions is found for national character stereotypes regarding levels of neuroticism (N_{NCS}). As seen in Table 4, N_{NCS} accounts for close to 40% of the explainable variance in societal views of aging across cultures. It appears that the same mechanisms that lead people to stereotype the typical member of their culture as high in negative emotionality would also lead them to perceive their culture's views of aging and various aspects of the aging process more negatively. As mentioned above, national character stereotypes are not associated with aggregate levels of personality, and research on their possible sources is still in its infancy (McCrae, Terracciano, Realo, & Allik, 2007; Terracciano & McCrae, 2007). However, the association between national character stereotypes and aging stereotypes observed in the present study raises the possibility that other forms of stereotyping (e.g., regarding gender or minority groups) may fol-

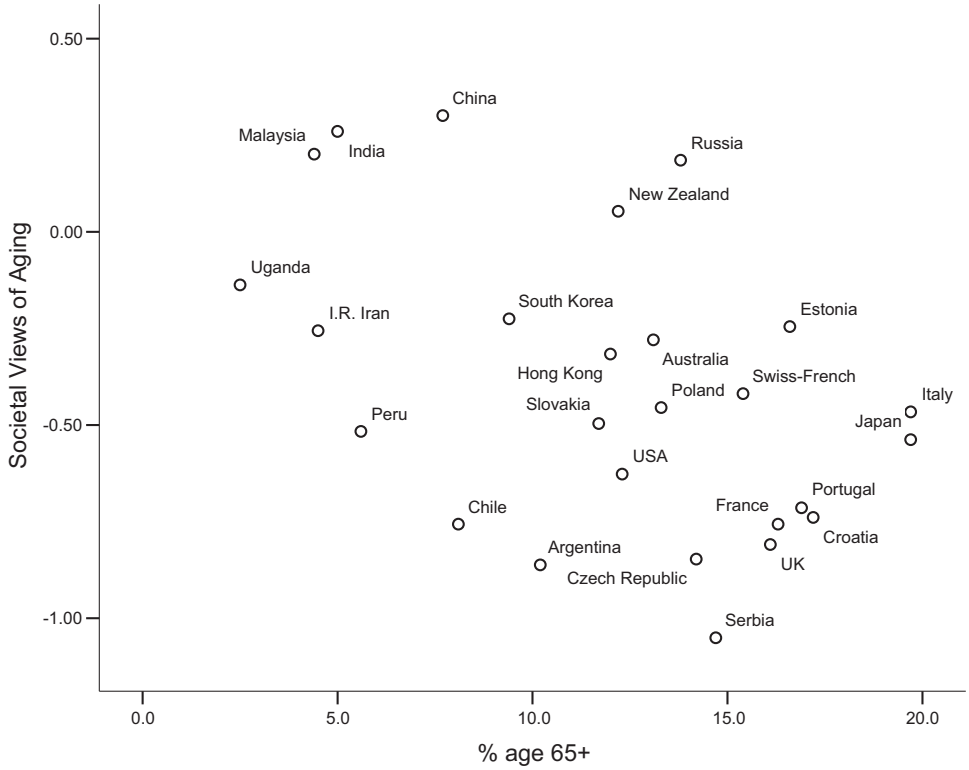

Figure 2. Culture-level association between population structure and societal views on aging.

low similar cross-cultural patterns. This constitutes an important direction for further research.

Broad East–West comparisons found a small but significant effect, indicating that participants from Asian cultures do indeed hold more positive societal views of aging than their Western counterparts. However, this effect was qualified by the finding that participants from Asian cultures show less favorable perceptions of changes in wisdom. This explains some of the inconsistency in the literature: Previous studies of East–West differences may have arrived at divergent conclusions, depending on how much their measures of aging attitudes emphasized wisdom versus general societal views. The trajectories for wisdom also echo results by Harwood et al. (2001), who found that older adults from mainland China and Hong Kong reported less favorable age trajectories for wisdom than their Western counterparts.[7] Our analyses suggest that the observed East–West differences are not only related to differences in values or national character but also linked to population structure. This implies that future studies examining East–West differences need to control carefully for the influence of sociodemographic factors.

There are, of course, a number of important limitations that need to be considered when interpreting our findings. For one, our measure of aging perceptions consists of a closed-ended list of only eight trait ratings. Although the individual characteristics were adapted from existing measures of aging perceptions, their combined use with a uniform response format was not validated in previous studies. Further, although we selected characteristics that cover core aspects of physical, mental, and socioemotional aging, the list is far from comprehensive. Moreover, although widely used to assess stereotypical perceptions (e.g., Biernat & Crandall, 1996; Rosencranz & McNevin, 1969), quantitative trait lists and etic approaches cannot fully capture the complexity of aging perceptions and need to be supplemented by qualitative and culture-centered approaches (e.g., Sharps, Price-Sharps, & Hanson, 1998).

Another important limitation is the nature of our samples, which were composed almost exclusively of university students and were predominantly female. To some extent, using students was advantageous because it ensured comparable distributions of age and education across samples. However, using such young samples limits the generalizability of our findings. It is therefore reassuring to note that in a supplemental sample of 63 Italian adults who were not college students (age range: 22–79, $M = 37.13$, $SD = 12.05$), age was not significantly related to POA scores or societal views on aging (range of correlations: $-.15 < r_p < .09$, $ps > .25$). Nevertheless, future studies should aim to recruit samples from the general population that represent the whole adult life span. Our findings are also limited by an underrepresentation of African and Middle Eastern countries and the fact that even a sample of 26 cultures is still relatively small to examine culture-level associations.

[7] Harwood et al. (2001) raised the concern that the Chinese version of their questionnaires translated wisdom as *chong ming* (i.e., clever or smart) instead of using the more appropriate *zhi hui*. The present study used the latter term, suggesting that the effect is consistent across alternative translations.

Future studies in larger samples should also include a broader range of value dimensions. The taxonomies by House et al. (2004), Smith et al. (1996), or Leung and Bond (2004), as well as Diener et al.'s (1995) culture-level scores on life satisfaction, could not be included because their overlap with the present sample was too small to allow for meaningful analyses. A related issue concerns discrepancies in assessment times among the culture-level associates. Data on some of the value scales (e.g., Hofstede, 2001) were collected more than a decade before the present study. Value systems may change in response to historical events, and associations with aging perceptions might have differed if concurrent data were available.

Finally, although our analyses address individual differences in aging perceptions within a given culture, we do not account for interindividual variability in cultural values and national character stereotypes because these characteristics are aggregated at the culture level. To address these issues, future studies should assess both aging perceptions and cultural values at the individual level and within the same sample of participants.

In spite of these limitations, our findings contribute to the literature on cross-cultural patterns of aging perceptions by illustrating widespread similarities in perceptions of aging, describing subtle variations within this general consensus, and exploring culture-level associates of such variations. Most important, our findings emphasize the benefits of considering multiple predictors simultaneously and highlight the need for larger scale cross-cultural studies that employ a broader range of measures. As populations in nations across the world are aging (United Nations, 2007), societal perceptions of older adults and people's expectations about their own aging process will influence the well-being of older adults as well as policy decisions at the societal level. A better understanding of cross-cultural differences in aging perceptions is a crucial resource in navigating these challenges.

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