Testing of Applicability of Mutuality Scale With Mexican American Caregivers of Older Adults

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Abstract

By 2050, Mexican Americans (MAs) will become the largest aged minority subgroup in the United States. Although older MAs often depend on family for care, no standard instrument is available to scale the motive for filial obligation. Building on previous work, the purpose of this study is to establish psychometric properties of the bilingual Mutuality Scale (MS) for use with MA family caregivers of older adults. A methodological design with a convenience sample is used. Through Principal Axis Factoring with Oblimin© rotation, a two-factor structure emerge—interaction between the caregiving dyad and reaction from the care recipient—which accounted for 63% of the variance in MS scores. Cronbach's alphas are .87 in both cases and test–retest estimates across three weeks are $r = .93$ and .94, respectively. Despite needing further refinement, the MS shows potential to measure the motive involved in older adult care, which may be useful in designing culturally relevant interventions for the MA population.

Keywords

mutuality; Mexican American; instrument; family caregiving; psychometric; Southern Gerontological

Introduction

Do we *give* to our families in order to *receive* some favors back when we are subsequently in need? The hypothesis that such mutuality explains the family dynamics behind the care for older relatives has been theorized. In this article, mutuality is conceptualized as the impact of tangible and/or intangible care and support provided by an older adult during his or her youth for his or her family, which is evaluated and used as a form of social capital "bank" for future care and supports given to the older adult by one's family (Antonucci, 1990). Although mutuality may be a motive for caregiving behaviors and is positively related to

caregivers' subjective experiences in English-speaking populations (e.g., Hudson & Hayman-White, 2005), such an instrument has not been tested completely. Thus, the Mutuality Scale is being tested further in this article. The aged MA population has a greater chance of coresiding with relatives in communities (U.S. Census Bureau, 2009a), is less likely to use formal health services (Hagewen, 2006), and has a higher poverty-disability rate (Dietz, 1995). Discovering how mutuality plays out in older adult care within MA families is important for health care professionals.

Although mutuality may be a strong motive to provide care to familial older adults, without some tested metric, researchers are unable to quantify the determinant in MA older adults care. Very few instruments in measuring MA family mores in older adult care could be located in the family older adult caregiving literature, making the advancement of family caregiving instruments particularly important for both consumers and providers of health care. Kao and Lynn (2010) stated though caregivers with a higher Mexican orientation tend to have higher expectations of family loyalty toward older adult relatives under care than do their Anglo-oriented counterparts, it is mutuality that exhibits the most substantial effect on the expectations. Mutuality appears to be a better predictor of filial obligation than the caregiver's cultural orientation alone. Thus, the investments by and repayment to the older adult should be evaluated in caregiving relationships. Therefore, a culturally appropriate instrument to measure mutuality for MA familial-based care is needed, especially given the rapid expansion of the aged population and its potential impact on the U.S. health care industry. The Mutuality Scale was originally designed to measure exchange relationships between the caregiving dyad in English-speaking populations, using the perspective of social exchange theory. Propelled by the imminent need for culturally appropriate instruments to measure intergenerational caregiving in the target population, this study was designed to examine the applicability of the MS for use with MA family caregivers of older adults. The intended focus is to enhance the health care provided by MA families to their community-dwelling older adults.

Background and Significance

More than 15% of the U.S. population is Hispanic with two thirds being people of Mexican origin (U.S. Census Bureau, 2009a). Hispanic older adults are projected to become the largest older adult minority population by 2050 (Villa, Wallace, & Huynh-Hohnbaum, 2006). A national survey (Office of Minority Health, DHHS, 2005) reported a higher incidence of live-in older adult care among Hispanic households than in the general population, which appears to support the cultural tradition of *taking care of their own* (Escandón, 2006). In addition, the perception of who is family among Hispanics extends beyond blood and marriage relationships to include long-time friends (Kao, McHugh, & Travis, 2007; Phillips, de Ardon, Komnenich, Killeen, & Rusinak, 2000). These feelings and thoughts about "family" may change during acculturation to the United States because the younger generation tend to be acculturated more quickly than their older parents (e.g., Pérez-Escamilla & Putnik, 2007). This may be the reason for the significant increase in yearly reports of Hispanic older adult abuse (Parra-Cardona, Meyer, Schiamberg, & Post, 2007). Accordingly, the potential gap between traditional cultural mores and the actual practice of older adult care needs to be addressed.

Social Exchange and Mutuality

Social exchange is especially important for the well-being of older adults who gradually lose their ability to give, but need more repayment (e.g., favors, services) from their families based on their accrued contributions to maintain a balance in the family exchange system (Kao & Travis, 2005a; Neufeld & Harrison, 1998). Social exchange is an ongoing process in which family relationships are built. Many social exchange theorists (e.g., Call, Finch, Huck, & Kane, 1999; Molm & Cook, 1995) have argued that mutual exchange is central to familial support across generations. Mutuality is the key element for family caregivers to provide their older relatives with care. Filial support may be initiated to repay older adults for their provision of material goods and/or immaterial supports. Not surprisingly, unbalanced social exchanges with children were significant determinants in the institutionalization of older adults (Wilmoth, 2000). However, social exchange theory was developed in the non-Hispanic White population, and it is unclear whether mutuality also applies to intergenerational support among the MA population. In addition, older adult care may transcend the boundary of the social exchange paradigm as discussed in the Limitations section.

Mutuality and Filial Obligation

Whether the mutual relationship creates the filial obligation or the filial obligation strengthens the mutual relationship between the caregiver and the care recipient is currently unknown. Social exchange theory suggests a return on investment made earlier by older relatives. On the other hand, *preparing for a rainy day* implies an investment and is also a thesis of filial obligation. Narveson (1987) assumed the reason why people do good deeds for one another are an investment for potential future benefits and security. In this sense, mutuality and filial obligation toward older relatives do have common conceptual ground.

Purpose

Despite the fact that familial-based care is prevalent for older MAs (Office of Minority Health, DHHS, 2005), which factors are responsible for the variation in the care have not been established. The MS was originally developed by Archbold, Stewart, Greenick, and Harvath (1990) for an English-speaking population. It was translated into Spanish by means of a cultural equivalence procedure by Crist, Escandón, Stewart, and Archbold (2008), and followed by a pilot test by the authors (deleted for blind review) to make it more culturally appropriate for use with MAs. Building on previous focus group and pilot work, *the purpose of this study was to* establish *the psychometric properties of the English-Spanish* bilingual *MS* when used with MA family caregivers of older adults.

Design and Methods

A methodological, descriptive, and correlational design was used to test the applicability of the MS. Three bilingual *promotoras* (community lay health care workers) were first provided training, which included successfully obtaining an ethics-training-based certificate from the U.S. National Cancer Institute. The promotoras then recruited participants in communities of

El Paso, Texas. A face-to-face survey with a convenience sample of 193 MA adult caregivers of older adults was used to establish psychometric properties of the bilingual MS.

Participants

This study attempts to understand how family caregivers perceive mutuality and familial loyalty toward an older adult that may, in turn, affect their caregiving behaviors toward the older care recipient.

Inclusion criteria.—Inclusion criteria included (a) being of Mexican origin; (b) having a child 18 years or older. The Expectations of Family Loyalty of Children toward Elderly Relatives (EFLOCTER) was used to test for concurrent validity. To prevent socially desirable answers, we did not ask caregivers about how they should treat their older relatives. Rather, we asked them how they were expected to be treated by their adult children when they became old and need care to reflect their attitude toward their older adults. Thus, all caregiver participants must have had adult children of their own to make their expectations more pragmatic, because Latino/Hispanic culture is present oriented (Giger & Davidhizar, 2002). Thinking about being cared for by an adult child in the future without an adult child in mind would be too future oriented and difficult to do; (c) the older adult under care having no cognitive impairment, as this condition may affect mutual exchange relationships with his or her caregiver; and (d) providing physical care to an older adult 60 years or older for at least 4 hr daily. This last criterion was used because MA caregivers often live in the same neighborhood with the older care recipient to provide daily care without the need of living in the same household (e.g., Kao et al., 2010, 2007); therefore, we used more than half of a daily working hours (i.e., 4 hr) as an inclusion criterion. If more than one older adult is currently under care, the caregiver has to choose one who she or he would like to use to answer the MS.

Profile.—Of the total of 258 individuals approached in El Paso, where more than 81% of the residents are Hispanic (U.S. Census Bureau, 2009b), 221 qualified and 194 agreed to participate in the survey in 2007 and 2008. The reasons for declining participation included currently not taking care of an older adult, being unwilling to participate in the study, or having no time. However, while reviewing the survey, we found one caregiver's mother had senile dementia. We, therefore, removed this caregiver from the quantitative data analysis, but retained her for the narrative portion. The sample size met the recommended 10:1 subject-to-item ratio by Munro and Page (1993). The typical caregivers were first-generation immigrants (68%), married (68%), middle-aged (47.37±14.60) women (80%) with at least ninth-grade formal education (51%). The majority of them were not working (55%); of those working, most were employed full-time (55%) and reported a household income less than US$30,000/year (61%). The typical older care recipients were first-generation immigrants (79%), female (66%), and aged parents (54%). The majority of older adults had insurance coverage (72%, with 77% of which was Medicare). They scored 18.3 ± 7.03 on the Physical Functioning Scale (Ayis, Bowling, Gooberman-Hill, & Ebrahim, 2007) from a possible score range of 7 (*can do without difficulty*) to 28 (*unable to do*) in 7 categories with 1 (*can do without difficulties*) to 4 (*unable to do*) option each: walk 400 yards, get on a bus,

cut one's own toenails, go up and down stairs, do heavy house work, go shopping and carry heavy bags, and bend down and pick something up off the floor.

Instruments

Mutuality Scale (MS).—The original English MS (Archbold et al., 1990) consists of 15 items with a 5-point response format ranging from *not at all* to *a great deal*. The MS has four dimensions (love and affection, shared pleasurable activities, shared values, and reciprocity), initially developed through content analysis rather than using factor analysis. The Cronbach's alphas for the overall scale of (Archbold et al., 1990) and .94 (Tetz et al., 2006) have been reported for the total MS, but none were reported for the individual dimensions. Construct validity was supported by the following in several studies. First, in a study about mutuality and caregiver-perceived role strain (Archbold et al., 1990), as much as 24% of the variance in caregiver role strain whereas caring for an older care recipient 9 months after hospital discharge was explained by the MS scores. Next, in a study about mutuality and severity of disease, Carter and colleagues (1998) used the MS with spouses of patients with Parkinson's disease and found significant differences existed ($F = 7.42$, $p < .05$) in the MS scores for spouses of patients in different stages of Parkinson's disease. That is, the more advanced stage of Parkinson's disease, the less mutuality the spouse perceived. This supports other findings that mutuality becomes unequal when the care recipient has higher limitations in his or her ability to give to, but need to accept more care from, the caregiver. Finally, the psychometric testing of the MS in an English-speaking population was conducted by Hudson and Hayman-White (2005). They used the MS with 106 primary caregivers for relatives dying of cancer. They extracted two factors—devotion and reciprocity—via the principal components analysis (Varimax© rotation), which accounted for 77.5% of the total score variance. Cronbach's alpha estimates were .83 and .93, respectively.

Before developing a Spanish version of the scale to use with MAs, a community advisory council was convened and served as a focus group for providing descriptions of their experiences as a MA caregiver (Phillips et al., 1996). This group affirmed the existence of mutuality within older care recipients and caregivers in this culture, which is consistent with the mutuality described for non-Hispanic White samples. Following this, the scale was translated and back-translated and linguistic discussions were conducted to establish cultural and language equivalence between the English and Spanish versions (Crist et al., 2008) to further ensure its functional language equivalence and provide a comparative descriptive framework. Pilot testing (Kao et al., 2010) in MA family caregivers with detailed results reported elsewhere was followed. The bilingual MS ("Usted y su ser querido" in Spanish) kept 15 items, but changed the item stem and response format from a quality base (e.g., "To what extent do the two of you see eye to eye?" with traditional response options *not at all*, *a little*, *some*, *quite a bit*, and *a great deal*) to a frequency base (e.g., "How often do the two of you see eye to eye?" with response options *never*, *rarely*, *sometimes*, *often*, and *always*) so that they were better understood by the respondents in the pilot study better fit the thought patterns of MA respondents (about half of whom with at least high-school education that well reflect the overall demographics of MAs in the United States with 53% of whom having at least high school education (U.S. Census Bureau, 2009a). The readability of the MS used

in the study was assessed by two methods and found to be a 5.2 grade using SMOG (Simple Measure of Gobbledygook) formula (McLaughlin, 1969) and a 4.4 grade on the Flesh-Kincaid grade level assessment (Microsoft® Office Word, 2003). Both the above reading-level assessments suggest that the MS shows suitability for participants to answer.

Expectations of Family Loyalty of Children Toward Elderly Relatives (EFLOCTER).—Mutuality and filial obligation may have common conceptual ground as discussed in the Background and Significance section. EFLOCTER, a third-generation instrument, was used to perform concurrent validity. EFLOCTER was added to support the concurrent validity of the MS. The 13-item EFLOCTER (e.g., "Within their means, I expect the adult children will pay attention to my health") with a 3-point Likert-type scale (*disagree*, *neutral*, *agree*) was derived from the Expectations of Filial Piety Scale (EFPS)—Spanish version to measure the expectations held by Hispanic parents regarding their future care and support by their adult children (Kao & Travis, 2005a, 2005b). The EFPS-Spanish version was further tested in a small ($n = 80$) homogeneous sample of MA (Kao et al., 2007). It was renamed EFLOCTER to better fit Mexican linguistic expression and test in a larger MA sample ($n = 193$). Principal axis factoring with Varimax© rotation derived a two-factor structure that accounted for 44% of the variance in total scores (respect, 10 items; priority, 3 items). Cronbach's alpha estimates for the two factors were .89 and .70, respectively, and test–reliability (estimated using the intraclass correlation) across a 3-week interval was $r = .90$ and .79, respectively.

Ethical Consideration

The study was approved by the Institutional Review Board (IRB) of The University of North Carolina at Chapel Hill and The University of Texas at El Paso. For those potential participants who expressed an interest in participating, promotoras screened their eligibility and reviewed the bilingual informed consent, including the study purpose, questionnaires to be completed, known risks and benefits, compensation for their participation, and contact information for the investigators and the university IRB.

Results

Data Analysis

Data analyses were conducted using the SPSS/PC 17.0 (SPSS Inc., Chicago, IL). The data were screened for the agreement with the parametric statistical assumptions of linearity and normality. The MS was subjected to exploratory factor analysis using principal axis factoring (PAF) to prevent artificial inflation of explained variance in the more commonly used principal component analysis. Although the examination of the scree plot suggested a three-factor solution (and two to four factors to be examined), both the three- and four-factor structure had at least one factor that explained less than 5% of the score variance, which was considered trivial (Stevens, 1996). We also assumed that factors might be strongly correlated. Thus, the two-factor solution (Direct Oblimin© rotation) was chosen. Items were retained with a minimum loading of 0.40 and at least a difference of 0.15 in cross-loadings. Reliability was estimated through Cronbach's alpha for internal consistency and intraclass

correlation for test–retest reliability. In addition, *t* test or Pearson's correlation was used to test construct support. It took participants about 15 to 20 min to complete the 15-item MS.

Structure of the Mutuality Scale

The factorability of the data was assessed through the Kaiser–Meyer–Olkin measure of sampling adequacy (0.92) and the Bartlett's test of sphericity ($\chi^2 = 1410$, $p < .001$). Both were regarded as sufficient to proceed to the analysis. PAF with Oblimin$^{©}$ rotation yielded a two-factor solution that accounted for 50% of the variance in total scores. Yet, according to Owen (2009), the common variance accounted for in factor analysis should be calculated using the method of comparing the total variance explained by 14 factors for 15 items to that of 2 factors for 15 items, that is, $9.407/14.864 = 63.29\%$ of the score covariation (see Table 1), which is more meaningful than the 50% of the score variation given by SPSS.

Principal axis factoring was used rather than the more commonly used principal component analysis (PCA) to avoid the artificial inflation of factor loadings and the overall number of factors. Five items (#1, #6, #9, #11, #12; see Table 1) were excluded from further analysis because of cross-loadings (see Table 2). The remaining 10 items were loaded on 2 factors subsequently labeled as Factor 1, "interaction between the caregiving dyad" (six items), representing verbal and nonverbal communications between care recipients and caregivers, and Factor 2, "reaction from the care recipient" (four items), illustrating care recipients' one-way responses toward caregivers. As seen in Table 3, the correlation between Factor 1 and Factor 2 was $r = .68$. As both factors were measuring constructs that are more global, this high factor-to-factor correlation wais not unexpected.

Reliability Estimates of the Mutuality Scale

In the six-item "interaction between the caregiving dyad" subscale, the Cronbach's alpha was .87 with all item–total correlations between .61 and .70. No item was indicated as being significantly increased by its alpha coefficient if deleted. In the four-item "reaction from the care recipient" subscale, the Cronbach's alpha was .82, with all item–total correlations ranging between .42 and .69. The alpha coefficient would increase from .82 to .87, however, if one item (#10) was removed. Thus, the "reaction from the care recipient" became a three-item sub-scale with a Cronbach's alpha of .87 (see Table 2). The intraclass correlations used to assess test–retest reliability across a 3-week interval were .93 and .94, respectively.

Construct Supports

In the Background and Significance section, we argued that mutuality and filial obligation have common conceptual ground. Hence, we assumed that if the caregiver perceived higher mutuality with the older adults under his or her care, he or she should have felt more obligated to care for the older adult. Concurrent validity of the two factors in MS was provided by the moderate correlation with the EFLOCTER. "Interaction between the caregiving dyad" and EFLOCTER was $r = .32$ ($p < .01$), and "reaction from the care recipient" and EFLOCTER was $r = .30$ ($p < .01$).

It was hypothesized that the gender of the older care recipient and the "blood relative" context would matter in these relationships. We hypothesized that when the older care

recipient was female and when the care relationship was in the context of an actual family relationship, the mutuality scores would be higher. We found that there were significantly higher MS scores when the care recipient was female (40.88 ± 6.14) than male (37.56 ± 9.32, $t = -2.87$, $p < .01$) and when caregivers cared for older adults were related by blood or marriage (40.28 ± 7.37) than by friendships (36.90 ± 7.60, $t = 2.12$, $p < .05$). Mutuality is built on a long period of exchange relationships so we also assumed that the mutuality scores were not related to factors that did not reflect the key concern of time, such as the caregiver's educational level and the older adult's current physical functioning. The mutuality scores were not significantly related to the caregivers' years of formal education ($r = .04$, $p = .57$) or the older care recipients' current physical functioning ($r = .10$, $p = .89$). Overall, these results were consistent with our expectations.

Linguistic Concerns

In the pilot study (Kao, Lynn, & Lujan, 2010), 22 MA caregivers felt that the items "How close do you feel to him or her?" and "How attached are you to him or her?" were difficult to differentiate. The expert panel could not come up with a consensus for the two items: for "attached," *apegado* is used in Texas and *engreida* is used in Arizona, California, and New Mexico. The temporary decision was to continue using "How often do you feel physically close (*cercano*) to him or her?" for the "close" item and "How often do you feel emotionally close (*emocionalmente apegado* [*engreida*]) to him or her?" for the "attached" item in field testing to further evaluate their clarity statistically. The results of field testing revealed that the two items had a modestly high bivariate correlation, $r = .51$ ($p < .001$), but also distinctive factor loadings (0.59 and 0.64) on the same factor, "interaction between the caregiving dyad." As an informal heuristic check, 11 MA caregivers who filled out the field testing scale agreed to be reinterviewed. After discussion, we learned that the respondents actually read from the Spanish version, instead of the English version. While being asked to use their own words to describe "close" and "attached," they gave the following example for "close": "Although I may not like what she [mom] likes [bingo], I drive her there whenever I can because it makes her happy. If she is happy, I am happy." For "attached," they gave the example, "If my grandma needs to go see a doctor, I tell my boss that I am not going to make it to work that day because she is my dear grandma." In addition, feedback from the original authors of the MS was that "physically close" was not the intended meaning of the original instrument. Thus, a wording change is proposed in the Discussion section.

Discussion

Rather than referring to MA older adult care as fitting a stereotype based on a European-based cultural perspective, health care professionals need to understand how care is motivated by mutuality. In doing so, health care professionals may be able to provide appropriate support to MA families. We understand this is the first Spanish MS designed to establish psychometric properties; thus, we recognize there is more work to be done. This does not dispute the solid foundation reported here for later work. Out of abundant caregiving literature, there have been surprisingly few explorations of the motives for intergenerational caregiving among MAs, and of those few, most are qualitative in nature. Although MS shows evidence of acceptable psychometric properties at the first

psychometric testing using exploratory factor analysis, we recommend further testing using confirmatory factor analysis to ensure the appropriate structure of this scale. We would, however, like to discuss three issues found during the instrument-development process, namely, theoretical underpinning, linguistic concern, and construct support.

Comparison of MS between non-Hispanic White and Mexican American population.

The original MS, developed by Archbold and colleagues (1990) through content analysis, included four dimensions (love and affection, shared pleasurable activities, shared values, and reciprocity). Later, statistical testing was done by Hudson and Haymen-White (2005), two factors were extracted—devotion and reciprocity. Their two-factor structure is very similar to our two-factor findings in this study, where "reaction from the care recipients" refers to a one-way direction in the exchange (i.e., devotion) and "interaction between the caregiving dyad" indicates a two-way exchange (i.e., reciprocity). However, their choice of factor analysis approach (chose principal component analysis with Varimax© rotation) may have inflated the percentage of explained variance and affected the correlation between two factors. We attempted to avoid these issues by the use of a different approach (principal axis factoring with Oblimin© rotation). However, it needs to be recognized that it is very possible that caregiving between children and their older relatives are not all that different across cultural boundaries.

Theoretical Underpinning

Even though relationships derived from the social exchange paradigm are established over a long period of time, the phenomenon under investigation here tends to be more *here and now*. Mutuality is possibly not a unitary construct but multidimensional. In this study, two dimensions were found for the Mutuality Scale—"interaction between the caregiving dyad" and "reaction from the care recipient." Despite this, the MS may not fully reflect the nonreciprocal and enduring nature of the relationship as shown in the following example. The daughter of a cognitively impaired mother (excluded from the quantitative data analysis) stated, "My mom is mentally incompetent … in the last 17 years … behaves aggressively. That is why she rarely shows how much she cares for me. But when she has a time of clarity; this gives me emotional support… ." Therefore, we are not sure whether the MS can fully reflect the accrued base of the social exchange paradigm. On the other hand, from a practical point of view, it is a good start to gather our knowledge in a previously unstudied area of this rapidly expanding minority older adult population. It appears that the construct of mutuality may be applied to MA family caregiving experiences of older relatives. The MS may not, however, always apply to every family give-and-take mutual relationship.

Linguistic Issues

The questions pertaining to "close" and "attached" baffled some pilot study participants. We continued to include both items because both appear to be important and distinctive in field testing. After discussing the issue with many field study participants, we speculate that the small number of pilot participants ($n = 22$), half of whose formal education was high school or below, might have contributed to the perplexity of the abstract notion. The participants in the larger field test ($n = 193$) did not appear to have trouble differentiating the two terminologies in Spanish, close [*cercano*] and attached [*apegado* (*engreida*)]. Native speakers

informed us that *cercano* is used to denote emotional closeness to family or friends and *apegado* [*engreida*] is used to convey a loyalty connection to their family or friends. In addition, this was an issue in an earlier translation study (Crist et al., 2008), and the decision is congruent with the intention of the original authors of the items. Thus, we recommend shifting the item "How often do you feel physically close to him or her?" to "How often do you feel close to him or her?" with the Spanish expression of *cercano* and shifting the item "How often do you feel emotionally close to him or her?" to "How often do you feel attached to him or her?" with the Spanish expression of *apegado* [*engreida*]. In the future, a cognitive interview with MAs residing in different states is suggested to ensure the linguistic translation is appropriate for a wider range of MAs.

Construct Supports

Older Hispanic female care recipients are shown to have higher scores on the Expectations of Filial Piety Scale (EFPS; Kao & Travis, 2005b). Similarly, female care recipients in this study received higher mutuality scores than did their male counterparts. Women are generally more advantaged than men in support exchanges (Kao & Travis). Next, the thesis that older care recipients by blood or marriage have more privilege in mutual exchange than those by close friendship or relationship is supported due to their long period of contributions to the family. Finally, since mutuality is built on a long-term relationship, we also assume that the caregiver's educational attainment and the care recipient's physical functioning are unrelated to the mutuality scores. The assumptions are also supported by their nonsignificant correlations.

Limitations

The limitations of the study include (a) certain conceptual and linguistic ambiguities of scale items that require further clarification; (b) to prevent socially desirable answers, the researchers asked caregiver participants their expectations of how their children should treat them in EFLOCTER and their relationships with the older adults under their care in MS. This may have engaged the caregivers' different perceptions in their expectations to their own children (EFLOCTER) and to caring for their older relatives (MS), presumably because of the potential differences in acculturation process between the two generations. This might have introduced conceptual inconsistency in the construct validity testing; and (c) limited generalization of the findings due to the recruitment strategy of a convenience sample in a single location. Three concerns of the social exchange paradigm may need to be kept in mind while using the MS with the MA population: motivation, comprehensiveness, and period of lag time.

Motivation.—Strong familism (familismo) exists in MA culture; individual family members are often subordinated to provide care to older adults who hold traditional positions of respect within their families (Kao et al., 2007). Trust is the key element of mutuality in social exchange theory (Insko, Kirchner, Pinter, Efaw, & Wildschut, 2005). Velez (1983) also maintained that MA culture depends on *confianza* (mutual trust) to serve as the glue that holds the exchange relationship together. Although the motivation for caregiving in the non-Hispanic white population is reciprocal indebtedness, token returns or credit earned (Greene & Marty, 1999; Horowitz & Shindelman, 1983; Wentowski, 1981),

appropriate for the MA population (Alemán, 2000; Crist, Woo, & Choi, 2007), are rooted in the moral teaching of the culture and include blessings and rewards from God (*Que Dios te lo pague*). As seen in Mexican immigrant mothers, they often set moral education as one of the major childrearing goals (Valdés, 1996). Children are taught to be warm, honest, polite, and respectful to others, as well as to be responsible (Reese, Kroesen, & Gallimore, 2000). Despite the fact that the key element of social exchange—trust—seems similar across the two cultures, the motivation is entirely different.

Comprehensiveness.—The social exchange paradigm does not always explain mutual behaviors (Baumeister, Wotman, & Stillwell, 1993). In a study of reciprocity in parent–child relationships, Silverstein, Conroy, Wang, Giarrusso, and Bengtson (2002) found that neither the investment model (i.e., the insurance policy model), in which earlier "transfers" in the care of children are recovered by parents who are in need afterward, nor the altruistic model (i.e., nonreciprocal motivations) predicts the actual mechanism of long-term intergenerational exchange. Altruism on the part of children to provide care to older adults may transcend the boundary of the social exchange paradigm. Numerous factors, which may be differently weighted in individual cases, influence family caregiving practices. The social exchange paradigm may not apply to all care provided by family members to older adults.

Time lag.—Mutuality is defined as "the positive quality of the relationship between the caregiver and care receiver" (Archbold et al., 1990, p. 376). Most often, one provides a benefit to another with the expectation that a reward will be returned in the future (Molm & Cook, 1995), indicating that the exchange need not be immediate or equivalent to the initial investment to be considered balanced over a long period of time (Hollstein & Bria, 1998). But researchers have not been able to integrate the temporal parameter—when a reward would be returned—into a general model through many cross-sectional or longitudinal studies (e.g., Antonucci, 1990; Henretta, Hill, Li, Soldo, & Wolf, 1997). In fact, the long time lag between investment and return is what differentiates intergenerational exchanges from other relationship exchanges, such as friendships (Silverstein et al., 2002). The MS highlights the quality of the relationship between the caregiving dyad, which may or may not reflect their past relationship exchanges. Although mutuality and social exchange theory were developed for the population, the steps taken in this study (advisory council, functional and linguistic equivalence assessment, and pilot testing of the MS) support the "period of time lag" also applies to the MA population.

Recommendations

The recommendations for future endeavors are to (a) conduct cognitive interviews of the specific items that require further clarification; (b) include MA participants from broader geographical areas, preferably using probability sampling, to be more representative of the population; (c) leave an open space in the scale for the respondents to give their opinions; (d) instruct the bilingual data collectors to inquire linguistic issues specifically because MAs use different slang and idiomatic language in various regions of Mexico; and (e) use confirmatory factor analysis with a larger sample in next study.

Summary

Following the procedure of the focus group and pilot study of the MS, field testing results showed a two-factor structure, namely, "interaction between the caregiving dyad" and "reaction from the care recipient" with reliability estimates of homogeneity and stability. Overall, the satisfactory psychometric properties of the MS demonstrate its potential to measure the motive involved for older adult care in MA families. Although the MS may not be fully mature at the current time, the gerontological research community may well find value in adopting the scale for use with this growing population. Mutuality from caregivers' points of view should be addressed to fill the void between reality and the cultural mores of providing older adult care in the MA population. The MS may help launch studies of the motives behind MA family caring for older adults. More research is needed to refine the scale.

Acknowledgments

Author Biographies

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Table 1.

Calculating Common Variance Accounted for in Factor Analysis.

Total variance explained

Component	Initial Eigenvalues			Extraction sums of squared loadings			Rotation
	Total	% of variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.085	53.899	53.899	8.085	53.899	53.899	5.640
2	1.322	8.811	62.710	1.322	8.811	62.710	4.539
3	0.860	5.735	68.445	0.860	5.735	68.445	3.282
4	0.730	4.864	73.310	0.730	4.864	73.310	3.063
5	0.613	4.085	77.395	0.613	4.085	77.395	4.460
6	0.492	3.278	80.673	0.492	3.278	80.673	5.114
7	0.466	3.109	83.782	0.466	3.109	83.782	4.798
8	0.453	3.018	86.800	0.453	3.018	86.800	3.893
9	0.428	2.851	89.650	0.428	2.851	89.650	4.086
10	0.361	2.408	92.059	0.361	2.408	92.059	3.981
11	0.312	2.077	94.136	0.312	2.077	94.136	4.928
12	0.304	2.028	96.164	0.304	2.028	96.164	4.755
13	0.232	1.549	97.713	0.232	1.549	97.713	4.361
14	0.206	1.370	99.083	0.206	1.370	99.083	4.325
15	0.138	0.917	100.000	Total = 14.864			
1	8.085	53.899	53.899	8.085	53.899	53.899	6.992
2	1.322	8.811	62.710	1.322	8.811	62.710	6.723
3	0.860	5.735	68.445	—	—	—	—
4	0.730	4.864	73.310	—	—	—	—
5	0.613	4.085	77.395	—	—	—	—
6	0.492	3.278	80.673	—	—	—	—
7	0.466	3.109	83.782	—	—	—	—
8	0.453	3.018	86.800	—	—	—	—
9	0.428	2.851	89.650	—	—	—	—
10	0.361	2.408	92.059	—	—	—	—
11	0.312	2.077	94.136	—	—	—	—

Total variance explained

| Component | Initial Eigenvalues | | | Extraction sums of squared loadings | | | Rotation |
	Total	% of variance	Cumulative %	Total	% of Variance	Cumulative %	Total
12	0.304	2.028	96.164	—	—	—	—
13	0.232	1.549	97.713	—	—	—	—
14	0.206	1.370	99.083	—	—	—	—
15	0.138	0.917	100.000	Total = 9.407			

Note. $N = 187$. Extraction method: principal component analysis with two factors requested. When components are correlated, sums of squared loadings cannot be added to obtain a total variance; covariance = 9.407/14.864 = 63.29%.

Table 2.

Factor Analysis and Cronbach's Alpha for Mutuality Scale.

Item	Factor loading		Iterm-total correlation
	1	**2**	
1. How often do the two of you see eye to eye? (deleted—cross-loading)	—	—	NA
2. How often do you feel *physically close* to him or her? (*will change back to close*)	0.66	0.50	.61
3. How often do you enjoy sharing past experiences with him or her?	0.75	0.46	.68
4. How often does he or she express feelings of appreciation for you and the things you do?	0.60	0.76	.65
5. How often do you feel *emotional close* him or her? (*will change back to attached*)	0.71	0.52	.66
6. How often does he or she help you? (deleted—cross-loading)			.NA
7. How often do you like to sit and talk to him or her?	0.74	0.49	.69
8. How often do you feel love for him or her?	0.69	0.40	.63
9. How often do the two of you talk about common family values? (deleted—crossloading)	—	—	NA
10. How often does he or she comfort you? (deleted—Cronbach's alpha coefficient would significantly increase)	—	—	—
11. How often do the two of you laugh together? (deleted—cross-loading)	—	—	NA
12. How often do you confide in him or her? (deleted—cross-loading)	—	—	.NA
13. How often does he or she give you emotional support?	0.61	0.91	.69
14. How often do you enjoy spending time with him or her together?	0.78	0.59	.70
15. How often does he or she express feelings of warmth toward you?	0.49	0.79	.69
Factor item number (total 9)	6	3	—
Cronbach's alpha	.87	.87	—
Test–retest reliability (intraclass correlation)	.93	.94	—

Note. Extraction method: principal axis factoring; rotation method: Oblimin© with Kaiser normalization.

Table 3.

Component Correlation Matrixes.

Component	1	2
1	1.000	0.676
2	0.676	1.000

Note. Extraction method: principal axis factoring; rotation method: Oblimin© with Kaiser normalization.