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Hiroko Tomioka
Soka University

Ginny Q. Zhan
Kennesaw State University, gzhan@kennesaw.edu

Sharon M. Pearcey
Kennesaw State University

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A Comparative Study of College Students' Cultural Orientation, Aging Attitude, and Anxiety: Japan, China, and USA

Hiroko Tomioka,¹ Ph.D., Soka University, Japan
Ginny Q. Zhan, Ph.D., Kennesaw State University, USA
Sharon M. Pearcey, Ph.D., Kennesaw State University, USA

Abstract: The current study compared responses from young people on cultural orientation, aging attitudes and aging anxiety in Japan, China, and the United States. A total of 1136 college students (357 Japanese, 434 Chinese, and 345 American) filled out a questionnaire that included an IC Scale (Cultural Orientation Scale), Kogan's Attitudes toward Old People Scale, and a modified Aging Anxiety Scale, in addition to demographic information. Cronbach's alphas indicated satisfactory reliability on all three scales for the three groups. The results indicate that the Japanese were significantly more collectivistic than both the Chinese and American participants, but the three groups all scored higher on collectivism than individualism overall. Findings also show that the American participants held significantly more positive attitudes toward aging and were significantly less anxious about aging than their Japanese and Chinese counterparts. For all three groups, collectivistic cultural orientation was positively correlated to attitudes toward aging, and for the Japanese and American participants, it is negatively related to anxiety level. A number of sex differences were also found. These results are discussed in the context of culture, globalization, and the evolving nature of both Western and Eastern traditional values.

Key words: cross-cultural, aging attitudes, aging anxiety, Japan, China, the US

The term “older adults” is defined as individuals who are 65 and above (WHO 2009). Among all the countries in the world, Japan has the highest percentage of individuals aged 65 and over, constituting 27.3% of the total population in 2016 (World Bank 2018). In addition, of the 12 high income OECD (The Organization for Economic Co-operation and Development) countries, Japan has the highest life expectancy at 83.7 years in 2015 (WHO 2018). The United States has also joined many countries in the “aging society” category (defined as having 13% of the population at 65 and over) with the percentage reaching 15.2 in 2016 (United States Census Bureau 2017). Although China is not officially an aging society yet, currently it is the fastest growing country in the aging population category (The World Bank 2018). With an older adult population at about 10% of the total, the sheer number of almost 100 million people aged 65 and over is staggering (The World Bank 2018). Like all aging societies, these three countries face a multitude of challenges ranging from acceptance and treatment of the elderly to good quality elder care.

In order to address the issues related to aging populations, Japan, China and the United States have established laws to benefit the elderly and prohibit discrimination on the basis of age. Specifically, in 1989 the Japanese government instituted a plan aiming to promote a positive image as well as provide support for independent living and social services for the elderly (Tsuno and Homma 2009). Also, Japan has increased the retirement age to 65 years (from 60 years) to encourage older individuals to stay in the workplace longer (Tsuno and Homma 2009). The United States has many social services in place including medical coverage and social security pensions for the elderly (Social Security Administration 2018). Also, the Age Discrimination in Employment Act (ADEA) protects individuals who are over 40 years old from workplace discrimination in the United States (United States Equal Employment Opportunity Commission 2018). Similarly, in China, the Labor Contract Law protects older employees from termination based on age (L & E Global 2017). However, in China, due to the “one child policy,” elder care

Corresponding Author: Hiroko Tomioka, Ph.D., 1-236 Tangi-machi, Faculty of Education, Soka University, Hachioji City, Tokyo, 192-8577, Japan. email: hirokot@soka.ac.jp

JOURNAL TITLE

has become more challenging with a single adult child. Nie (2017) suggests that Chinese government needs to address these issues and take more responsibility for eldercare.

Although government laws are important in protecting the aged, social perceptions and attitudes also matter. How do people, especially young people, in these countries view the elderly and the aging process? In other words, what kind of attitudes do they have towards the elderly? Ajzen and Fishbein (1980) argue that it is meaningful to study attitudes because they influence people's intentions toward behaviors. This asserts that individuals with positive attitudes toward older people are more likely to hold favorable beliefs, feelings, and behaviors toward them and direct their behavior in such a direction as well (Lee 2009). Studying college student populations is significant because they are about to enter the work force as educated professionals who are likely to encounter, participate, and impact aging policies and elder care in their professional work as well as their personal lives. It has been argued that social perceptions, attitudes, and images of old age may have a large impact on the well-being of the aged population in the society (Arnold-Cathalifaud et al. 2008).

Is cultural orientation of a country related to its people's attitudes towards the older adults? Many social psychologists have used the theoretical framework of the individualism and collectivism paradigm in examining cultural orientation (Segall et al. 1999; Triandis 1995; Triandis 1996; Triandis et al. 1980). It is generally believed that the United States is primarily an individualistic country that values independence, autonomy, and personal pursuit of happiness, whereas Japan and China have been traditionally viewed to be collectivistic countries that value relationships, interdependence, and family togetherness. Research shows that in American society older individuals have a somewhat devalued status because the culture values youth in general where aging and the elderly are diminished and youthfulness is exalted and admired (Harris and Dollinger 2001; Musaiger and D'Souza 2009; Van Langenhove and Harré 1994). In East Asian tradition, however, the Confucian core value of filial piety (respect and care for the elders) is reflected in many aspects of the society such as philosophy, literature, arts, family structure, and relationships, and heavily influences people's attitudes toward the elderly that old age and experiences are highly valued and respected (Tan, Zhang, and Fan 2004; Xie, Xia and Liu 2007). So theoretically, it is reasonable to expect the East Asians like the Japanese and Chinese would hold more positive attitudes toward aging and the elderly than the Americans.

Literature review

A recent published cross-cultural meta-analysis of attitudes toward older adults examined relevant research in the prior 30 years (North and Fiske 2015). Overall the findings did not support the conventional belief that Easterners/Asians are more positive towards old age than the Westerners/Americans. In fact, the results showed the opposite in that the participants from traditionally individualistic countries were found to hold more positive aging attitudes than those from collectivistic countries (North and Fiske 2015). However, this analysis included participants of all age groups and many different Asian and European countries, so the results did not directly address college students from Japan, China, and the USA.

Cross-cultural research linking cultural background and aging attitudes among young people is not abundant in general. From the limited research available that compared college students' perceptions of aging among Japanese, Chinese, and American students, the results are somewhat consistent with North and Fiske's (2015) findings. For example, Huang (2013) found that American college students had more positive attitudes toward older adults than the Japanese and Chinese students in the study. Similarly, Luo, et al. (2013) found that Chinese college students held more negative attitudes toward aging and the elderly than the American students in their study; and American students also reported more positive views on communication with the elderly than the Japanese college students (McCann et al. 2003).

On the other hand though, there is much research showing that both positive and negative perceptions of older adults existed in societies (Lyons 2009). Non-comparative studies that

specifically examined college students' attitudes toward aging and older people in North America suggest that in general attitudes towards aging and older people are mixed, ranging from very negative to very positive (Callahan 2011; Gellis, Sherman, and Lawrence 2003). Some researchers found that college graduate students (Cummings, Adler, and DeCoster, 2005) and undergraduate students in the United States (Funderburk et al. 2006; Lee 2009; Valeri-Gold 1996) were shown to hold fairly positive aging attitudes. However, others found that stereotypical negative attitudes among American college students persisted (Cottle and Glover 2007; Kimuna, Knox, and Zusman 2005; Laditka et al. 2004).

The pattern is similar with regard to college students in other countries. For example, Turkish university nursing students were found to hold very positive and respectful attitudes toward the elderly (Erol et al. 2013), and college students in Bahrain, Brazil, and Indonesia also perceived aging with positive characteristics such as leadership and spiritual roles (Eyetsemitan et al. 2003). On the other hand, however, less positive attitudes among college students were also found. For example, Chilean and Peruvian college students held a somewhat negative image of old age (Arnold-Cathalifaud et al. 2008; Löckenhoff et al. 2009). Similarly, Israeli (Bodner and Lazar 2008) and Spanish (Zambrini et al. 2008) college students were also found to have less positive perceptions about older people.

Previous research regarding attitudes toward and image of the elderly people in Japan mainly refers to the case study of nursing students (Miyamoto et al. 2015). For example, Takigawa, Yoshimoto, and Yokokawa (1999) examined nursing students' image of the elderly people before and after they were exposed to a course entitled "Introduction to Geriatric Nursing." The results showed that the image of the elderly people had changed positively in the subscales of "Appearance," "Ability," "Character," and "Happiness" after taking the course. It can be said that taking a gerontology related course is related to undergraduate students' improved attitudes and image of the elderly people. Other researchers compared college students in two East Asian countries: Japan and Korea (Azetsu, Kim, and Yoshinaga 2017; Chen and Hosoe 2011). The results showed that participants from both countries held similar perspectives on the elderly, regarding them in positive terms such as "experienced," "worthy of respect," "wise," and "elegant," as well as negative terms such as "slow" and "leisured" (Azetsu, Kim, and Yoshinaga 2017), and students in both countries who viewed filial piety favorably were more likely to be willing to take care of their parents (Chen and Hosoe 2011).

Earlier research on college students' attitudes towards aging and the elderly in China showed fairly positive or neutral results (Tan, Zhang, and Fan 2004). However, with the rapid westernization and modernization taking place, recent research also found increasingly less positive attitudes toward aging and the elderly among young people (Xie, Xia, Liu 2007; Zhou 2007), leading one researcher to speculate that perhaps "modernization has chipped away elder respect in China" (Zhou 2007, 826).

Aging anxiety has been shown to affect attitudes toward aging and the elderly (Lasher and Faulkender 1993). Researchers found that a higher level of aging anxiety was related to more negative attitudes toward the elderly among American college students (Boswell 2012). Likewise, reduced aging anxiety was found to be related to more positive aging attitudes among Canadian college students (Allan and Johnson 2008). However, others found no relationship between aging anxiety and attitudes among British college students (Bousfield and Hutchison 2010; Drury, Hutchinson, and Abrams 2016).

In the current study, we examined cultural influences on attitudes toward aging and older adults and aging anxiety by comparing responses from Japanese, Chinese, and American college students. There were two main goals. One was to examine whether and to what extent the general cultural orientation (i.e., collectivistic vs. individualistic) would affect college students' aging attitudes and aging anxiety. We hoped our research findings would add to the existing research in this area thus enhancing cross-cultural understanding of aging attitudes among researchers and other interested individuals. The second goal was to be able to offer some relevant information to

JOURNAL TITLE

educators and gerontologists in Japan, China, and the United States about college students' aging attitudes and anxiety. We hoped that our findings may have some implications to help educators in designing new courses in gerontology in schools and universities to raise awareness among students and to educate young people about the aging process.

Based on the previous research findings, we hypothesized that: First, Japanese and Chinese students would score higher on overall collectivism and lower on overall individualism than American students. Women would score higher on overall collectivism and lower on overall individualism than men. Second, Japanese and Chinese students would hold more negative attitudes toward aging and the elderly than American students. Women would have more positive attitudes towards aging and the elderly than men would have. Third, Japanese and Chinese students would show more overall aging anxiety than the Americans, and women would be more anxious than men. Fourth, regardless of cultural origin and sex, overall collectivism would be positively related to aging attitudes and negatively related to aging anxiety. Fifth, regardless of cultural origin and sex, aging attitudes would be negatively related to aging anxiety.

Method

Participants

A total of 1136 college students participated in this comparative study. The sample consisted of 357 Japanese, 434 Chinese, and 345 American participants. The American students identified their ethnicity as White (59.2%), African American (19.1%), Hispanic (8.1%), Asian (6.4%), Mixed Race (4.9%), and other (2.3%). The Chinese participants identified themselves as native Chinese, whereas 96.1% of the Japanese participants identified themselves as native Japanese and 3.9% did not respond to this question. A summary of participants' demographics is presented in Table 1.

Table 1. Sex and age of participants by country.

Country	Sex		Age	
	Men	Women	M (SD)	Range
Japan	38.68%	61.3%	19.12 (1.00)*	18-22
China	32.33%	67.67%	20.07 (1.52)	18-30
US	33.33%	66.67%	19.47 (3.13)	18-55

* Nine Japanese participants were not included in this analysis because they indicated that they were over 23 years old.

Instruments

Individualism/Collectivism Scale

The Cultural Orientation Scale (INDCOL scale; Triandis and Gelfand 1998) measures the degree of individualism and collectivism taking into account the additional characteristics of vertical orientation (accepting of a hierarchical culture) and horizontal orientation (the belief that all individuals in a culture are equal). For the purposes of this paper, we focused only on individualism and collectivism dimensions and did not use the vertical and horizontal orientation dimensions. The scale consists of 16 items rated on a 9-point Likert type scale with the anchors of "never" and "always." Reliability of the scale for our participants measured by Cronbach's

alphas were 0.62, 0.81, and 0.77 for the Japanese, Chinese, and American students respectively, indicating satisfactory internal consistency of the scale.

Attitudes toward Old People Scale

Kogan's (1961) Attitudes toward Old People Scale consists of 34 items measuring 17 positive and 17 negative aspects of the elderly. Characteristics are rated on a 7-point Likert type scale with the anchors of "strongly agree" and "strongly disagree." Statements assess the readers' opinions on a range of topics including the elderly's wisdom, whether or not the elderly should live in integrated communities with younger individuals, the elderly's power and influence in society, and if it is easy to be around the elderly. Higher scores indicate more positive attitudes toward the elderly. Reliability of the scale for our participants measured by Cronbach's alphas were 0.81, 0.80, and 0.83 for the Japanese, Chinese, and American students respectively, indicating satisfactory internal consistency of the scale.

Aging Anxiety Scale

We used a modified version of the Aging Anxiety Scale (Lasher and Faulkender 1993) to measure the participants' aging anxiety. The original scale had 20 statements, five for each of the subcategories of physical, psychological, social, and transpersonal anxiety. The modified version used in this study contains 12 statements, three for the aforementioned four subcategories, replacing the title name "transpersonal" anxiety with "loss of meaning" anxiety to make it more direct and clear. In addition, we added a category with three questions assessing anxiety centering on taking care of aging parents. Thus, the final version contains 15 statements, three for each of the five categories. Participants rated items on a 5-point Likert type scale with "strongly agree" and "strongly disagree" as anchors. The higher score indicates more anxiety in a particular category. Reliability using Cronbach's alphas for the Japanese, Chinese, and American students were 0.69, 0.71, and 0.81 respectively, indicating satisfactory internal consistency of the scale.

Procedure

There were two procedures for data collection among three countries and data were collected from October, 2015 until October, 2016. Questionnaires were translated into Japanese and Chinese by bilingual researchers. A paper-and-pencil format was used in Japan and China, and an online questionnaire via Survey Monkey was used in the US. For the Japanese participants, questionnaires were administered in three humanities courses from a large university in Tokyo and were collected after class. The IRB office provided approval and the participation was voluntary and the responses anonymous. Similarly, for the Chinese participants, paper-and-pencil questionnaires were administered in two universities, one in Dalian and one in Shanghai. The survey was distributed to students in Educational Sciences and Business and Economics classes. Students were asked to leave the completed forms in the envelopes placed in the rooms. The participation was voluntary, and the responses were anonymous. This procedure was pre-approved by the Dean's Office of Educational Science in one university and the Dean's Office of Business College in the other. The Dean's offices in those two universities were responsible for approving research with human participants. The American participants were students in Introduction to Psychology courses from a large comprehensive university located in northwest Georgia. They took an online survey via Survey Monkey and were given a small amount of course credit for participation. Per the psychology department's policy, students in General Psychology classes are required to participate in research projects (or do an alternative assignment). This study was one of many that the students could choose to complete this requirement. IRB approval was obtained prior to data collection for the study.

Results

Individualism versus Collectivism

To aid in the conceptualization of the analyses investigating the relationships among individualism and collectivism by country and sex, we wanted to first show the overall differences between collectivism and individualism in all of our participants, regardless of nationality. Using a 3 (Country: Japan, China, the USA) by 2 (Ideology: Collectivistic, Individualistic) mixed factorial ANOVA, our results indicate that all groups, regardless of country, were higher in collectivism when compared to individualism (Collectivism $M = 55.15$, $SD = 9.08$, Individualism $M = 46.45$, 8.99 , $F(1, 1093) = 670.62$, $p = .000$).

To investigate our first hypothesis concerning the differences in individualism and collectivism depending on country and sex, we calculated a 3 (Country: Japan, China, the US) by 2 (Sex: men, women) factorial ANOVA for the individualism and collectivism scales. Concerning individualism, there was a significant main effect for country with the Japanese scoring significantly lower in individualism than both the Chinese and American participants ($F(2, 1097) = 36.71$, $p = .000$, $\eta^2 = 0.063$; LSD China versus Japan $M_{dif} = 4.19$, $p = 0.000$, LSD US versus Japan $M_{dif} = 5.08$, $p = 0.000$). There was no difference between the Chinese and American participants in individualism (see Table 2). In addition, we found a significant main effect for sex with men ($M = 48.55$, $SD = 9.27$) scoring higher on individualism than women ($M = 45.40$, $SD = 8.63$; $F(1, 1097) = 41.43$, $p = .000$, $\eta^2 = 0.036$). We found no interaction between country and sex for individualism.

Table 2. Comparison of individualism and collectivism using the cultural orientation scale.

Scale	Japan	China	US	
	Mean (SD)	Mean (SD)	Mean (SD)	
Individualism	43.34 (8.49)	47.53 (9.03)	48.42 (8.57)	US > Japan China > Japan US = China
Collectivism	56.04 (8.51)	54.71 (9.59)	54.75 (8.92)	No differences

*Country comparisons were assessed with LSD post hoc tests.

A similar 3 (Country: Japan, China, the US) by 2 (Sex: men, women) factorial ANOVA was calculated for collectivism. No main effect for country or interaction were found between country and sex for collectivism. However, our results indicated that men ($M = 54.34$, $SD = 9.22$) were significantly less collectivistic than women ($M = 55.55$, $SD = 8.97$; $F(1, 1092) = 5.21$, $p = .023$, $\eta^2 = 0.005$) regardless of country.

Attitudes towards the elderly

To examine our second hypothesis, we compared the attitudes towards the elderly by conducting a 3 (Country: Japan, China, the USA) by 2 (Sex: men, women) factorial ANOVA examining students' responses on Kogan's (1961) Attitudes toward Old People Scale. We found a significant main effect for country with the US participants ($M = 159.92$, $SD = 18.70$) having significantly more positive attitudes towards the elderly than both Japanese ($M = 153.56$, $SD = 18.43$, $M_{dif} = 6.36$, $p = 0.000$) and Chinese participants ($M = 153.04$, $SD = 18.03$; $M_{dif} = 6.88$, $p = 0.000$; $F(2, 1099) = 13.75$, $p = .000$, $\eta^2 = 0.024$). There were no differences in attitudes towards the elderly between Japanese and Chinese participants. Additionally, there was no significant

main effect for sex or a significant interaction between country and sex for attitudes towards the elderly.

Anxiety towards aging

To investigate our third hypothesis, we compared aging anxiety among the three countries by conducting a 3 (Country: Japan, China, the US) by 2 (Sex: men, women) factorial ANOVA for the total anxiety score and each of the anxiety types and Fisher's least significant difference (LSD) post hoc tests were used for post hoc comparisons. The means and standard deviations of the Aging Anxiety Scale by gender and country are presented in Table 3.

Table 3. Means and standard deviations of anxiety scores by country and sex.

		Country			
		Japan	China	US	
Anxiety Type	Sex				
Social	Men	7.42 (2.65)	6.91 (2.30)	6.50 (1.98)	Men > Women
	Women	6.74 (2.63)	6.79 (2.31)	6.09 (2.55)	
	All	6.99(2.65)	6.83(2.30)	6.23(1.99)	Japan > US China > US Japan = China
Psychological	Men	7.63 (2.85)*	8.19 (2.38)	6.90 (2.86)	Men > Women
	Women	6.84 (2.59)*	8.36 (2.23)	6.40 (2.66)	
	All	7.14(2.72)	8.31(2.28)	6.56(2.73)	China > Japan > US
Physical	Men	9.26 (3.17)	8.79 (2.46)	7.89 (3.30)	Women > Men
	Women	9.74 (3.21)	9.14 (2.66)	8.45 (3.30)	
	All	9.56(3.20)	9.03(2.60)	8.26(3.31)	Japan > China > US
"Loss of meaning"	Men	8.58 (3.34)	10.11 (2.88)	7.51 (3.20)	Women > Men
	Women	8.79 (2.99)	10.62 (2.91)	8.05 (3.06)	
	All	8.71(3.13)	10.46(2.91)	7.87(3.11)	China > Japan > US
Aging Parents	Men	9.19 (1.97)	7.58 (2.19)	8.78 (2.07)	Men = Women
	Women	9.08 (2.16)	7.75 (2.23)	8.50 (2.16)	
	All	9.12(2.09)	7.69(2.21)	8.60(2.13)	Japan > US > China
Total Anxiety	Men	42.06 (8.75)	41.59 (7.40)	37.62 (9.06)	Men = Women
	Women	41.38 (9.10)	42.66 (7.16)	37.49 (9.40)	
	All	41.63(8.96)	42.32(7.25)	37.53(9.28)	Japan > US China > US Japan = China

Note: Country comparisons were assessed with LSD post hoc tests.

*Significant interaction with Japanese Men scoring significantly higher than Japanese women. No differences between the Chinese and American Men and Women.

For social anxiety, there was a significant main effect for country ($F(2, 1109) = 8.55, p = .000, \eta^2 = 0.015$) and sex ($F(1, 1109) = 6.84, p = .009, \eta^2 = 0.006$). Fisher's LSD post hoc tests revealed that the American participants ($M = 6.23, SD = 2.38$) had significantly less social anxiety than the Japanese ($M = 6.99, SD = 2.65, M_{\text{dif}} = 0.78, p = 0.000$) and the Chinese ($M = 6.83, SD = 2.30, M_{\text{dif}} = 0.61, p = 0.001$) participants. There were no differences between the Japanese and Chinese participants in social anxiety towards the elderly. In addition, men ($M = 6.96, SD = 2.36$) had a significantly higher amount of social anxiety than women ($M = 6.56, SD = 2.50$). No interaction effect was found for social anxiety.

For psychological anxiety, we found a significant main effect for country ($F(2, 1107) = 36.20, p = .000, \eta^2 = 0.061$). Chinese participants had the highest level of psychological anxiety towards the aging ($M = 8.31, SD = 2.28$) when compared to the Japanese ($M = 7.14, SD = 2.72, M_{\text{dif}} = 1.17, p = 0.000$) and the American participants ($M = 6.56, SD = 2.73, M_{\text{dif}} = 1.75, p = 0.000$). Additionally, the Japanese participants scored higher than the American participants on psychological anxiety ($M_{\text{dif}} = 0.57, p = 0.003$). There was also a significant main effect for sex, with men ($M = 7.62, SD = 2.74$) having significantly higher levels of psychological anxiety than women ($M = 7.31, SD = 2.62; F(1, 1107) = 5.30, p = .02, \eta^2 = 0.005$). We found a significant country by sex interaction effect with Japanese women having a significantly lower level of psychological anxiety than Japanese men ($M_{\text{dif}} = 0.79, p = 0.006$), whereas the US and Chinese women did not differ significantly from their male counterparts in psychological anxiety ($F(2, 1107) = 3.27, p = .038, \eta^2 = 0.006$; see Table 3).

There were main effects for country for both physical anxiety ($F(2, 1109) = 15.44, p = .000, \eta^2 = 0.027$) and "loss of meaning" anxiety ($F(2, 1103) = 63.69, p = .000, \eta^2 = 0.104$). Japanese participants had the highest level of physical anxiety ($M = 9.56, SD = 3.20$) when compared to the Chinese ($M = 9.03, SD = 2.60, M_{\text{dif}} = 0.53, p = 0.015$) and the American ($M = 8.26, SD = 3.31, M_{\text{dif}} = 1.30, p = 0.000$) participants. Additionally, the Chinese participants were higher than the American participants on psychological anxiety ($M_{\text{dif}} = 0.76, p = 0.000$).

For "loss of meaning" anxiety, the Chinese participants had the highest level of anxiety ($M = 10.46, SD = 2.91$) when compared to the Japanese ($M = 8.71, SD = 3.13, M_{\text{dif}} = 1.75, p = 0.000$) and the American ($M = 7.87, SD = 3.11, M_{\text{dif}} = 2.58, p = 0.000$) participants. Additionally, the Japanese participants were higher than the American participants on "loss of meaning" anxiety ($M_{\text{dif}} = 0.84, p = 0.000$).

Concerning sex differences, we found significant main effects for sex for both physical anxiety ($F(1, 1109) = 5.96, p = .015, \eta^2 = 0.005$) and "loss of meaning" anxiety ($F(1, 1103) = 4.70, p = .030, \eta^2 = 0.004$) with men (physical anxiety $M = 8.68, SD = 3.02$, "loss of meaning" anxiety $M = 8.83, SD = 3.31$) having less anxiety than women (physical anxiety $M = 9.10, SD = 3.07$, "loss of meaning" anxiety $M = 9.29, SD = 3.18$).

For anxiety about aging parents, there was a significant effect for country ($F(2, 1109) = 36.00, p = .000, \eta^2 = 0.061$). Japanese participants had the highest level of anxiety towards aging parents ($M = 9.12, SD = 2.09$) when compared to the Chinese ($M = 7.69, SD = 2.21, M_{\text{dif}} = 1.43, p = 0.000$) and the American ($M = 8.60, SD = 2.13, M_{\text{dif}} = 0.53, p = 0.000$) participants. Additionally, the Chinese participants were lower than the American participants on anxiety towards aging parents ($M_{\text{dif}} = 0.90, p = 0.000$). There was no significant main effect for sex for anxiety about aging parents.

For total anxiety, there was a significant main effect for country ($F(2, 1098) = 28.21, p = .000, \eta^2 = 0.049$). American participants had the lowest level of total anxiety towards aging ($M = 37.53, SD = 9.27$) when compared to the Chinese ($M = 42.32, SD = 7.25, M_{\text{dif}} = 4.78, p = 0.000$) and the Japanese ($M = 41.63, SD = 8.96, M_{\text{dif}} = 4.10, p = 0.000$) participants. There was no significant difference between the Japanese and Chinese participants on total anxiety. There were

no significant main effects for sex or a significant interaction effect for the overall aging anxiety score.

Relationship among collectivism, aging attitudes, and anxiety

To examine our fourth hypothesis, we conducted a correlational analysis. Table 4 shows the bivariate correlations among collectivism, aging attitudes, and anxiety (including sub-scales) for each country. With regard to the collectivism scale and total anxiety, there were significant negative correlations between collectivism and total aging anxiety for both Japan and the US. In addition, the American participants had significant negative relationships between collectivism and all of the anxiety subscales. Japan was similar to the US; however, we found no significant relationship for the subscales “physical anxiety” and “loss of meaning” anxiety in the Japanese participants. Finally, for the Chinese participants, although we found significant negative relationships with collectivism and the subscales of “social” and “aging parents,” the subscales of “physical” and “psychological” anxiety and total anxiety were not significantly related to collectivism. In addition, there was a significant positive relationship between collectivism and “loss of meaning” anxiety for the Chinese participants.

Table 4. Bivariate correlations for collectivism by anxiety and aging attitudes.

Anxiety Type	Collectivism		
	Country		
	Japan	China	US
Social	-0.377**	-0.215**	-0.377**
Psychological	-0.206**	0.041	-0.342**
Physical	0.048	-0.038	-0.151**
“Loss of meaning”	0.047	0.206**	-0.206**
Aging Parents	-0.143**	-0.165**	-0.186**
Total Anxiety	-0.197**	-0.036	-0.373**
Aging Attitudes	0.313**	0.257**	0.285**

* $p < 0.05$ ** $p < 0.01$

To examine our fifth hypothesis, we conducted a correlational analysis. Table 5 shows bivariate correlations between types of aging anxiety and attitudes towards the elderly by country. Across all three cultural groups, there were significant negative correlations between attitudes towards the elderly and aging anxiety for all countries with one exception. No relationship was found between attitudes towards the aging and “loss of meaning” anxiety in the Chinese participants.

Table 5. Bivariate correlations of aging attitudes and anxiety by country.

Anxiety Type	Aging Attitudes		
	Japan	China	US
Social	-0.596**	-0.434**	-0.548**
Psychological	-0.356**	-0.188**	-0.264**
Physical	-0.170**	-0.147**	-0.169**

JOURNAL TITLE

“Loss of meaning”	-0.130*	0.044	-0.196**
Aging Parents	-0.124*	-0.280**	-0.180**
Total	-0.428**	-0.318**	-0.384**

*p < 0.05 **p < 0.01

Discussion

In this study, we explored cultural orientations and cultural influences on attitudes toward aging and older adults and aging anxiety by comparing responses from Japanese, Chinese, and American college students. The discussion section will follow the order of the five hypotheses laid out earlier and focus on the results pertaining to these hypotheses.

Our first hypothesis was that the Japanese and Chinese students would score higher on overall collectivism scale and lower on overall individualism scale than American students. Women would score higher on overall collectivism scale and lower on overall individualism scale than men. The hypothesis is partially supported by our results that the Japanese students scored significantly lower on the individualism scale than the American and the Chinese students. Also supporting this hypothesis is the finding that women scored higher on the collectivism scale than men, and men were higher on the individualism scale than women. However, the three cultural groups do not differ on the overall collectivism scale, indicating that the Japanese, Chinese, and American participants expressed the same degree of collectivistic orientation.

The traditional theoretical framework of the individualism and collectivism paradigm has been used to study and explain differences between Asian countries and the West. As mentioned earlier, the United States is considered an individualistic country whereas Japan and China are traditionally collectivistic. Although some researchers (Stedham and Yamamura 2002) found Japanese business graduate students to be individualistic, our findings support Hofstede's (1980) finding that Japan was mainly a collectivistic nation, with the dominance of non-individualistic cultural orientation in the society. However, the Chinese participants showed the same degree of individualism as their American counterparts, not consistent with Hofstede's original findings. It is possible that the rapid economic growth and general westernization in society in the last decades have contributed to changes of cultural orientation among young people in China. As market economy becomes more prevalent in China, competition becomes more fierce. A related possibility is that a majority of the Chinese respondents in the study are only children, they may have grown up in a more self-centered environment thus contributing to individualistic tendency.

A related result is that the three countries did not differ on the overall collectivism scale, indicating no significant differences in their belief in collectivism, lending no support to the conventional notion that Asian culture is more collectivistic than the American culture. Another interesting result is that for all three countries, the participants' scores on the collectivism scale are significantly higher than their scores on the individualism scale. It suggests that the participants overall have a much more collectivistic cultural orientation than individualistic, regardless what culture they come from. The similarity may indicate a convergent aspect of these three cultures among college student population. It is possible that globalization, especially through internet, is partially responsible for this converging cultural orientation.

With regard to gender differences, men scored higher on individualism than women and women were more collectivistic than men. In general, the implication is that men have more of

the traits reflecting individualism, which are required in contemporary capitalist society. It also shows the difference of traditional gender role.

The second hypothesis regarding attitude toward aging among the three groups is supported. Our findings indicate that there is a significant main effect for country with the American students expressing more positive attitudes towards the elderly than both the Japanese and the Chinese students. This result is consistent with North and Fiske's (2015) research showing that participants from traditionally individualistic countries have more positive attitudes toward aging than those from traditionally collectivistic countries. The current result also supports earlier findings that American college students hold more positive aging attitudes than the Chinese or the Japanese students (Huang 2013; Luo et al. 2013; McCann et al. 2003). It seems counter intuitive that participants from Asian cultures such as Japan and China would hold less positive attitudes than the American participants given the traditional Asian culture that values age and experience whereas American culture emphasizes youth. However, it is possible that the less positive aging attitudes of the Japanese and Chinese students are the result of social and economic factors. As life span and aging population increase, the pressure and stress associated with elderly care also increase. It may sound ironic, but the traditional Confucian principle of "filial piety" (respect and care for the elderly) may exacerbate the stress of young people which in turn may have contributed to their less than positive views on aging than their American counterparts. In China, due to the only-child policy, a majority of the college students are an only child in their family who are expected to take care of two sets of aging parents after marriage, and the prospect may seem so overwhelming that it has affected their attitudes toward aging and the elderly.

In addition, the less positive attitudes towards the elderly for the Japanese participants could be related to public safety issues that affect all Japanese citizens. For example, the number of elderly people who have driver's licenses is on the rise and consequently, the number of traffic accidents caused by elderly drivers is growing yearly (Japan Cabinet office 2009). Also, cases of fraud preying on the vulnerabilities of the elderly is very high in Japan (Japan Cabinet office 2009). Finally, the elderly in Japan live on a much lower income than younger Japanese citizens with many elderly people in Japan living alone (Japan Cabinet office 2010). These circumstances can contribute to additional health and economic problems that generalize to the greater Japanese population.

Also, a large number of the elderly in Japan are employed (73.1% of 60 to 64 year olds and 50.1% of 65 to 69 year olds; Japan Cabinet office 2009). We speculate that this large percentage may contribute to reduced employment opportunities for the younger generations, especially college students. Researchers have found that gaining more knowledge of the elderly by taking courses or having more exposure can improve the image of the elderly among college students (Takigawa, Yoshimoto, and Yokokawa 1999; Kimbara et al. 2018; Mori, Fukuta, and Matsuda 2017).

The hypothesis regarding difference in aging attitudes for men and women is not supported. Contrary to previous research (Allan and Johnson 2009; Luo et al., 2013; Lee 2009), our result shows no significant difference in attitudes toward aging and the elderly between men and women.

The third hypothesis regarding aging anxiety among the three groups is supported. Our results show that the Japanese and Chinese students in the study indicated significantly higher aging anxiety than the Americans. This finding makes sense in relation to our findings on attitudes in the current study. Previous research (Drury, Hutchison, and Abrams 2016; Lasher and Faulkender 1993) found there is a negative correlation between aging attitudes and aging anxiety. It is possible due to the large elderly population in Japan and China and the perceived lack of sufficient social services available, the Japanese and Chinese students feel more stress and pressure associated with aging than their American counterparts. As discussed above, the anxiety may be partially due to the traditional expectation in Asian culture that it is children's

JOURNAL TITLE

obligation to take care of the elderly. Chinese laws also place the responsibility of elderly care on their adult children rather than social services, possibly contributing to young people's anxiety about aging (Nie 2016). Economic concern may be another factor. The high cost of elder care and perceived lack of sufficient government support in China (Feng et al. 2012; Shobert 2012), for example, make Chinese young people very worried about aging. In addition, the factors related to more negative aging attitudes found in the Japanese participants would apply to aging anxiety as well.

The hypothesis regarding differences in aging anxiety between men and women is not supported. Overall, there is no significant sex difference on the total anxiety score in the study. However, there are sex differences in four of the five sub-scales: men scored higher on social and psychological anxiety than women; women were higher on physical and loss of meaning anxiety than men, indicating that regardless of culture, men and women may be anxious about different aspects of aging.

Our fourth hypothesis that regardless of cultural origin and sex, overall collectivism would be positively related to aging attitudes and negatively related to aging anxiety is supported by our results. We found that for all three groups, collectivistic orientation is positively related to attitudes toward aging and the elderly. For the participants in Japan, China, and the United States, the more collectivistic they are, the more positive aging attitude they hold. This finding suggests that the relationship is not cultural specific, but rather that people's belief system, independent of their cultural origin, would determine the relationship. On the other hand, collectivism is found to be negatively related to aging anxiety in the study, with the exception of China. For the Chinese group, while collectivism is negatively related to specific sub-scales such as Social anxiety and "Loss of meaning", there's no relationship between the total anxiety score and collectivism.

The fifth and last hypothesis that regardless of cultural origin and sex, aging attitudes would be negatively related to aging anxiety is supported. For all three groups of participants, the more positive aging attitudes they hold, the lower anxiety level they have. This result is consistent with Allan and Johnson's (2009) study. Our finding suggests that again, this relationship is not culturally specific, but rather, universally true for all three cultural groups.

Conclusion

The current research sheds light on our cross-cultural understanding of aging and has several implications. First, our findings show that all three cultural groups expressed a much higher level of collectivism than individualism. Further, the three groups do not differ from each other on overall collectivism. Taken together, it is reasonable to suggest that the current generation of college students in Japan, China, and the United States may share more similar cultural ideologies than traditionally thought, at least in the area of collectivistic orientation.

Second, our findings on cross-cultural comparisons of aging attitudes and aging anxiety indicate both similarities and differences. Our result that American students hold more positive attitudes toward the aging and the elderly than the students from two Asian countries adds to the existing research that individuals from traditionally collectivistic countries view aging more negatively than those from traditionally individualistic countries. The correlation between aging attitudes and aging anxiety is true for all three groups, although they are not all the same in each of the areas of anxiety examined.

The importance of collectivism is underscored by the finding that it is positively related to aging attitudes for all three cultural groups. That means the ideology of collectivism, which emphasizes human relationship and harmony, might have the positive influence on people's aging attitudes. In addition, collectivism is negatively related to aging anxiety in Japan and the United States, suggesting a collectivistic mindset is conducive to reduced anxiety about aging, at least among participants in those two countries.

Our findings also contribute to the existing literature by shedding light on our understanding of cross-cultural aspects of aging attitudes and anxiety. There are both similarities and differences among all three countries. For example, all three countries were high in collectivism. This is contrary to the conventional thought that the US would be less collectivistic than the East Asian countries. Similarly, Chinese and Japanese participants had less positive attitudes and more aging anxiety towards the elderly when compared to the US participants.

Overall, we believe that our stated two goals for this study were met. We were able to examine whether and to what extent the general cultural orientation (i.e., collectivistic vs. individualistic) would affect college students' aging attitudes and aging anxiety. Our findings shed light on understanding young people's views on aging and the elderly, and cultural influences that effect their views in these three different cultural groups. We believe that educators, gerontologists, and other social service providers in these countries can benefit from our findings in designing educational courses and programs that would help young people reduce aging anxiety and improve aging attitudes. This issue is particularly salient for Japan and China because the East Asian participants held more negative aging attitudes and were more anxious than the Americans. For example, aging education can start early when students are still in middle or high school if schools offer aging related academic courses and opportunities for students to interact with the elderly population in institutions and hospitals in the community. Hopefully by the time they go to college, students will be more likely to take age related courses of study or choose to major in gerontology due to earlier exposure to aging education.

There are several limitations in this study. First, although the instruments are reliable, data were collected via self-report measures using surveys, rather than face-to-face interviews which would provide more detailed and in-depth information. Second, although surveys were translated into Japanese and Chinese by competent bilingual professionals; however, as in any translation there is a potential for not reaching equivalency in meaning. Third, although the INDCOL scale is a sound measure of overall individualism and collectivism, having an aging specific instrument to measure the relationship between individualism and collectivism as it relates to aging would be more beneficial. Fourth, our sample only consisted of college students. Looking at other age groups would allow us to examine possible generational differences because middle-aged and older participants may very well hold perceptions and views different from those of college students. The differences would be interesting to examine as they may reflect contextual and cultural factors of a certain time period in each country.

Moving forward, we believe that growing aging populations in each of these countries make a compelling case for further studies of aging attitudes and aging anxiety among young people. We also believe that future studies should attempt to address and rectify the limitations discussed above in order to come up with a more comprehensive view of cross-cultural similarities and differences on aging attitudes, aging anxiety, and other related issues. As the world becomes more globalized, cross-cultural research becomes more important in providing information and knowledge so we can learn from other cultures and attempt to improve aging attitudes and reduce aging anxiety. More research on aging may ultimately contribute to a higher respect for the aging process and the elderly and, in turn lead to reduced age-related misunderstandings, prejudices, and discrimination.

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JOURNAL TITLE

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ABOUT THE AUTHORS

Hiroko Tomioka: Faculty of Education, Soka University, Hachioji City, Tokyo, Japan

Ginny Q. Zhan: Professor of Psychology, Kennesaw State University, Kennesaw, GA, USA.

Sharon M. Pearcey: Professor of Psychology, Kennesaw State University, Kennesaw, GA, USA.