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Clarifying and Measuring Filial Concepts across Five Cultural Groups

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Abstract

Literature on responsibility of adult children for aging parents reflects lack of conceptual clarity. We examined filial concepts across five cultural groups: African-, Asian-, Euro-, Latino-, and Native Americans. Data were randomly divided for scale development ($n = 285$) and cross-validation ($n = 284$). Exploratory factor analysis on 59 items identified three filial concepts: *Responsibility*, *Respect*, and *Care*. Confirmatory factor analysis on a 12-item final scale showed data fit the three-factor model better than the single factor solution despite substantial correlations between the factors (.82, .82 for *Care* with *Responsibility* and *Respect*, and .74 for *Responsibility* with *Respect*). The scale can be used in cross-cultural research to test hypotheses that predict associations among filial values, filial caregiving, and caregiver health outcomes.

Keywords

culture; filial attitudes; filial values; intergenerational responsibility; reciprocity; caregiver health outcomes

The word *filial* is one of the earliest and most frequently used terms in the study of beliefs and attitudes of adult children toward responsibility for aging parents, as reflected in filial beliefs, filial piety, filial obligation, and filial norms. The term *intergenerational* also has been used to represent these responsibilities, but it implies not only adult children's responsibility for parents, but also parents' continuing responsibility for their adult children and even grandchildren. Ganong and Coleman (2005, 2006) noted a lack of conceptual clarity in these terms and inconsistencies in how researchers operationalized them.

We use the term *filial values* to encompass filial piety, responsibility, obligation, reciprocity, and other related concepts. In this study, we aimed to determine components of these concepts and describe their relevance in diverse cultural groups, and develop a multidimensional measure of filial values that could tap these various concepts across such groups. Based on Geertz's (1973) classic definition of culture, cultural groups are social groups with shared history and meanings that are subject to change according to contextual influences.

Filial Values across Cultures

Filial values are present in all cultures, although collectivist groups are reported to be more committed to families than individualist groups (Pyke & Bengtson, 1996). Yet, Coleman, Ganong and Rothrauff (2006) found more similarities than differences in beliefs about intergenerational assistance in a nationally-representative sample of African, Asian, Euro, and Latino Americans. Moreover, Knight and Sayegh (2010) recently questioned labeling cultures as individualist or collectivist as both concepts are multidimensional and complex.

In traditional Chinese culture, filial beliefs are rooted in Confucian teachings about *Hsiao*—filial piety (Li, 1997). The core virtue of *Hsiao* is reciprocity (*Shu*). Reciprocity is not unique to Chinese society; it is a core concept in western theories that explain responsibility of adult children for their aging parents (e.g., social exchange; Homans, 1969; Thibaut & Kelley, 1959), equity (Adams, Berkowitz, & Hatfield, 1976), and social capital theory (Furstenberg, 2005). As social exchanges are made, individuals act to restore equity. In the context of families, whether it be social exchange or equity, reciprocity is central. Parents who have sacrificed for their children build up social capital that they may draw on in old age. Intergenerational solidarity (Bengtson & Roberts, 1991), moral obligation (Blieszner & Hamon, 1992), and *familism* (sense of loyalty and commitment to members of the same family) (Knight et al., 2002) also help explain filial responsibility.

Sung (1995) compared filial attitudes and behaviors in classical Chinese stories of filial piety with contemporary Korean examples and identified 13 typical components, which he called variables, of filial piety. His exploratory analysis of data from 1,227 participants followed by cross-validation on a smaller sample of 392 identified 6 of the 13 variables as most important: respect, love/affection, family harmony, repayment, responsibility, and sacrifice. Further analysis revealed two primary factors: (a) emotionally oriented filial piety and (b) behaviorally oriented filial piety. Love, respect, and harmony represented the emotional orientation, and sacrifice, responsibility and repayment represented behaviorally-oriented piety. From these findings, Sung (1998) developed a taxonomy of ideal filial actions and called attention to the positive relationship between filial attitudes and actions: “the higher the level of filial attitude, the more filial the conduct” (p.381). His observations about the relationship between filial beliefs and actions, and the work of Jones, Zhang, and Meleis (2003) showing the positive association between filial values, caregiving activities, and outcomes support the hypothesis that filial values play an important role in predicting implementation of filial caregiving and caregiver health outcomes. Measurement challenges remain. Sung’s foundational work provided the two factors (attitudes and behaviors) and specific concepts that could guide the development of a scale to measure filial beliefs. He, however, did not develop such a scale.

Kim, Atkinson, and Yang (1999) developed the Asian Values Scale to assess general cultural values in Asian Americans who were strongly socialized to the norms of Asian culture. Using diverse sources, from published literature to their own empirical data, they developed 112 items for the scale representing 14 values. Exploratory factor analysis revealed six factors: collectivism, conformity to norms, emotional self-control, family recognition through achievement, humility, and filial piety. In subsequent work, Kim, Li, and Ng (2005) developed reliable subscales to measure the first five but not filial piety. They concluded that filial piety is less understood and more complex than the other five values and recommended further studies to operationalize and measure the construct (Kim et al., 2005). This was the aim of the present study.

Measurement of Filial Values

A variety of scales that measure filial values have been developed. Some tap attitudes of adult children toward responsibility for aging parents (e.g., Brody, Johnsen, Fulcomer, & Lang, 1983; Burr & Mutchler, 1999); others measure the filial expectations of aging parents (Kao & Travis, 2005; Seelbach & Sauer, 1977) or of aging parent/adult child pairs (Hamon & Blieszner, 1990). Still others assess related concepts, such as filial anxiety and filial maturity (Cicirelli, 1988; Murray, Lowe, & Horne, 1995). A measure of *familism* assesses loyalty, reciprocity, and solidarity in Latino cultures (Sabogal, Marin, Otero-Sabogal, Marin, & Perez-Stable, 1987). Most of these measures address one or two dimensions of filial values.

Recognizing the limited scope of most measures of filial responsibility, Hamon and Blieszner (1990) developed the Filial Responsibility Expectations Scale to include a wider range of filial values than had been addressed previously. In addition to assessing attitudes of filial responsibility, they included items to cover emotive, instrumental, contact, and communicative components. Hamon and Blieszner concluded that emotional support is more important to parents and adult children in contemporary society than instrumental support. Van der Pas, van Tilburg, and Knipscheer (2005) adapted Hamon and Blieszner's scale for use with contemporary Dutch populations by substituting two new items to address situations where children and parents live far apart or the children are employed full time.

Most scales have been developed for use with specific populations (e.g., African Americans, Dilworth-Anderson, Goodwin, & Williams, 2004; Asian Americans, Ishii-Kuntz, 1997; Chinese populations in Asia, Ho, 1994, Zhan, 2004; Non-Latino Whites, Hamon & Blieszner, 1990; and Latinos, Sabogal, et al., 1987). A few have been used with two or three different cultural groups (e.g., Kao & Travis, 2005; Dilworth-Anderson et al., 2005; G. R. Lee, Netzer, & Coward, 1994). None of these scales was developed from filial beliefs assessed in a variety of cultural groups, and few are multidimensional. To effectively study relationships among caregiving attitudes, practices, and caregiver health outcomes across cultures, a multidimensional measure of filial values validated with diverse cultural groups is needed. If, in addition, it is possible to develop filial values scales that measure the same constructs across multiple cultural groups and are invariant with respect to culture, this would greatly facilitate the study of filial caregiving in different cultural groups.

There is early evidence of some association between filial values, caregiving activities, and caregiver health. Jones et al. (2003) described filial values as a primary influence on Chinese and Filipino American women's caregiving practices and their health outcomes. Through the caregiving experience, the caregivers developed personal resources of coherence, resilience, and spirituality to preserve their well-being and drew on family resources to manage the challenge. Culturally appropriate community resources were limited. Nevertheless, the caregivers persisted in the caregiving role and described positive outcomes of the caregiving experience. Filial beliefs and attitudes were prominent in interview data from the women, including reciprocity, respect, deference, and gratitude (Jones, Zhang, Jaceldo-Siegl, & Meleis, 2002; Jones et al., 2003). Dilworth-Anderson et al. (2004) found that cultural justifications for caregiving were positively associated with the psychosocial health of African American caregivers. Other investigators have reported that strong filial beliefs are related to caregiving activities (Chen, Bond, & Tang, 2007), lower caregiver burden (Y. Lee & Sung, 1998; Sung, 1998), and positive caregiver health outcomes (Hsueh, 2001; Hsueh, Hu, & Clark-Ekong, 2008).

In addition to examining cultural differences, it is important to be able to examine gender differences in filial values across cultures and how such differences affect filial caregiving

as well as caregiver health outcomes. The lack of scales that can measure the same filial concepts across cultural groups has made it difficult to examine gender differences in how such values function to ameliorate the stress of caregiving in diverse groups.

Summary

Previous research with African American, Asian American, and Euro American caregivers shows that filial values predicted caregiving activities and caregiver health. Given this association, the acknowledged lack of conceptual clarity, the inconsistency in the use of filial values concepts, and the lack of an instrument developed to assess filial values across multiple cultural groups, there is need to further examine filial concepts and determine how they can be measured. The purpose of our study was to develop a valid measure of filial values that can be used across cultural groups. The following research questions were investigated:

1. What scale items will constitute a valid and reliable measure of filial values across diverse cultural groups?
2. What factors will these items represent?
3. How will these vary across cultural and gender groups?

Method Overview

The process of scale development included five steps. In the process of refining the scale, underlying concepts were identified and examined. The development of themes and categories inherent in the concepts over the entire project are shown in Figure 1. The five step scale-creation process involved collection of five different types of data. Each step was predicated on the results of the previous one. The first four steps dealt with item construction and address research question (1) listed in the previous paragraph. The last step deals with item and scale validation and addresses research questions (2), and (3). Below, we outline the methods and results of each step within these two broad categories. The study was approved by the University Institutional Review Board.

Item Construction

Step 1: Preliminary Development and Testing

Method—Based on the concepts developed in the analysis of qualitative data from Chinese-American and Filipino-American caregivers (Jones et al., 2002, 2003) and a review of Sung's (1995) dimensions of filial piety, a typology of eight filial values categories (shown in column one of Figure 1) was constructed. This typology served as the starting point for item generation. The three authors contributed items for the eight conceptual categories and revised them collaboratively until they reached consensus on three items per category (24 items total). The items were developed simultaneously in English and Chinese by the bilingual team based on interviews with both English and Chinese speaking caregivers in the United States. Because filial values are deeply rooted in Chinese culture, and because increasing numbers of Chinese American elders and their caregivers are from China, in 2002–2003 we tested the Chinese language version on a sample of participants in the People's Republic of China—a convenience sample of 127 adults (27 males and 100 females).

Results—Confirmatory factor analysis did not support the existence of eight factors. Based on a scree plot, three, four, and five factors were extracted with both varimax and oblimin rotations. The four-factor solution, explaining 47% of the variance, was most interpretable

and suggested factors of *Reciprocity*, *Deference*, *Family Connectedness*, and *Protecting Family Reputation* (column 2 of Figure 1).

We were concerned that all participants in this step were from the People's Republic of China and also that some important elements of filial values might have been lost in this small-sample study. For example, the culture of China is generally considered collectivist rather than individualistic (e.g., Triandis, 2004), and it is possible that elements considered important for filial values in a collectivist culture might be different from those in an individualist culture. This reasoning led to Step 2.

Step 2: Broadening the Item Set

Conceptual analysis—Protection of family reputation was important in our initial qualitative data from Asian American caregivers (Jones et al., 2002, 2003) and in the data from China. Because the questionnaire needed to be useful for individualist as well as collectivist cultures, items related to protection of individual reputation were added. For example, in Asian American cultures, the concept of *saving face* is still present, and even in Western cultures, the concept of shame needed to be considered (see Tangney, Stuewig, & Mashek, 2007).

Because moral obligation is recognized as a motivator for Euro Americans providing care for aging parents (Blieszner & Hamon, 1992), and because in the Chinese sample, items related to obligation cross-loaded on multiple factors, additional items were constructed to distinguish moral obligation from other concepts such as reciprocity. At this point, there were six concepts (column 3 of Figure 1).

Method—The method adopted at this point involved two elements: Ranking of items followed by qualitative data collection on the resulting items from four cultural groups.

Rankings: The investigators independently ranked each item on (a) how well it represented its target concept and (b) the degree to which it did not duplicate other items. Based on these rankings, 48 items (8 per concept) were selected.

Qualitative data from four cultural groups in the U. S: Because the original qualitative data were from Asian Americans, we developed a short qualitative survey of four open-ended questions to learn what other cultural groups describe as core filial values. The questions were: “What things do you consider important in the relationship between adult children and their aging parents?” “What obligation do you believe adult children have for aging parents?” “Why do you think they have this obligation?” and “What from your family upbringing or cultural group influences how you would treat your aging parents?” In 2004–2005 a cross-cultural convenience sample included 48 people: 10 African Americans, 15 Asian Americans, 12 Euro Americans, and 11 Latino Americans. The opportunity to add Native Americans to our sample did not arise until Step 3, so they were not included in this survey.

Responses were content analyzed using qualitative techniques described by Morgan (1993). Frequency counts of defining words used by respondents were calculated followed by grouping of related words and further frequency analysis.

Results—Comparisons of the content and frequency analyses led to seven categories, each with a number of subcategories (see list in column 4 of Figure1). One of the seven major categories had not been present in any of our previous data, specifically, the various actions by respondents to help their parents—*helping actions*.

Step 3: Clarity, Readability, and Content Validity

At this point, access to a Native American sample arose and proper protocol for approval was obtained to add them as a fifth cultural group in 2005–2006. Although the questions had not been developed with qualitative input from Native Americans, we believed that it would be useful to determine whether responses to the scale items from this group were similar to other cultural groups.

Method—There were 119 items to be examined. Clarity was assessed by having 20 individuals, two males and two females from each of the now five cultural groups, rate each item on a 4-point clarity rating scale: *Not at all clear*, *Somewhat clear*, *Clear*, and *Very clear*. Items were sorted within each category on the mean clarity rating and revised or dropped based on these ratings. Readability was calculated using Microsoft Word’s Flesch-Kincaid Grade Level readability scores, and items were revised until a sixth grade level was achieved.

Next, content validity was examined by 10 “cultural experts” (one male and one female in each cultural group) who had not seen the questions. Each of these individuals had been raised in the target culture, had obtained at least a bachelor’s degree and had maintained extensive contacts with their cultural communities. Domain definitions (Sireci, 1998) were constructed for each category shown in column 4 of Figure 1 (obligation, reputation, gratitude, love and affection, deference, helping actions, and family connectedness). Participants were asked to indicate which of the domain definitions matched each item. Final selection of items was based on the experts’ consistency in assigning an item to one of the domain definitions.

Results—This reduced the questionnaire to 59 items with at least 2 items for each subcategory in column four of Figure 1. Of the seven major categories, none was represented by fewer than seven items so that if some were later eliminated there would be enough left to have a scale that could be used in structural equation modeling. One rule for making statistical identification more likely in structural equation modeling is that there should be at least three measured variables for each latent variable (Kline, 2011, p. 140). Starting with seven helped insure that we would end with a minimum of three variables in each category.

Step 4: Pretesting

Methods—Two pretests were conducted in 2006–2007 on 34 and 30 individuals representing 10 possible culture and gender combinations. At least three individuals from each culture and gender combinations were included.

Results—In the first pretest, item-total correlations within each of the seven categories of items were examined, and items that did not correlate well with other items in their category were modified. After modifying the questionnaire based on these results, the second pretest was completed. This time all items correlated well with other items in their proposed category except those in the *autonomy* subset. Three autonomy items that did not relate well to other items in the *helping actions* category were deleted, and four new ones were created. Each of the investigators developed several additional autonomy items (e.g., “Adult children should do everything they can to help their parents do things for themselves”). The items were evaluated for readability and an apparent relationship to the general *helping actions* category by each author individually and then a joint decision was made regarding which ones to include.

Item and Scale Validation

Step 5: Developing the Final Questionnaire

Methods—The 59 filial values items were rated on 9-point Likert-type scales: *Completely, Strongly, Moderately, and Slightly Disagree, Neither one, and Slightly, Moderately, Strongly, and Completely Agree*. Participants also provided demographic, socioeconomic, health, culture, and acculturation information. To reduce possible effects of the order of item presentation, 10 versions of the Filial Values Index were prepared, each with a different random order for the 59 filial values items.

Sample characteristics: We attempted to obtain at least 100 questionnaires from each cultural group. Questionnaires were completed by 593 individuals in 2007–2008. With the exception of the Native Americans, most of the participants lived in Southern California and were contacted outside of either ethnic (two sites) or general supermarkets (three sites). A cover letter explained that participation was voluntary. Each participant was paid \$10 or given a \$10 shopping voucher for use in that particular store. Although this sampling technique did not give us a probability sample, it provided access to a wide cross-section of participants from diverse socioeconomic, religious, and cultural backgrounds. Most of the Native Americans were Chippewa living in the state of Michigan. Our goal was to include equal numbers of males and females in each of the five cultural groups. Table 1 shows that we came close except for the Native American sample, which had a higher proportion of males. There was a broad distribution of age groups, with the youngest participant being 18 and the oldest 81. Native Americans were older than the other groups and Asians better educated. Euro Americans were less likely to rate themselves as bicultural than any other group except African Americans. There were no significant differences among the cultural groups regarding the proportion who were caregivers.

Data cleaning: Cases with more than 10% of the items missing were dropped from the analysis. Thus, 569 original cases were retained: 92 African Americans, 102 Native Americans, 130 Asian Americans, 99 Latino Americans, and 146 Euro Americans. Missing data were estimated with full-information maximum likelihood (FIML) within MPLUS 4.2 and AMOS 18.

Analyses: The full sample was divided into 10 groups—5 cultural groups of women and 5 of men. A random half of each group was chosen for a development sample ($n=285$); the other half was reserved as a cross-validation sample ($n=284$). Exploratory factor analysis was carried out on the first half of the data using Mplus 4.2 (Muthén & Muthén, 2003). Given the problems associated with factor analysis of variables measured at an ordinal level (Gilley & Uhlig, 1993), a polychoric correlation matrix was used for the analysis, employing the unweighted least squares estimator because of our relatively small sample size (Muthén, 2004). A promax rotation was applied to the extracted factors. O'Connor's (2000) SPSS macro for calculating Velicer's Minimum Average Partial (MAP) was used to determine how many factors to extract. MAP is one of the most accurate of such methods (Velicer, Eaton, Fava, Goffin, & Helmes, 2000). Factor congruency coefficients comparing cultural groups were calculated with Orthosim 2 (Barrett, 2006). Factor congruency coefficients assess the equivalence of factor loadings taken from exploratory factor analysis across multiple groups. Using Amos 17 (Arbuckle, 2008), confirmatory factor analysis was applied to test the final model in the cross-validation sample. Goodness-of-fit was assessed with the Comparative Fit Index (CFI), the Root-Mean Squared Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (RMR). Values greater than .95 are desirable for the CFI, values less than .06 are desirable for the RMSEA, and values less than .08 are desirable for the Standardized RMR. The model established in the cross-

validation sample was then tested for invariance across gender and cultural groups in the full sample ($n = 569$; Stein, Lee, & Jones, 2006).

Descriptive statistics were done using SPSS 17. To compare correlations among latent variables, 10,000 sample bootstrap analyses within Amos were used to produce estimates of confidence intervals for each correlation. This approach was selected for three reasons:

1. Bootstrapped estimates of parameters do not require the assumption of multivariate normality (Byrne, 2009; Finney & DiStefano, 2006).
2. Non-overlapping confidence intervals are a conservative test of the significance of a difference between parameters (Cumming & Finch, 2005; Schenker & Gentleman, 2001).
3. There is ample reason to believe that confidence intervals provide more and better information than statistical significance tests. Many authors (e.g., Cohen, 1994; Cumming & Finch, 2001; Hoyt, Imel, & Chan, 2008) point to their advantages over significance tests in providing not only information about significance but about location and precision of parameter estimates. Similar points have been made regarding confidence intervals for correlations (e.g., Olkin & Finn, 1995; Zou, 2007).

Results—There are four parts to Step 5 results: (a) exploratory factor analysis on our development data set, which uncovered three factors; (b) confirmatory factor analysis of the cross validation data set to test the 12-item, 3-factor (4 items each) Filial Values Index constructed from the exploratory factor analysis; (c) testing the invariance of the three factor structure for gender and culture; and (d) testing internal consistency and demographic differences on the three subscales of the newly created Filial Values Index (FVI).

Exploratory Factor Analysis: Both a scree plot and Velicer's MAP suggested extraction of three factors. These were (a) a desire to care for parents (*Care*), (b) a sense of responsibility for parents (*Responsibility*), and (c) respect and admiration for parents (*Respect*). The seven initial concepts became three as shown in the rightmost column of Figure 1. Selection of four items to represent each of the three factors in the final 12-item filial values scale was based on: (a) the largest factor loading for the item not being less than .5, (b) no cross loadings greater than .2, and (c) no two items from the same subcategory in the content analysis (see Figure 1). For example, both "Adult children should do everything they can to help their parents do things for themselves" and "Adult children should do everything they can to support the independence of their aging parents" had high factor loadings on the Care factor, but both were from the autonomy subcategory, so only the former was selected. Finally, no item could have an average factor congruency coefficient across cultural groups of less than .9.

Cross-validation Confirmatory Factor Analysis: Figure 2 shows the results from testing the three-factor, 12-item Filial Values Index (FVI) using the cross-validation sample ($n=284$). Model fit statistics were good (CFI = .983; RMSEA = .054, 90% Confidence Interval (CI): .036, .071; Standardized RMR = .030). On the other hand, the χ^2 goodness of fit statistic was strongly significant $\chi^2(51) = 92.81, p < .001$, suggesting a lack of model fit. Examination of the distribution of the individual items showed the response distributions were strongly skewed—few people disagreed with items favorable toward their parents. One extreme example: 77% of the sample responded either *strongly agree* or *completely agree* to the statement that they greatly admired their parents. Therefore the Bollen-Stine (Bollen & Stine, 1992) bootstrap test of goodness of fit was performed with 10,000 samples. The Bollen-Stine test is not biased by deviations of the sample from normality. This test showed

that the model fit the data well ($p = .346$) because the actual and model-generated matrices were not significantly different.

High correlations among the three factors suggested the possibility that Care, Responsibility, and Respect might represent a single factor. Therefore, another model was tested with this assumption, and it yielded a $\chi^2 (54) = 369.98$. The fit of this single factor model was significantly worse than the three-factor model, $\chi^2_{\text{diff}} = 277.17$, $p < .001$. One possibility is that the three factors—Care, Responsibility, and Respect—are all facets of a higher order factor of general filial values. The fit of this higher-order factor model, however, was identical to a model that assumes the three factors were simply correlated, and thus these two models could not be differentiated.

Because each of the three factors may be treated as a single scale at some point, we calculated Cronbach's alphas for each factor when treated as a summative scale. The values were .90 for Care, .79 for Responsibility, and .93 for Respect. These were calculated on the cross-validation sample of 284 cases to avoid capitalization on chance by using the development sample.

Testing Factor Invariance: Because our primary purpose was to construct a scale that could be used in all five cultural groups and with both males and females, it was important to establish whether the three latent constructs—Care, Responsibility, and Respect—were the same constructs for the five cultural groups and for both genders. Having established that the Filial Values Index fit the hypothesized three-factor structure, we combined the development and cross-validation samples into a single data set of 569 to test factor invariance. The fit indices for the model in this larger sample—CFI = .980, RMSEA = .052 (90% CI: .041, .063), SRMR=.026, Bollen-Stine bootstrap $p = .069$ —were similar to those found in the smaller cross-validation sample which are shown in Figure 2.

Gender invariance: Using the full data set, the model with factor loadings for females and males constrained to be equal was tested against the unconstrained model assuming that the factor loadings were different for females and males. The constrained model fit the data as well as the unconstrained model— $\chi^2_{\text{diff}} (9 \text{ df}) = 7.95$, $p = .539$ —showing that females and males responded to the Filial Values Index items in a similar way. However, the test of the invariance of the structural covariances was statistically significant— $\chi^2_{\text{diff}} (6 \text{ df}) = 24.54$, $p < .001$ —indicating that the associations among the three factors were different for females and males. We elected to use bootstrap confidence intervals for this comparison based on the rationale given at the end of our method section. By this comparison, there was no difference between males and females on the correlation of Care with Respect—.84, 95% CIs [.72, .91]; .72 [.53, .86] respectively— or on the correlation of Responsibility with Respect—.79 [.66, .88]; .65 [.51, .76]. However, there was a difference in the Responsibility-Care correlation. Males did not differentiate being responsible for their parents' care and actually giving care as much as females. The correlation between the Responsibility and Care dimensions was a strong .89 [.81, .95] for males but only .64 [.48, .78] for females.

Culture invariance: A model assuming no cultural differences in measurement was tested against a less constrained model assuming differences. The association of each item with its underlying factor was similar among the different cultural groups, $\chi^2_{\text{diff}} (36) = 39.53$, $p = .315$. However, the correlations of the three latent factors did differ across cultural groups, $\chi^2_{\text{diff}} (24) = 75.52$, $p < .001$. The correlations and their confidence intervals determined using a 10,000 sample bootstrap are shown in Figure 3. Examination of this figure does not suggest any differences regarding the correlations as the confidence limits all substantially overlap. Examination of the covariances and variances, shown in Table 2, suggested

substantive reasons for the lack of invariance of the structural model across cultural groups. On the Care variable, Asians had a substantially lower variance than Latino Americans or Euro Americans. Native Americans and African Americans had confidence limits that overlapped those for the variances of the other groups. All covariances had 95% confidence limits with considerable overlap suggesting no differences. Thus, Asians differed among themselves less on Care than did Latino Americans and Euro Americans.

Demographic differences on the 4-item filial values subscales: To investigate how the three 4-item filial values scales performed, we created three scores (Care, Responsibility, and Respect) for each individual by taking a mean of their responses to the four items making up each filial values subscale. If one of the four was missing, the mean was calculated based on the available three. If more items were missing, the case was discarded. We then examined how these scores differed depending on gender, culture, acculturation, and caregiver status. For these analyses, the *n* was 555. The results are displayed in Table 3. Females were higher on Respect than males; Asian and African Americans were higher on Responsibility than Native Americans and Euro Americans (Latino Americans were lower than Asian Americans but not lower than African Americans); individuals who identified their culture as 'American' rather than 'their own culture' were lower on Responsibility, and individuals who were a caregiver for someone older rated higher on Responsibility than those not acting as a caregiver.

Characteristics of the scales: Table 4 provides basic statistics on the three scales across all individuals in the sample. As noted earlier, the scales are highly skewed because relatively few people are willing to strongly disagree with filial values statements.

Discussion

A primary contribution of this study is the identification of three filial concepts, Responsibility, Respect, and Care that reflect attitudes and beliefs inherent in the complex multidimensional construct of filial values. The association between Responsibility and Care is congruent with Sung's (1998) earlier work in which he reported a positive relationship between adult children's professed filial values and their actual filial conduct.

The stronger association between Responsibility and Care in males than females might occur because males are usually not the ones who do the actual caregiving, and they are less likely to face conflict between what they see as their responsibility and their ability to care for their parents. When males are by necessity required to be caregivers, however, there may be less of a gender difference in attitudes and behaviors. A study of Chinese Canadian family caregivers described males who were responsible for caregiving for their aging parents as very involved in their daily caregiving activities (Lai, Luk, & Andruske, 2007). Although more female than male caregivers were in the caregiving role, male caregivers were not significantly different from female caregivers in their level of engagement in family caregiving responsibilities. Because few of the males in our sample were actual caregivers, in future research it would be interesting to examine whether males engaged in caregiving are better able to distinguish between Responsibility and Care than were those in our sample. The observation in this study of a higher level of filial respect by the female participants is congruent with the findings on Asian American women reported by Jones (1995).

Previous studies have shown that Asians and African Americans tend to be highly filial compared to other U. S. groups (Pinquart & Sorenson, 2005). Earlier Aranda and Knight (1997) reported a greater degree of filial obligation in African American, Latino American, and Asian American caregivers than in Caucasians. More collectivist groups reported higher

levels of responsibility for aging parents. However, later studies blur this picture. Anngela-Cole and Hilton (2009) found Caucasians scored higher than Japanese Americans on a measure of obligation to care for frail elders and spent more time in caregiving. Similarly, Willis (2008) found that a minority group in England, Caribbean immigrants, was less likely to provide support to aging family members than the dominant cultural group. Willis cautioned that the relationship between culture and family support is not as clear as previously thought. In our study there are some interesting cultural differences in levels of Filial Piety. Cultural differences were principally centered around the Responsibility dimension, with Asian and African Americans reporting higher feelings of responsibility. Further, those who identified more with their own culture rather than with the greater American culture scored higher on Responsibility. Our findings, along with these others, point to a need for further examination of the relationship between culture and filial caregiving.

Of interest is the observation that our three factors—Responsibility, Respect, and Care—are congruent with the tripartite model of attitudes (Ajzen, 2005; Eagly, Chaiken, Gilbert, Fiske, & Lindzey, 1998). According to classic attitude theory, the term *attitude* includes three parts: cognition, feelings, and behavioral intentions (Breckler, 1984; Katz & Stotland, 1959; Rosenberg & Hovland, 1960). All three of these components are implied in the term *filial values* as used in this study: Responsibility primarily involves cognitive beliefs about the moral and ethical obligation to take care of parents, Respect primarily involves feelings about the parent, and Care primarily involves the behaviors that should be done to assist the parent. There is clearly an overlap among these as evidenced by the correlations we found among the three factors. Nevertheless, in classic attitude theory the three are also believed to be highly correlated. All three aspects of relationship with one's aging parents are important and need to be addressed in a measure of filial values.

Of even greater interest is that the theme of reciprocity permeates the studies of all cultural groups. In our original data, reciprocity was inherent in the concept of gratitude and giving back (see Figure 1). In subsequent analyses, it was either a distinct factor or encompassed under the concept of gratitude or responsibility. In the final factor analysis, gratitude split with thankfulness, fitting with feelings of respect/affection, and reciprocity fit with responsibility. These observations are consistent with more than one theory of intergenerational responsibility, specifically social exchange theory (Thibaut & Kelley, 1959), equity theory (Adams et al., 1976), social capital theory (Portes, 1998), theories of moral obligation (Bleiszner & Hamon, 1992), and familism (Knight et al., 2002). The desire and commitment of adult children to give back to parents who invested love and resources in their care is a deeply embedded value across cultures.

The last two columns of Figure 1 show the connection of the qualitative study concepts to the three final factors. Responsibility involves cognitions about ethical, moral, and faith-based obligation to take care of parents, maintain reciprocity, and protect family reputation. Respect involves the degree to which adult children respect, admire, and love their parents. Care involves what adult children do or intend to do for their aging parents.

There are both similarities and differences between the concepts identified in this study and those found by others in less diverse samples. Sung's (1995) emotionally oriented filial piety, involving family harmony, love/affection, and respect, clearly matches our Respect/feeling dimension. His "behaviorally" oriented dimension involved beliefs about sacrifice, responsibility, and repayment—close to our Responsibility/cognition factor. Similarly, our three constructs are related to components of Bengston and Roberts' (1991) theory of intergenerational solidarity, specifically the affectual and functional aspects. Most important, our results suggest that the notions of filial piety, filial responsibility, filial norms,

filial obligation, and intergenerational responsibility may be subsumed under Filial Values, which is composed of (a) beliefs about Responsibility for parents, (b) affection/Respect for them, and (c) intentions/actions regarding their Care. All three were clearly important across the five cultural groups in our study. The sociological, ethical, and moral underpinnings of this observation warrant further reflection and investigation.

Another primary contribution of this study is the development and extensive analysis of items to measure filial values constructed from qualitative data across multiple cultural groups. The Filial Values Index is a 12-item scale with three subscales. Use of separate random samples to develop and then cross validate the Filial Values Index demonstrated a stable factor structure and reduced the possibility that the 12 items chosen were somehow peculiar to one sample. We found congruence across cultural groups and genders despite the stronger correlation of Care with Responsibility for males. This provides sufficient psychometric data to justify use of the scale in its final 12-item form for testing substantive hypotheses and for continued psychometric evaluation in other cultural settings and languages.

Although the 12-item scale we propose was developed through an extensive testing process and is the first filial values assessment scale developed simultaneously in more than three cultural groups, Native Americans were not present in the first three steps. Moreover, most of the sample was from one tribal group; thus, new qualitative data and additional testing of the scale in a more diverse Native American sample is advisable.

A potential weakness of the FVI is the lack of negatively-worded items. In the face of generally overwhelming support for filial values, we believed that negatively worded items would lack face validity for some segments of our sample. Other scales measuring filial responsibility—for example, the Hamon Filial Responsibility Scale—are similarly constructed. We tried to compensate for this potential bias by using a wide range of scale points for participant responses. Substantial variation on the 9-point Likert-type scale within and across cultural groups, the internal consistency within factors, and the emergence of three distinct factors supports the construct validity and reliability of the scale. Another potential limitation is that the 12-item scale still needs to be tested for validity, reliability, and generalizability in larger and more diverse samples of the five cultural groups.

Conclusion and Future Research

The three filial concepts identified offer potential for greater clarity in descriptions of filial values across cultural groups and provide a foundation for continued theoretical development. Even though levels of filial values constructs differ across cultural groups, the same dimensions exist across these groups. Continued construct validity testing is recommended. How the three-dimensional structure we have suggested relates to outcome variables such as caregiver burden and satisfaction, as well as to indicators of health and well-being, needs to be examined to strengthen construct and predictive validity and to test criterion validity. Examination of hypotheses about these relationships across cultural groups is necessary to inform health practice in the future. Nurses and other health professionals working with culturally diverse filial caregivers will be able to assess and support values that are potential predictors of caregiving activities and caregiver health outcomes.

Given the psychometric work to date, the FVI can be recommended for use in empirical investigations to answer questions and test hypotheses that predict associations among filial values, filial caregiving, and caregiver health outcomes. Additional psychometric evaluations of its reliability and validity with other cultural groups are recommended.

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Figure 1.
Evolution of filial values concepts over the course of the study.

Figure 2.

Confirmatory factor analysis of filial values model items on cross-validation sample. Variables in ellipses are the three latent constructs presumed to underlie the Filial Values Index (FVI). Those in rectangles are the 12 items of the FVI that are indicators of the three latent constructs. The number on each arrow indicates the strength of the association of the latent construct with each indicator. The numbers on the arcs represent the correlations between the latent constructs. E1 through E12 represent the variance in each FVI item that comes from somewhere outside the model (E stands for Error). The number next to each rectangle is the squared multiple correlation of the latent variable with the indicator variable

in the rectangle. The numbers in the lower right hand corner of the figure represent how well the model fits the data.

Figure 3.

Correlations of three filial values latent factors for five cultural groups based on a 10,000 sample bootstrap with 95% bias corrected confidence intervals. Cultural groups are sorted from high to low based on the size of their correlation.

Table 1

Comparison of Cultural Groups on Descriptive Variables

	African American	Asian American	Euro American	Latino American	Native American	Total
	%	%	%	%	%	n
N	92	130	146	99	102	569
Age						
<= 25	29.7 _a	38.0 _a	33.8 _a	24.2 _a	7.0 _b	27.7 156
26 – 35	35.2 _a	29.5 _a	22.1 _a	27.3 _a	31.0 _a	28.4 160
36 – 45	13.2 _{a,b}	14.0 _a	20.7 _{a,b}	29.3 _b	24.0 _{a,b}	20.0 113
46+	22.0 _{a,b}	18.6 _a	23.4 _{a,b}	19.2 _a	38.0 _b	23.9 135
Gender						
Female	50.0 _a	50.8 _a	57.8 _{a,b}	51.5 _a	72.3 _b	56.4 320
Male	50.0 _a	49.2 _a	42.2 _{a,b}	48.5 _a	27.7 _b	43.6 247
Education						
Less than High School Graduate	2.2 _a	2.3 _a	5.4 _{a,b}	15.2 _b	4.0 _{a,b}	5.6 32
Technical or High School Grad.	17.4 _a	11.5 _a	17.0 _a	25.3 _a	20.8 _a	17.9 102
Some College	34.8 _{a,b}	20.0 _a	34.0 _{a,b}	30.3 _{a,b}	44.6 _b	32.2 183
College grad	45.7 _a	66.2 _b	43.5 _a	29.3 _a	30.7 _a	44.3 252
Culture Rating						
Very much of my own cultural group	20.0 _a	19.5 _a	8.2 _{a,b}	11.1 _{a,b}	2.0 _b	12.1 68
Mostly of my own cultural group	23.3 _a	21.1 _a	4.1 _b	12.1 _{a,b}	15.0 _a	14.4 81
Bicultural	23.3 _{a,c,e}	40.6 _{a,b,d}	14.4 _c	47.5 _d	37.0 _{b,d,e}	31.6 178
Mostly American	12.2 _a	11.7 _a	20.5 _a	12.1 _a	25.0 _a	16.5 93
American	21.1 _a	7.0 _b	52.7 _c	17.2 _{a,b}	21.0 _a	25.4 143
Responsible for the Care of Someone Older						
Yes, I personally care for this person	11.1 _a	15.4 _a	17.1 _a	16.5 _a	8.9 _a	14.2 80
Yes, but someone else does the personal care	6.7 _a	12.3 _a	8.9 _a	4.1 _a	5.0 _a	7.8 44
No	82.2 _a	72.3 _a	74.0 _a	79.4 _a	86.1 _a	78.0 440

Note: Values in the same row not sharing the same subscript are significantly different at $p < .05$ in the two-sided test of equality for column proportions. Cells with no subscript are not included in the test. Tests assume equal variances. Tests are adjusted for all pairwise comparisons within a row using the Bonferroni correction.

Table 2

Latent Variances and Covariances for Cultural Groups based on 10,000 Sample Bias-corrected Bootstrap Sorted from Low to High Variance

	95% CI			95% CI		
	Variance	Lower	Upper	Covariance	Lower	Upper
		Care		Care with Respect		
Asian American	0.62	0.45	0.85	0.63	0.42	0.92
Native American	1.60	0.81	2.86	1.53	0.60	3.06
African American	1.66	0.47	3.43	1.78	0.41	3.86
Latino American	1.88	0.85	3.45	1.75	0.68	3.41
Euro American	1.90	0.99	3.15	1.70	0.74	3.03
		Respect		Care with Responsibility		
Asian American	1.26	0.69	2.20	0.62	0.46	0.84
Latino American	2.13	0.84	4.06	1.31	0.54	2.60
Native American	2.39	1.11	4.19	1.30	0.71	2.26
African American	2.58	0.74	5.02	1.51	0.50	2.98
Euro American	3.00	1.68	4.62	1.29	0.65	2.25
		Responsibility		Responsibility with Respect		
Asian American	0.86	0.52	1.43	0.79	0.50	1.18
Native American	1.58	0.93	2.45	1.33	0.58	2.49
Latino American	1.61	0.87	2.70	1.32	0.42	2.72
African American	2.09	0.97	3.50	1.71	0.45	3.50
Euro American	2.19	1.37	3.23	1.81	0.92	2.96

Table 3
Means and 95% Confidence Intervals for Selected Demographics on the Three 4-item Filial Values Scales (N=555)

	N	Care			Responsibility			Respect		
		Mean	95% CI		Mean	95% CI		Mean	95% CI	
			Lower	Upper		Lower	Upper		Lower	Upper
Gender										
Female	314	7.86	7.73	8.00	7.05	6.88	7.22	8.13 _a	7.98	8.28
Male	241	7.70	7.53	7.87	7.06	6.85	7.26	7.86 _b	7.66	8.06
Cultural groups										
Asian American	128	7.92	7.76	8.08	7.59 _a	7.40	7.79	8.08	7.88	8.29
African American	88	8.03	7.76	8.31	7.47 _{a,b}	7.12	7.81	8.18	7.86	8.51
Latino American	95	7.81	7.53	8.09	7.02 _{b,c}	6.70	7.34	8.08	7.79	8.37
Native American	100	7.60	7.35	7.86	6.72 _c	6.42	7.02	7.82	7.53	8.11
Euro American	144	7.65	7.42	7.89	6.58 _c	6.29	6.86	7.93	7.66	8.20
Culture										
Own culture	146	7.98	7.81	8.15	7.50 _a	7.28	7.73	8.23	8.05	8.41
Bicultural	175	7.77	7.58	7.96	7.02 _b	6.79	7.25	7.98	7.78	8.18
American	234	7.69	7.51	7.87	6.80 _c	6.59	7.01	7.89	7.68	8.11
Is caregiver for someone older										
Not Caregiver	432	7.76	7.65	7.88	6.97 _a	6.83	7.12	7.99	7.85	8.12
Is Caregiver	123	7.89	7.63	8.15	7.34 _b	7.05	7.63	8.09	7.81	8.36

Note: *F* and *p* values are displayed only for one-way ANOVAs that were statistically significant beyond $\alpha = .05$. For those demographics with statistically significant comparisons of more than two categories (Ethnicity & Culture), results from Tukey's HSD multiple comparison test are displayed using subscripts. Within a demographic column, means that do not share a letter in their subscripts are significantly different at $p < .05$. For example, Asian Americans have an *a* and Latinos have a *b* and *c* subscripts so they do not share a letter in their subscripts and are significantly different. If there are no subscripts in a demographic column there were no statistically significant differences.

Table 4

Descriptive statistics on the Three 4-item Filial Values Scales

	Care	Responsibility	Respect
<i>N</i>	569	568	569
Mean	7.80	7.06	8.02
Median	8.00	7.25	8.50
Standard Deviation	1.26	1.57	1.45
Skewness	−2.25	−1.02	−2.63
Minimum	1.00	1.00	1.00
Maximum	9.00	9.00	9.00