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**The Variations in Associations between Family Contexts and Late-Life Depression
Outcomes**

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A thesis
submitted in partial fulfillment of the
requirements for the degree of

Master of Public Health

University of Washington
2012

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Program Authorized to Offer Degree:
Public Health-Health Services

University of Washington

Abstract

The Variations in Associations between Family Contexts and Late-Life Depression Outcomes

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The purpose of this study was to examine the relations between family contexts and late-life depression outcomes in Latino and Asian populations. The specific aims were to examine i) the associations between family conflict, family cohesion, and late-life depression outcomes, ii) if these associations are confounded by social support (i.e., relatives and friends), and iii) if these associations vary by race/ethnicity and gender. Using subsample older adults from the National Latino Asian American Study (NLAAS) (n= 395), we document a robust inverse association between late-life depression and family cohesion in Latino and Asian older adults populations (weighted adjusted OR :0. 67 95% CI: 0.53, 0.84). And this association varied by gender, with men being more sensitive to family cohesion than women. In contrast to previous literature, ethnicity was not a strong effect modifier of the relationship between late-life depression and family cohesion. Moreover, family conflict and support from relatives and friends had limited impact on depression outcomes. Further research is needed to better understand the complex interplay between social support, ethnicity, and gender in predicting late-life depression.

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1. Introduction

Mental health issues in Asian and Latino older adults are among the growing public health concerns. The numbers of immigrants from Asia and Latin American countries have increased exponentially in recent years, and the majority of older Asian and Latino adults are immigrants. Studies have shown that minorities and immigrants experience disproportionately high rates of late-life depression and disparities in mental health services¹.

Families, among the primary socializations, have a great impact on older adults and their depression outcomes, health care utilization, and treatment adherence². Strong family and social ties appear to buffer individuals from the consequences of life and health crises^{3,4}, whereas negative family emotional experience, such as hostility and unresolved conflicts, is a powerful predictor of poor disease course and mortality among those with depression⁵⁻⁷. Studies have found that receiving social supports is an independent predictor of positive late-life depression outcomes^{8,9}.

As cultural phenomena, family processes and social supports are expected to impact depression outcomes differently among different cultural groups. Unfortunately, few studies have explored if these cultural variations in family processes have meaningful impacts on late-life depression outcomes in immigrant and culturally diverse minority populations. The present analyses fill this void by using a nationally representative sample of community dwelling Asian and Latino older adults.

2. Purpose and specific aims:

The purpose of this study was to examine the relations between family contexts and late-life depression outcomes in Latino and Asian populations. The specific aims were to examine 1) the associations between family contexts and late-life depression outcomes, 2) if these associations

are modified by non-family supports (i.e., relatives and friends), and 3) if these associations vary by race/ethnicity and gender.

3. Literature review

a. Epidemiology of late-life depression

Depression is among the most common mental illnesses and the leading cause of disability-adjusted life years in the world¹⁰. In community settings, about 2-5% of adults aged 65 and older meet research diagnostic criteria for major depression^{11, 12}, with rates of subsyndromal depression estimated at 8% -16%¹³. The rates of late-life depression increase to 12-30% in institutional settings, and up to 50% for residents in long-term care facilities^{14, 15}. A recent study estimated the projected lifetime risk of major depression to be 23% by age 75¹⁶.

Until recently, few reliable data on late-life depression in Latino and Asian populations were available. Evidence indicates that older adults from certain ethnic /racial minority groups have higher rates of depression^{17, 18} and are less likely to be diagnosed and to receive treatment than their white counterparts^{19, 20}. Jimenez et al¹ concluded that Latino older adults have a significantly higher rate of depression compared to non-Latino White older adults (7.3% vs. 2.9%), whereas no significant differences were found between Asian and non-Latino White older adults. The same study found that a greater proportion of immigrant Latino and Asian older adults experience depression than their U.S. born counterparts.

The disparities in mental health among minority populations become increasingly complicated when considering cultural beliefs, health practices, and attitudes to depression and depression care. Culture also influences how individuals experience and express depression^{21, 22}. Also, the heterogeneity within Latino and Asian populations and its implication on health has received increasing attention. For example, Takeuchi and colleagues found that Vietnamese

American women are less likely to experience depression, compared to Chinese American women, and that second generation Asian American women are more likely to experience depression compared to their first generation counterparts²³. The same study concluded that Asian American men who immigrated to the U.S. between 13 and 17 years of age were more likely to be depressed compared to their U.S.-born counterparts.

b. Family processes and depression

Family is a central aspect of social environment and health-related activities in older adults^{24, 25}. On average, older adults spend more than 50% of their available time with family and friends²⁶, and older adults are more likely to discuss health issues and symptoms with family than with anyone else^{27, 28}. Evidence shows that family relationships affect psychological well-being²⁹, health services utilization³⁰, and preference for³¹, adherence to^{32, 33} and response to depression treatment^{8, 9, 32}. Current trends of prolonged life expectancy predict increasing influence of family on late-life depression outcomes.

Family processes are culturally grounded³⁴. The expectations and norms about relationship among individual members of the family, and the primary goal of the self in relation to others vary among different cultural groups³⁴⁻³⁶. Unfortunately, few studies have explicitly explored how such cultural expectations related to family are associated with depression outcomes in culturally diverse older adult populations.

Studies have suggested that stronger levels of familial obligation, more frequent social interaction, higher volume of support, and a greater likelihood of shared living arrangements with elders are some culturally unique family processes in Asian and Latino families³⁷⁻⁴⁰. Collectivistic values of Latino and Asian families can explain such strong family ties. These strong family ties may protect older adults from depression. However, those traditional

expectations can also become significant sources of stress when younger members of family do not share such cultural expectations. Taken together, the conflicting findings regarding the association between family processes and depression highlight the need for further investigation.

c. Social support and depression

In addition to the nuclear family, extended family and friends are important sources of support and socialization in older adult populations. However, the protective effect of social support from relatives and friends are not conclusive. Studies have shown that the social support of unrelated, close friends has a positive impact on physical and mental health⁴¹ and, in some studies with Latinos, to have a more significant impact on mental health than family support⁴². Other studies have found that, compared to Whites, Latino and Asian Americans are less likely to seek social support in response to stress^{40, 43}. A collectivist orientation may hinder disclosure of personal problems for fear of burdening others, disrupting group harmony, or losing face, leaving Latino and Asian Americans vulnerable for undiagnosed and untreated depression.

4. Conceptual model: Psychosocial Theory of Depression

Psychosocial theories explain that late-life depression is a function of complex interplays among physical, psychological, social, and environmental factors^{44, 45}, and that the impact of negative life events on late-life depression is mediated or moderated by a wide range of factors. For example, George⁴⁵ identified multiple domains of vulnerability and protective factors related to late-life depression: demographics (e.g., age, gender, race, ethnicity), early life events (e.g., education, trauma), later life events (e.g., income, marital status), social integration (e.g., religious and community participation), risk and protective factors (e.g., social support), and provoking agents and coping efforts (e.g., life stress and coping). The current analysis focuses on family conflict as the major risk factor and family cohesion as the major protective factor of

depression in elderly Latinos and Asian Americans. The literature review in the previous section suggest that older adult population may be more sensitive family conflict and family cohesion, because family becomes major sources of social support, and thus becomes increasingly salient to older adult's mental health outcomes.

5. METHODS

a. Description of study and study sample:

This is a cross-sectional, descriptive study, using data from the National Latino Asian American Study (NLAAS), a nationally representative epidemiological study⁴⁶⁻⁴⁸. The sampling design has been documented elsewhere^{46, 49}. In summary, NLAAS employed a multi-stage area probability sampling method to provide a nationally representative sample of Latinos and Asian Americans without regard to geographic residential patterns. The selection of a probability sample of respondents required a four-step sampling process: a primary stage sampling of U.S. Metropolitan Statistical Areas and counties, a second stage sampling of area segments, a third stage sampling of housing units within the selected area segments, and a fourth stage sampling of the random selection of eligible respondents from the sample housing units. The weighted response rates for the combined NLAAS samples of primary and second adult respondents were 73.2% for the total sample, 75.5% for the Latino sample, and 65.6% for the Asian sample.

Data collection took place between May 2002 and November 2003. Eligibility criteria to be included in the study were 18 years of age or older, reside in non-institutionalized settings in one of 50 states of the United States or District of Columbia, identify self as of Latino, Hispanic, or Spanish decent, or of Asian decent. The NLAAS instrument was administered in the respondent's choice of the following languages: English, Spanish, Chinese, Vietnamese, or

Tagalog by fully bilingual lay interviewers. Interviews were conducted face-to-face unless respondents requested a telephone interview. The final sample of NLAAS consisted of 4,638 community residing individuals of Latino and Asian origin. The sample of the current analyses was limited to the subsample of individuals, aged 65 years or older (n=395).

b. Measures

i. Dependent variable

The dependent variable of this study was the 12-month DSM-IV Major Depressive Episode (depression hereafter). Depression was assessed with the World Health Organization Composite International Diagnostic Interview (WMH-CIDI)⁵⁰, a structured interview that follows the criteria of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*,⁵¹ coded as “1” for depression and “0” for no depression. Previous studies showed good concordance between DSM-IV diagnoses based on the WMH-CIDI and the Structured Clinical Interview for DSM-IV Axis I disorders⁵².

ii. Independent variables (family processes)

- *Family Conflict (possible scores range 0-10)*: Family conflict measured perceived levels of conflict that might arise because of the tension between fitting into the cultural norms of strong family ties and achieving more personal goals. It was measured by five questions drawing from a subscale of the Hispanic Stress Inventory (HSI)⁵³: You have felt that being too close to your family interfered with your own goals; you have argued with other members of your family over different customs; you have felt lonely and isolated due to lack of family unity; family relations are less important to people close to you; your personal goals have been in conflict with your family. Higher scale values indicated that the respondent experienced greater conflict with his or her family.

- *Family Cohesion (possible scores range 0-10)*: Family cohesion measured the perceived levels of cohesiveness of family, using a 3-item subscale of the Family Cohesion Scale developed by Olson *et al.*^{48, 54, 55}: family members like to spend free time with each other; family members feel very close to each other; and family togetherness is very important. The family cohesion scores were calculated by reverse coding, summing, and transforming the responses indicating how strongly the respondent agrees with the three statements offered. Higher scale values indicated that the respondent experienced greater cohesiveness in his or her family.

iii. Potential confounders of particular interest (Social Support)

- *Relative support (possible scores range 0-10)*⁴⁷: Relative support measured perceived levels of emotional support from relatives who do not live with a respondent. It was calculated by reverse coding, summing, and transforming the responses indicating how strongly the respondent agrees with following three questions: How frequently do you talk on the phone or get together with relatives who don't live with you?; How frequently can you rely on relatives who don't live with you for serious problem?; How frequently can you rely on relatives who don't live with you to discuss worries? Higher scale values indicated that the respondent experienced perceived greater emotional support from relatives.
- *Friend support (possible scores range 0-10)*⁴⁷: Friend support measured the perceived level of emotional support from friends. It was calculated by reverse coding, summing, and transforming the responses to following three questions: How often do you talk on the phone or get together with friends?; How much can you rely on your friends when you have serious problems?; How much can you open up to your friends and talk about worries? Higher scale values indicated that the respondent experienced greater emotional support from friends.

iv. Potential confounders (Covariates)

- *Age*: a continuous variable ranging from 65 to 99
- *Gender*: A dichotomous variable with male as the reference category (male=0; female=1).
- *Marital Status*: A categorical variable with three groups (currently married=0; widowed/separated/divorced=1; never married = 2)
- *Education*: A categorical variables with four groups (less than high school (0-11 years)=0; high school diploma (12 years)=1; some college (13-15 years)=2; and university graduate (>16 years)=3.
- *Living in poverty*: A binary variable (not living in poverty=0; living in poverty=1). Living in poverty was derived from the household income/federal poverty line ratio. A household income/federal poverty line ratio ≤ 1 was coded as living in poverty.
- *Race/Ethnicity*: According to country of origin, respondents were assigned into one of eight categories (Vietnamese=1; Filipino=2; Chinese= 3; Other Asian=4; Mexican=5; Puerto Rican=6; Cuban=7; Other Latino= 8).
- *Duration of stay in the U.S.*: A categorical variable (U.S. born=0; 0-4 years=1; 5-9 years=2; 10-20 years=3; over 20 years=4). Duration/stay in the U.S. measured the length of time the respondent lived in the United States in years.

v. Interaction terms

- To examine if race/ethnicity and gender modified the relationship between family cohesion and depression:
 - Race/Ethnicity*Family cohesion (categorical variable * continuous variable)
 - Gender*Family cohesion (binary variable * continuous variable)

- To examine if race/ethnicity and gender modified the relationship between family conflict and depression:
 - Race/Ethnicity*Family conflict (categorical variable * continuous variable)
 - Gender*Family conflict (binary variable * continuous variable)

c. Analyses

Procedures designed for the analysis of complex sample survey data in the Stata software package were used⁵⁶. All statistical estimates were weighted, utilizing the NLAAS sampling weights to account for individual-level unequal probabilities of selection into the samples, individual non-response, and additional post-stratification to ensure U.S. population representation. Design-based analyses, specifically a Taylor Series Linearization approach to variance estimation, were used to account for the complex multistage clustered design of the NLAAS samples when computing estimated standard errors⁵⁷. To accomplish the purpose and the specific aims, I used the following three steps in the analytic process:

- Step 1: First, estimate population parameters using descriptive statistics. Examine if there are statistically significant group differences in family conflict, family cohesion, relative support, and friend support among race/ethnic groups, gender, and SES groups, using adjusted Wald Tests and Pearson's Chi square tests (Tables 1 and 2). Second, compute the Pearson's correlation coefficient between family conflict, family cohesion, relative support and family support to examine if these variables are distinctive concepts (Table 3). To do this, I first computed point-estimates of correlation coefficient r , using `correlate with aweight` command. To compute the levels of significance for these point estimates, I first built two unadjusted regression models with each of the variable pair as dependent variable (i.e. `svy: regress y x` and `svy: regress x y`). Between the two p-values, I chose the biggest, which is the

conservative estimation. This P-value is used for the test of $r=0$ ⁵⁸.

- Step 2: Examine associations between individual characteristics and risk for depression using logistic regression models with depression as a dependent variable. Test the statistical significances of these associations using F-tests (Table 4).
- Step 3: Examine the association between depression, family conflict and family cohesion using multivariate logistic models with depression as a dependent variable, adjusted for covariates specified *a priori*. Test the statistical significances of these associations using F-tests (Table 5). Four models were constructed:
 - Model 1: unadjusted logistic regression models to examine the association between family cohesion, family conflict, and depression.
 - Model 2: covariates were added to the Model 1, to test the attenuating effects of confounding factors specified above.
 - Model 3: relative support and friend support were added to the Model 2, to test if these are confounders.
 - Model 4: interaction terms were added one by one to Model 3 to test if gender and ethnicity modified the associations between family contexts and depression.

Missing data: the amount and the distribution of missing data were evaluated during step 1. The missing values for each variable included in the current analyses stayed below 2%. Because this was less than the recommended 5% for imputation⁵⁹, cases with missing values were not included in the analyses.

6. Results

a. Characteristics of the study sample

Excluding observations with missing variables, 395 community dwelling Latino and Asian

American older adults were included in the final analyses. Table 1 shows the weighted distributions and descriptive statistics for characteristics of study population and of each race/ethnic group. The mean age of the estimated population was 72.66 (SE: 0.38), the majority of them were female (57.88%), foreign born (63.23%), married/cohabiting (56.58%), and had less than a high school education (59.28%). A large number of older Latino and Asian Americans were living in poverty (23.72%) and approximately 7.42% of them had depression.

The majority of Asian older adults were female (57.49%), married/cohabiting (72.62%), had minimum education of a high school graduate (61.66%), and foreign born (76.57). More than one in five Asian older adults (21.82%) lived in poverty. The majority of Latino older adults were female (58.58), had less than a high school-level education (71.68%), and almost one in four Latino older adults (24%) lived in poverty. About half of Latino older adults were married/cohabiting (49.21%) and the other half were divorced/separated/widowed (48.84%).

There were notable differences in distribution of demographic characteristics among Latino and Asian subgroups. Among Asian subgroups, Vietnamese older adults were most likely to be married/cohabiting and least likely to have completed a college education, whereas Chinese older adults were most likely to live in poverty and to have depression. Among Latino subgroups, Mexican older adults were most likely to have less than a high school education and live in poverty, whereas Puerto Rican older adults were most likely to be depressed and divorced/separated/widowed.

b. Family processes and social support

Table 2 summarizes how family conflict, family cohesion, relative support, and friend support were distributed by individual characteristics. Adjusted Wald tests were used to examine if the group differences were statistically significant. The mean scores were 6.07 (95% CI: 5.74,

6.40), 9.24 (95% CI: 9.00, 9.47), 4.71 (95% CI: 4.50, 4.92), and 4.80 (95% CI: 4.36, 5.24) respectively. Female older adults reported greater mean family conflict scores compared to male older adults (6.29 vs. 5.78, $p=0.0383$). Older adults who were married/cohabiting reported greater mean family cohesion scores compared to those who were divorced/separated/widowed (9.42 vs. 8.55, $p=0.0457$) and to those who were never married (9.42 vs. 8.55, $p=0.0034$).

Significant subgroup differences in family processes and social supports were observed. Vietnamese older adults reported the greatest mean family cohesion scores whereas Puerto Rican older adults reported the lowest mean family cohesion scores (9.80 vs. 8.59, $p<0.0001$). Vietnamese older adults also reported the greatest mean relative support scores, whereas Cuban older adults reported the highest relative support scores (5.74 vs. 4.18, $p<0.0001$). Puerto Rican older adults reported greatest mean friend support scores, whereas Vietnamese older adults reported lowest mean friends support scores (5.73 vs. 1.97, $p<0.0001$). Older adults living in poverty, compared to those who do not, reported lower mean friend support scores (5.14 vs. 3.67, $p=0.0273$). Depressed older adults, compared to those who were not depressed, reported lower mean family cohesion scores (7.99 vs. 9.34, $p=0.0018$).

Table 3 presents the Pearson's correlation among variables related to family processes and social support. There was a significant correlation between family conflict scores and family cohesion scores ($r = -0.4406$, $p<0.0001$) and between relative support scores and friend support scores ($r = -0.2938$, $p=0.0002$). Correlations between family processes variables and social support variables were not statistically significant.

c. Late-life Depression

Table 4 summarizes the associations between sociodemographic characteristics, family cohesion, and late-life depression outcomes without adjusting for other individual characteristics.

It appears that, compared to their Latino counterparts, Asian older adults experienced lower risk for depression (weighted unadjusted OR: 0.25, 95% CI: 0.06, 1.06), although this result was not statistically significant. Compared to Vietnamese older adults, Puerto Rican older adults experience greatly elevated risk for depression (weighted unadjusted OR: 5.05, 95% CI: 1.08, 23.51). Compared to married older adults, divorced/separated/widowed older adults experienced significantly increased risk for depression (weighted unadjusted OR: 3.76, 95% CI; 1.62, 9.93). A one-point increase in family cohesion score was associated with lower odds for depression (weighted unadjusted OR: 0.67, 95% CI: 0.58, 0.81). Conversely, a one-point increase in family conflict score was associated with higher odds for depression (weighted unadjusted OR: 1.26, 95% CI: 1.01, 1.59). The associations between relative support score, friends support score, and late-life depression were not statistically significant.

d. Family conflict, family cohesion, social support and depression

Table 5 presents the four weighted multivariate logistic regression models with depression as the dependent variable. In summary, family cohesion score was more robust predictor of late-life depression in Latino and Asian population than family conflict score. The unadjusted bivariate logistic models in the Table 4 showed that family conflict score was positively associated with depression (OR: 1.26, 95% CI: 1.01, 1.59), whereas family cohesion was negatively associated with depression (OR: 0.67, 95% CI: 0.56, 0.81). When both independent variables were entered into the Model 1, only family cohesion remained significant (OR: 0.70, 95% CI: 0.61, 0.81). The family conflict scores increased the precision of the estimation of the association between family cohesion scores and late-life depression, but its own association with depression was not statistically significant (OR: 1.09, 95% CI: 0.80, 1.48).

Model 2 tested the risk for depression associated with family conflict and family cohesion,

adjusted for age, sex, marital status, education, living in poverty, years in the U.S. and race/ethnicity. The association between family cohesion scores and late-life depression remained significant (OR: 0.68, 95% CI: 0.55, 0.85) and family conflict scores remained insignificant.

Model 3 tested if relative support and friend support were confounders of the associations between family cohesion, family conflict, and depression. After adding relative support and friend support in Model 2, the odds for depression associated with family conflict and family cohesion changed little, suggesting that supports from relatives and friends are not confounders.

Model 4 tested if the associations between family conflict, family cohesion, and depression were modified by gender and race/ethnicity. Significant interactions were found between gender and family cohesion, and between being Filipino compared to Vietnamese and family cohesion in predicting depression. Figure 1 presents the differential effects of perceived family cohesion on late-life depression by gender. As family cohesion changed from low to high, compared to females, the slope for male older adults is steeper, indicating that the effect of family cohesion in reducing the probability of having depression is stronger for males than females in Latino and Asian older adult populations. Figure 2 presents the differential effects of perceived family cohesion on late-life depression between Vietnamese and Filipino older adults groups. In the Vietnamese group (and other cultural groups, no shown in this figure), as the family cohesion scores increased, the probability of having depression decreased. On the contrary, in the Filipino group, as the family cohesion scores increased, so did the probability of having depression.

7. Discussion

Family contexts and social supports have increasingly been examined as a possible explanation for differences in late-life depression that are found in multicultural populations⁶⁰. Most of the family research has linked the presence of positive family experience (high family

cohesion and low family conflict) with positive mental health outcomes. In the current analyses, family cohesion, but not family conflict, was significantly associated with late-life depression. These findings are partly consistent with findings from previous research in Latino and Asian American populations: depression is positively associated with family cohesion⁶¹⁻⁶⁴ and negatively associated with family conflict⁶⁴⁻⁶⁷. Moreover, in the current analyses, the association between social supports (relative support and friend support) and late-life depression were not statistically significant. This is inconsistent with findings of studies that show positive associations between self-rated mental health and social support^{66, 68}.

Such inconsistency may be due to how the outcomes of analyses were defined. Whereas most previous research examined self-rated mental health or psychological well-being, the current analyses examined late-life depression measured by WMH-CIDI⁵⁰, an instrument with a good concordance with DSM-IV and the Structured Clinical Interview for DSM-IV Axis I disorders. It is possible that social support may buffer individuals from psychological distress, but not enough to protect individuals from major depression, a serious clinical condition. Conversely, experiencing family conflict may decrease one's general psychological-well being, but not to the degree to cause depression. Further studies are needed to examine if a threshold level of family conflict and social support associated with depression can be established and to explain why there is robust inverse relationship between family cohesion and late-life depression in Latino and Asian older adult populations.

Another possible explanation for the discrepancy is that, contrast to previous studies that examined populations of all age, the current analyses was limited to older adult populations. Thus, the discrepancy may suggest that family processes and social support affect depression outcomes differently in different age groups. Another possible explanation is that, because of the

high level of negative correlation between family conflict scores and family cohesion scores ($r=-0.4406$, $p<0.0001$), the regression model might not be able to estimate an independent odds ratio for each one accurately.

Consistent with previous literature, however, was an unequal distribution of social supports among the eight Latino and Asian subgroups. These differences suggest that different cultural groups may assign differential degrees of importance to varying types of social networks and develop ways to compensate the absence/lack of support from one source. In other words, a particular type of individual family/social context is not equally important to everyone. In the current analyses, Vietnamese older adults reported greatest mean family cohesion scores and smallest mean friend support scores. Vietnamese older adults may put more emphasis on and receive support from spouse, immediate family, and relatives and thus, support from friends may become less important. Conversely, the historical context of Vietnamese immigration may also provide partial explanation for the unique distributions of family cohesion and social supports in this population. Unlike other ethnic groups, most Vietnamese older adults were forced to emigrate to U.S. because of the Vietnam War in 1970s. Having arrived in the United States as refugees, they can equipped with low levels of human and financial capital and with poorly established social networks⁶⁹. And the lack of support from friends may increase the emphasis on marriage and family cohesion.

Previous research has often concentrated on a somewhat simplistic relationship between family context and depression, without consideration how this relationship is modified by race/ethnicity, income, gender, and other relevant individual characteristics. We found a significant moderating effect of gender, with: men being more sensitive to family cohesion in relation to late-life depression than women. In contrast to this finding, Walton and Takeuchi⁶¹

concluded that family cohesion was instrumental in protecting psychological well-being of women but not men among Asian Americans. Two possible explanations for such discrepancies between the two studies are: 1) whereas the former examined a mixed aged sample, the latter examined an older adult sample, suggesting that the associations between family context and depression may be modified by age, and (2) the former used the Asian sample only, whereas the latter included both Asian and Latinos samples, suggesting that there may be residual confounding associated with race/ethnicity with regards to the associations between family cohesion and depression.

The variations in the association between family cohesion, family conflict, and social support and late-life depression in Latino and Asian older adults were not as great as expected. For example, all ethnic group members, except for Filipino older adults, benefited from the protective effects of family cohesion on the occurrence of late-life depression. Strong cultural emphasis on collective family life may function similarly in relation to late-life depression outcomes in older adults of various Asian and Latino subgroups. This finding highlights the limited value of information from aggregated racial group comparison (i.e., Asian vs. Latino) and urge that future investigations to focus on identifying meaningful differences and similarities of family dynamics among diverse cultural groups in minority populations.

8. Limitations and strengths

There are several limitations in this analysis. First, due to the cross-sectional nature of the NLAAS, causal inferences between family processes and late-life depression cannot be made. Moreover, the relationship between depression, family processes, and social supports may be bidirectional⁷⁰. Individuals with depression may be unable to engage with family in meaningful way or perceive the family less cohesively. Furthermore individuals with depression may

perceive their family more hostile and less cohesive, thus reporting greater family conflict scores and lesser family cohesion scores. Conversely, having a depressed member may decrease cohesiveness of the family. Second, although recommended sampling weights were used to calculate population estimates, the small number of observations in each ethnic subgroup may have decreased efficiency of our estimations. Consequently, several estimated regression coefficients had very wide confidence interval. Furthermore, certain groups were excluded from logistic regression modeling (e.g., never married group and other Asians) because of zero observations. Third, because other Asian and other Latino groups were composed of aggregated populations, the results of the current analyses can be applied only to older adults of Vietnamese, Chinese, Filipino, Cuban, Puerto Rican, and Mexican origin. Lastly, the current analyses report rates of depression as diagnosed by a CIDI administered by an interviewer. Although this tool has been used with multicultural populations and interviewers had gone through extensive training, some cultural factors may have affected the likelihood that a person answers 'yes' or 'no' on the questions presented on the structured interviews and may have created bias.

Despite the above limitations, the findings of current analyses add to our knowledge base in several ways. First, despite the increasing interest, few studies have documented the roles of family processes on late-life depression outcomes in multicultural older adult populations, such as Latino and Asian populations. Minority and immigrant older adults are a particularly vulnerable population. Second, we investigated late-life depression using a highly structured and previously validated instrument⁵⁰. Late-life depression is a serious public health concern and can be a serious clinical condition⁷¹. The majority of previous studies have explored psychological well-being. Findings of these studies may have limited implications for clinical practice. Thirdly, the current analyses directly compared Asian and Latino subgroups. This is a different approach

from existing literature where comparative analyses were conducted between aggregated Latino and Asian samples or among subgroups of segregated populations of Latino or Asian Americans. By directly comparing subgroups of Latino and Asian Americans, we have gathered more nuanced information about similarities and differences in population characteristics associated with socioeconomic status, immigration, family processes, social support, and late-life depression outcomes. For example, in contrast to general notions that ethnicity will modify the association between family contexts and depression, the results of the current analyses did not find a statistically significant modifying effect of ethnicity of itself in older adult populations.

9. Implications of the study findings

The findings of this study have substantial clinical and policy implications. Given the importance of family cohesion observed in the mental health of older Latino and Asian Americans, clinicians should consider assessing the perceived level of family cohesion when caring for Latino and Asian American older adults. Policy makers may consider ways to encourage and assist family-oriented mental health care as a culturally sensitive depression care for elderly Latino and Asian Americans. Meanwhile, given the significant ethnic differences in SES and rate of depression in current analyses, poorer ethnic communities and families need to be identified and resources need to be allocated to improve late-life depression outcomes.

Funding bodies should explore ways to support research with ethnic minority populations, such as over sampling of minority older adults in epidemiological studies. Researchers may try to find ways to pool observations with common variables from different studies to increase statistical power to reach meaningful conclusions. For such research to be feasible, the research community should establish gold standard measures and data should be made easily accessible to researchers.

10. Conclusions

The findings of the current analyses show that family cohesion has a robust inverse association with late-life depression in Latino and Asian older adult populations. The associations vary by gender, with men being more sensitive to family cohesion than women. In contrast to previous literature, ethnicity was not a strong effect modifier of the relationship between late-life depression and family cohesion. Moreover, family conflict and support from relatives and friends had limited impact on depression outcomes. Further research is needed to better understand the complex interplay between social support, ethnicity, and gender in predicting late-life depression.

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