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What Type of Social Support Influences Self-Reported Physical and Mental Health Among Older Women?

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Abstract

Objective—We examined which types of social support were associated with older women’s self-report of physical and mental health and whether the effects of social support were moderated by race/ethnicity.

Method—Women completed a health behavior survey that included the Medical Outcomes Study–Short Form–12 (MOS SF-12). Single race/ethnic group regressions examined whether different types of social support were related to health. We also examined Pratt’s relative importance measures.

Results—Emotional support had the strongest effect on both physical and mental health, explaining the highest amount of variation, except among African Americans. Race/ethnicity moderated the association of informational support for Asian women’s reports of their mental health.

Discussion—For clinicians, assessing individuals’ emotional support is important for maintaining or increasing physical and mental health. Clinicians can also assess Asian women’s stress, providing informational support accordingly as too much information could be detrimental to their health. For researchers, the inclusion of emotional support items is the most important.

Keywords

African American; Latino; Chinese; language; emotional support; ethnicity

Introduction

Social support refers to characteristics of a network available to an individual that might promote well-being and increase resistance to health problems (Cohen, Gottlieb, &

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Declaration of Conflicting Interests

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Underwood, 2000). Earlier work suggests that social support processes can positively influence an individual's physical and mental health (House, Landis, & Umberson, 1988). Past work has also shown that longer recovery times from illness and higher mortality rates are associated with less social support, having fewer contact with others, such as a married partner, friends, and relatives, belonging to a church group or other informal groups (Berkman & Syme, 1979). In part, individuals with larger social networks are more likely able to tap into different types of social support, such as tangible and emotional support (Seeman & Berkman, 1988; Seeman & McEwen, 1996). Higher levels of emotional support, in particular, are associated with more positive patterns of cognitive aging and active social engagement (Seeman, Lusignolo, Albert, & Berkman, 2001), as well as decreased levels of depression and increased physical functioning (Gurung, Taylor, & Seeman, 2003).

Two commonly known explanations arise from this body of work trying to explain the effect of social support on health. One commonly known explanation is the main effect hypothesis, where it is assumed that social support reduces mortality under all conditions (Loucks, Berkman, Gruenewald, & Seeman, 2006). As greater specificity of research has been achieved, variation in the associations between social support and mortality has become apparent. Some research has shown that emotional support in specific relationships (e.g., partner, child) is associated with decreased mortality and longer survival (Lyyra & Heikkinen, 2006), whereas other work has found no association between emotional support and mortality (Dalgard & Håheim, 1998) or that this type of support (e.g., living with a child or in an institution) could actually lead to decreased survival (Walter-Ginzburg, Blumstein, Chetrit, & Modan, 2002).

The second common explanation of the effect of social support on health is the stress buffering theory. This theory posits that social support has a significant and unique influence under conditions of stress. Past work using longitudinal data suggests that a negative relationship with a spouse and children predicted increased survival among those with a chronic disease (Birditt & Antonucci, 2008). Other work suggests that negative relationships, or low social support, may be beneficial in encouraging behavior change or improving health behaviors (Fung, Yeung, Li, & Lang, 2009).

Use of the main effects and stress buffering theories has led to greater attention to the type of social support and context in which it is provided. First, the availability of social support is especially important to women as they have a greater lifetime risk of developing a functional disability or multiple chronic conditions given their longer life expectancy. As women age, they also experience more social, financial, and cultural constraints (Lee Wha, Kim, & Young Joe, 2008). Older women, who make up more than 70% of the elderly poor (Bierman & Clancy, 2001), are more financially at risk because they have likely had less participation in the workforce and receive less support from their children compared with older men (Lee Wha et al., 2008).

Second, the type of social support likely depends on the situation and the health of the individual receiving the support (Litwak, Silverstein, Bengtson, & Hirst, 2003). Social support has often been categorized into different types of functional support, which is the degree to which interpersonal relationships serve particular functions (Cohen et al., 2000;

Cohen, Mermelstein, Kamarck, & Hoberman, 1985; Stewart, Ware, Sherbourne, & Wells, 1992). The functions most often cited are instrumental aid or tangible, information/ advice, emotional/companionship, and validation (Cohen et al., 2000). Tangible support refers to the provision of assistance for daily activities such as transportation and assistance with cooking, cleaning, and shopping. Informational support is related to the provision of advice or information about particular service needs. Emotional support/companionship refers to having a person express sympathy, caring, and acceptance of the individual. Emotional support is most often provided by a confidant(s) or intimates and can take the form of sharing activities such as going to movies, eating together, and shopping. More recent measurement work suggests that validation can be considered part of emotional support/companionship (Wong, Nordstokke, Gregorich, & Pérez-Stable, 2010). Financial support has also been found to be a separate dimension of social support, referring to assistance through monetary means, whereas House and colleagues (1988) refers to tangible and financial support as instrumental support. However, our prior work with women from diverse racial/ethnic backgrounds suggests that tangible and financial supports are two distinct types of support (Wong et al., 2010).

There is limited research identifying the type of social support that is most important to an individual's physical and mental health well-being and whether any effects of social support are moderated by race/ethnicity. In this study, we sought to examine the main effect of different types of social support on women's self-reported physical and mental health. We also examined whether race/ethnicity had a moderating effect, or buffered, on the relationship between social support and self-reported physical and mental health.

Our hypotheses are as follows:

Hypothesis 1—Different types of social supports are associated with women's self-reported physical and mental health (controlling for age—age when arriving in the United States—education level, income, and marital status).

Hypothesis 2—The relationship between the type of social support and physical or mental health is moderated by self-reported race/ethnicity.

Method

Sample

As part of a larger study examining the relationship between the perception of cancer risk and breast, colorectal, and cervical screening history, a total of 1,160 women were recruited from four primary care clinical sites in San Francisco; these sites included the University of California, San Francisco (UCSF), Medical Center (two general internal medicine, family medicine, and women's health), a community-based clinic in San Francisco's Chinatown, and the Community Health Network Clinics affiliated with San Francisco General Hospital (S. E. Kim et al., 2008). Participants had seen the same clinician for at least one visit in the previous 2 years, were between the ages of 50 and 80 years, and self-identified their race/ethnicity as non-Latino White, Latino, African American, or Asian; most Asian women self-identified their ethnic background as Chinese. Women spoke English, Spanish, or Chinese (Cantonese or Mandarin).

Study Procedures

A more detailed description of the study procedures can be found elsewhere (S. E. Kim et al., 2008). Briefly, a list of all potentially eligible women was generated from administrative data. Women's names were then submitted to clinicians listed who then returned the list with their approval to contact the women by mail and indicated which women ought not to be contacted or whom they did not know. We received consent from providers to send recruitment letters to 4,523 women. Approximately 20% ($n = 906$) of women were not reachable due to wrong telephone numbers or addresses and 19% ($n = 871$) were ineligible due to language barriers, severity of illness, or having left the primary care practice. Subsequently, personalized letters were mailed to each woman informing her about the study and requesting that a collaboration card be returned by checking a "not interested, do not call" box or an "interested, please call me" box. Contact letters were sent out in English, Spanish, or Chinese. Two weeks later, trained bilingual interviewers contacted women by telephone to complete a 20-min screening questionnaire. Our goal was to recruit approximately similar numbers of non-Latino White, Latino, African American, and Asian women and a significant number of limited English proficiency participants. We were able to contact 2,746 women and data were collected from a total of 1,137 (42%) non-Latino Whites, African Americans, Latinos, and Asians (mostly Chinese). Asian women who did not self-identify as Chinese ($n = 63$) were excluded due to their small sample size.

Women who participated in a baseline telephone survey were then asked to participate in a face-to-face interview in the language of their choice. Appointments were made to conduct the interview at the UCSF research office, a clinical site, or at home. Women received \$20 USD at the end of the interview. Institutional review boards at UCSF, San Francisco General Hospital, and the Chinatown clinic approved the study.

Measures and Outcomes

The survey included items derived from standard questions used in previous surveys and from formative focus groups and individual interviews (Denberg, Wong, & Beattie, 2005) completed as part of the larger study (S. E. Kim et al., 2008). The questionnaire was developed simultaneously in English, Spanish, and Chinese using bilingual experts and then pre-tested in each of the four ethnic groups, specifically testing the cultural, linguistic, and literacy appropriateness. Data collected from the surveys included sociodemographic characteristics (e.g., age, years of education, household income), personal and family history of cancer, use of cancer screening tests, risk perceptions of getting cervical, breast, or colon cancer, health status, social support, and interpersonal processes of care.

Main independent variable of interest: Social support—The original 22-item social support instrument (Wong et al., 2010) was first developed for use with older Koreans and Chinese (Wong, Yoo, & Stewart, 2005). It has subsequently shown adequate reliability and validity across multiple dimensions, including tangible (seven items), informational (four items), financial support (four items), and emotional/companionship (seven items; Wong et al., 2010). Responses were recorded using five ordered categories: "none of the time," "a little of time," "some of the time," "most of the time," and "all of the time." For this sample, Cronbach's internal consistency reliability was .95, .94, .95, and .94, respectively, for the

different social support dimensions. Factor analysis showed that correlations among the four dimensions ranged from .61 to .70 (Wong et al., 2010).

Covariates—Other potentially confounding variables included “age” (continuous), “education” (less than high school, high school/General Educational Development [GED], some college, or more), “marital status” (married or living with a partner, single, widowed, divorced), “income” (less than \$20,000 USD, \$20,000–\$39,999 USD, \$40,000 USD, or more), and “age upon immigrating to the United States” (continuous). The “age upon immigrating to the United States” variable was considered a proxy variable for acculturation.

Dependent variables of interest: Physical and mental health—The two outcome variables were physical and mental health. We used the Medical Outcomes Study–Short Form–12 (MOS SF-12) to measure a physical component score (PCS) and a mental component score (MCS; Ware, Kosinski, Turner-Bowker, & Gandek, 2002). The PCS and the MCS were obtained by a weighted sum of the eight subscale scores of the SF-12 (physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional, and mental health). It was rescaled according to the U.S. population norm of $M = 50$ and $SD = 10$, according to the MOS SF-12 user manual.

Data Analysis

We used SPSS 17.0 for our analyses. Regression models were conducted in each of the racial/ethnic groups separately, controlling for the five sociodemographic covariates (“age,” “education,” “income,” “marital status,” and “age upon immigrating to the United States”). The four types of social support were included in the regression models to study their associations with physical and mental health.

Next, for each ethnic group, the Pratt’s relative importance measures (Thomas, Hughes, & Zumbo, 1998; Wu, 2008) were used. The Pratt D measures the proportion of outcome variation conditionally explained by each regressor (Wu, 2008). In theory, individual D values should range from 0, if no outcome variation is explained by a regressor, to 1, if all outcome variation is explained by a regressor. In practice, values can sometimes be slightly negative or slightly greater than 1. The importance of the different types of social support to physical or mental health then can be ranked by comparing the D values across the social support types.

For each racial/ethnic group, the standardized slope coefficient (β), the corresponding p value of each covariate and type of social support, and the simple correlation (r) with the dependent variable of interest are reported. The proportion of explained variance attributable to each variable (Pratt’s D) and the proportion of the percentage of the overall regression model ($\%R^2$) of physical and mental health are reported.

Results

Our final sample size for this study was 1,074 women, with a response rate of 88% once women completed the telephone screener. Table 1 shows the sociodemographic characteristics of our sample. Over one third of the women were Asian (36.1%), followed by

non-Latino White (28.7%), Latino (20.7%), and African American (14.5%). The age of the women ranged from 50 to 80 ($M = 61.5$, $SD = 8.0$) with Latino women being significantly older than women from the other racial/ethnic groups. Sixty-four percent of the sample had a minimum of 12 years of education; non-Latino White women had significantly longer schooling (16.5 years) than all other race/ethnic groups. African Americans had significantly longer schooling than the Asians or Latinos (14.0 years vs. 10.0 years vs. 9.5 years, respectively). Overall, over half were married or living with a partner. Participants' age when arriving in the United States ranged from zero (born in the United States) to 77 years.

The multivariate regression results are reported in Tables 2 (physical health) and 3 (mental health).

Physical Health

Our results suggest that even after controlling for sociodemographic characteristics, emotional support was significantly and positively associated with women's report of physical health for Whites, Latinas, and Chinese, but not for African Americans. None of the other three types of support: tangible, financial, or informational, were significantly associated with women's report of physical health. The Pratt's D value for each model also confirmed that among the different types of support, emotional support was the most important type (see % Var in Table 2). Indeed, the percentage of variance attributable to emotional support varied across racial/ethnic groups. Forty-five percent of the variance in physical health scores for non-Latino White women can be attributed to the different types of social support, which is almost 20% for Latino and Asian women. These results suggest that the regression model fits best for White women and that there are likely factors other than social support, which are important to increasing physical health among African American, Latino, and Asian women.

Mental Health

Emotional support was also significantly and positively associated with women's report of mental health for each of the four racial/ethnic groups. Notably, informational support was also found to be significantly ($p = .01$) and negatively associated with Asian women's report of mental health. Similar to the results for physical health, the percentage of explained variation attributable to emotional support varied across the racial/ethnic groups (see Table 3). Emotional support was again ranked as the most important type of social support for mental health for all racial/ethnic groups. Almost 85% of the variance in mental health scores for non-Latino White women can be attributed to the different types of social support. The percentage of variance attributed to different types of social support was similarly high for African Americans (81.1%), followed by Asian (73.7%) and Latino (70.9%) women. Although it appears that the regression model fits best for White women, this percentage of explained variation for the other racial/ethnic groups suggests that mental health scores are mostly explained by types of social support.

Discussion

This study examined the relationship of different types of social support on self-reported physical and mental health. To our knowledge, this is the first study to examine different types of social support and their relationship to physical and mental health among women from diverse racial/ethnic backgrounds. Emotional support had a main effect for most women on both physical and mental health, explaining the highest amount of outcome variation compared with other types of social support.

Emotional support for most women in this sample was ranked the most important and significant type of social support for both physical and mental health outcomes. It was surprising that there was not a statistically significant effect between emotional support and physical health for African American women. Generally, women obtain emotional support from their social support network, which is thought to influence physiological stress responses, psychological states, and traits such as self-esteem, health-damaging and health-promoting behavior, and exposure to diseases (Holwerda et al., 2014). Clearly, for African American women, more work is needed to examine what factors are associated with physical health since neither emotional support nor any other type of support was significantly associated with this health outcome.

Our second hypothesis was to examine whether different types of social support were moderated by race/ethnicity. The statistically significant negative association between informational support and mental health for Asian women suggests that this kind of support was moderated by race/ethnicity. The negative effect of informational support among Asian women on mental health was an unexpected finding. It could be that cultural values play a role in how support is perceived or, in keeping with the stress buffering theory, less informational support for Asian women could improve their mental health under conditions of stress. Although we did not measure women's stress, past work in the area of communicating to older Asians about a serious illness (e.g., cancer) has shown that sharing little to no information is preferred (Tong & Spicer, 1994; Yick & Gupta, 2002). For these Asian women, too much information about a situation or accepting informational assistance about a personal problem could be a stressor or burden that affects their health. Indirect, implicit, or nonverbal communication for some Asian women can minimize the burden of knowledge and serve to minimize any dampening effect on positive or optimistic feelings (I. J. Kim, Kim, & Kelly, 2006). These results confirm that not all types of social support are beneficial for all women (Berkman & Glass, 2000). More work is needed to examine whether informational support from different types of people (e.g., partner, child, friend) is more beneficial for Asian women, in particular.

Despite the unique contributions of this study, these results have several limitations. These results may not be generalizable to men or other racial/ethnic groups because data were collected in San Francisco where there are high concentrations of Latino, African American, and Chinese women. These data were collected in three languages that included Spanish, Chinese, and English from a large sample of older women. It is important to note, however, that these models were derived from a clinical sample in an exploratory manner, and further research attempting to replicate them is required. These cross-sectional data allow us to

examine associations between social support and health. Longitudinal data would allow for examination of whether social support predicts changes in physical or mental health outcomes. Moreover, additional data on relevant variables (e.g., multi-morbidity) that could influence women's physical and mental health outcomes were not measured as part of the larger study.

Both the main effects and stress buffering theories have utility in trying to explain the relationship between social support and health. Our work provides some evidence that it is not only the type of social support but also the racial/ethnic background of women that influences health in different ways. Emotional support has a main effect on physical and mental health for most women. In addition, being Asian and having less informational support can potentially increase behaviors that serve to increase their mental health.

Our work suggests that emotional support is an important type of social support when considering women's physical and mental health, although more work is needed to understand which factors influence the relationship between emotional support and physical health for African American women. For clinicians, these findings suggest that assessing individuals' emotional support could be important for maintaining or increasing physical and mental health; for older women, self-reports of physical and mental health are important factors in predicting participation in physical exercise (Parikh, Fahs, Shelley, & Yerneni, 2009). Clinicians working in primary care and public health could incorporate new methods of delivering care that have patients engaging with each other to provide emotional support. One example of care delivery that incorporates emotional support is group medical visits (GMVs), which provide comprehensive clinical services in a group format that provide opportunities for peer learning and mutual support (Lavoie et al., 2013). The stress buffering theory would suggest that clinicians could also assess Asian women's stress and provide informational support accordingly as too much information could be detrimental to their health. For researchers, examining social support and its relationship to health and health outcomes, including items that measure emotional support, are most important.

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References

- Berkman, LF.; Glass, T. Social integration, social networks, social support, and health. In: Berkman, LF.; Kawachi, I., editors. *Social epidemiology*. New York, NY: Oxford University Press; 2000. p. 137-173.
- Berkman LF, Syme C. Social network, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology*. 1979; 109:196–204.

- Bierman AS, Clancy CM. Health disparities among older women: Identifying opportunities to improve quality of care and optimize functional health outcomes. *Journal of the American Medical Women's Association*. 2001; 56:155–160.
- Birditt K, Antonucci TC. Life sustaining irritations? Relationship quality and mortality in the context of chronic illness. *Social Science & Medicine*. 2008; 67:1291–1299. [PubMed: 18662845]
- Cohen, S.; Gottlieb, BH.; Underwood, LG. Social relationships and health. In: Cohen, S.; Underwood, LG.; Gottlieb, BH., editors. *Social support measurement and intervention*. New York, NY: Oxford University Press; 2000. p. 3-28.
- Cohen, S.; Mermelstein, R.; Kamarck, T.; Hoberman, HM. Measuring the functional components of social support. In: Sarason, IG.; Sarason, BR., editors. *Social support: Theory, research and applications*. The Hague, The Netherlands: Martinus Nijhoff; 1985. p. 73-94.
- Dalgard OS, Håheim LL. Psychosocial risk factors and mortality: A prospective study with special focus on social support, social participation, and locus of control in Norway. *Journal of Epidemiology & Community Health*. 1998; 52(8):476–481. DOI: 10.1136/jech.52.8.476 [PubMed: 9876357]
- Denberg TD, Wong ST, Beattie A. Women's misconceptions about cancer screening: Implications for informed decision-making. *Patient Education and Counseling*. 2005; 57:280–285. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0738399104002320>. [PubMed: 15893209]
- Fung HH, Yeung DY, Li KK, Lang FR. Benefits of negative social exchanges for emotional closeness. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*. 2009; 64:612–621. DOI: 10.1093/geronb/gbp065
- Gurung RAR, Taylor SE, Seeman TE. Accounting for changes in social support among married older adults: Insights from the MacArthur studies of successful aging. *Psychology and Aging*. 2003; 18:487–496. [PubMed: 14518810]
- Holwerda TJ, Deeg DJH, Beekman ATF, van Tilburg TG, Stek ML, Jonker C, Schoevers RA. Feelings of loneliness, but not social isolation, predict dementia onset: Results from the Amsterdam Study of the Elderly (AMSTEL). *Journal of Neurology, Neurosurgery & Psychiatry*. 2014; 85(2):135–142. DOI: 10.1136/jnnp-2012-302755
- House JS, Landis KR, Umberson D. Social relationships and health. *Science*. 1988; 241:540–545. [PubMed: 3399889]
- Kim IJ, Kim LIC, Kelly JG. Developing cultural competence in working with Korean immigrant families. *Journal of Community Psychology*. 2006; 34:149–165. DOI: 10.1002/jcop.20093
- Kim SE, Perez-Stable EJ, Wong ST, Gregorich S, Sawaya GF, Walsh JME, Kaplan CP. Association between cancer risk perception and screening behavior among diverse women. *Archives of Internal Medicine*. 2008; 168:728–734. DOI: 10.1001/archinte.168.7.728 [PubMed: 18413555]
- Lavoie JG, Wong ST, Chongo M, Browne AJ, MacLeod MLP, Ulrich C. Group medical visits can deliver on patient-centred care objectives: Results from a qualitative study. *BMC Health Services Research*. 2013; 13:Article 155.doi: 10.1186/1472-6963-13-155 [PubMed: 23627609]
- Lee Wha T, Kim S, Young Joe S. Changing healthcare issues and context for elderly women in Asia: Implications for a research agenda for nursing. *Nursing Outlook*. 2008; 56:303–313.
- Litwak, E.; Silverstein, M.; Bengtson, VL.; Hirst, YW. Theories about families, organizations, and social supports. In: Bengtson, VL.; Lowenstein, A., editors. *Global aging and challenges to families*. Hawthorne, NY: Aldine de Gruyter; 2003. p. 27-53.
- Loucks EB, Berkman LF, Gruenewald TL, Seeman TE. Relation of social integration to inflammatory marker concentrations in men and women 70 to 79 years. *The American Journal of Cardiology*. 2006; 97:1010–1016. DOI: 10.1016/j.amjcard.2005.10.043 [PubMed: 16563907]
- Lyrra T, Heikkinen R. Perceived social support and mortality in older people. *Journal of Gerontology: Social Sciences*. 2006; 61B:S147–S152.
- Parikh NS, Fahs MC, Shelley D, Yerneni R. Health behaviors of older Chinese adults living in New York City. *Journal of Community Health*. 2009; 34:6–15. DOI: 10.1007/s10900-008-9125-5 [PubMed: 18830807]
- Seeman TE, Berkman LF. Structural characteristics of social networks and their relationship with social support in the elderly: Who provides support. *Social Science & Medicine*. 1988; 26:737–749. [PubMed: 3358145]

- Seeman TE, Lusignolo TM, Albert M, Berkman LF. Social relationships, social support, and patterns of cognitive aging in health, high-functioning older adults: MacArthur studies of successful aging. *Health Psychology*. 2001; 20:243–255. [PubMed: 11515736]
- Seeman TE, McEwen BS. Social environment characteristics and neuroendocrine functions: The impact of social ties and support on neuroendocrine regulation. *Psychosomatic Medicine*. 1996; 58:459–471. [PubMed: 8902897]
- Stewart, AL.; Ware, JEJ.; Sherbourne, CD.; Wells, KB. Psychological distress/well-being and cognitive functioning measures. In: Stewart, AL.; Ware, JE., editors. *Measuring functioning and well-being: The medical outcomes study approach*. Durham, NC: Duke University Press; 1992. p. 102-142.
- Thomas DR, Hughes E, Zumbo BD. On variable importance in linear regression. *Social Indicators Research*. 1998; 45:253–275. DOI: 10.2307/27522344
- Tong KL, Spicer BJ. The Chinese palliative patient and family in North America: A cultural perspective. *Journal of Palliative Care*. 1994; 10:26–28. [PubMed: 7518506]
- Walter-Ginzburg A, Blumstein T, Chetrit A, Modan B. Social factors and mortality in the old-old in Israel: The CALAS study. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*. 2002; 57:S308–S318. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12198110>.
- Ware, JEJ.; Kosinski, M.; Turner-Bowker, DM.; Gandek, B. *Health Survey*. Lincoln, RI: QualityMetric; 2002. How to score Version 2 of the SF-12v2®.
- Wong ST, Nordstokke D, Gregorich S, Pérez-Stable EJ. Measurement of social support across women from four ethnic groups: Evidence of factorial invariance. *Journal of Cross-Cultural Gerontology*. 2010; 25:45–58. DOI: 10.1007/s10823-010-9111-0 [PubMed: 20182911]
- Wong ST, Yoo GJ, Stewart AL. Examining types of social support and actual sources of support in older Chinese and Korean immigrants. *International Journal of Health and Human Development*. 2005; 61:105–121.
- Wu, ADL. *Pratt's importance measures in factor analysis: A new technique for interpreting oblique factor models*. Vancouver; British Columbia, Canada: 2008. Retrieved from <http://hdl.handle.net/2429/2333>
- Yick AG, Gupta R. Chinese cultural dimensions of death, dying, and bereavement: Focus group findings. *Journal of Cultural Diversity*. 2002; 9:32–42. [PubMed: 12226932]

Table 1

Sociodemographic and Self-Reported Health Characteristics of Women.

	African American (<i>n</i> = 159)	Latino (<i>n</i> = 236)	Chinese (<i>n</i> = 353)	Non-Latino White (<i>n</i> = 326)	Total (<i>n</i> = 1,074)
Age, <i>M</i> (<i>SD</i>)	60.8 (7.8)	63.6 (8.8)***	60.6 (7.2)	60.7 (7.5)	61.5 (7.9)
Parity, <i>n</i> (%)					
No previous children	18 (11)***	38 (16)***	28 (8)***	127 (38)	224 (19)
One child or more	149 (89)	200 (84)	325 (92)	210 (62)	933 (81)
Married or living with partner, <i>n</i> (%)	49 (30)***	92 (39)**	258 (73)***	175 (52)	610 (53)
Education, <i>n</i> (%)					
Less than high school	23 (14)***	140 (59)***	242 (68)***	6 (2)	414 (36)
High school graduation	39 (23)	30 (12)	48 (14)	13 (4)	137 (12)
Some college or higher	105 (63)	69 (29)	63 (18)	318 (94)	608 (52)
Income, <i>n</i> (%)					
\$20,000 USD	63 (39)***	116 (50)***	189 (54)***	60 (18)	437 (38)
\$20,001–\$50,000 USD	53 (32)	79 (34)	123 (35)	80 (24)	357 (31)
>\$50,000 USD	48 (29)	38 (16)	40 (11)	195 (58)	352 (31)
Employment status, <i>n</i> (%)					
Working full time	38 (24)***	29 (13)***	30 (9)***	114 (36)	229 (21)
Working part time	10 (6)	39 (17)	54 (15)	46 (15)	154 (14)
Not working	17 (11)	33 (14)	130 (38)	26 (8)	212 (19)
Retired	44 (28)	78 (34)	100 (29)	101 (32)	352 (32)
Disability	49 (31)	49 (22)	31 (9)	28 (9)	160 (14)
Insurance type, <i>n</i> (%)					
Private insurance	85 (52)***	81 (35)***	81 (24)***	252 (76)	548 (49)
Public insurance	68 (41)	109 (47)	106 (31)	70 (21)	365 (32)
Uninsured	11 (7)	42 (18)	152 (45)	11 (3)	217 (19)
Health status, <i>n</i> (%)					
Poor	20 (12)***	34 (14)***	83 (24)***	16 (5)	156 (13)
Fair	59 (35)	109 (46)	143 (41)	45 (13)	377 (33)
Good	57 (34)	63 (26)	97 (27)	103 (31)	344 (30)
Very good/ excellent	31 (19)	33 (14)	30 (8)	172 (51)	281 (24)

Language survey completed, <i>n</i> (%)	African American (<i>n</i> = 159)	Latino (<i>n</i> = 236)	Chinese (<i>n</i> = 353)	Non-Latino White (<i>n</i> = 326)	Total (<i>n</i> = 1,074)
English	167 (100)	58 (24)	28 (8)	337 (99.7)	651 (56)
Chinese	0 (0)	0 (0)	325 (92)	0 (0)	327 (28)
Spanish	0 (0)	179 (76)	0 (0)	1 (0.3)	180 (16)
Born in the US, <i>n</i> (%) (for foreign-born)	165 (99)**	24 (10)***	14 (4)***	294 (87)	22.3 (14.4)
Number of years in US: Mean (SD)	56	14.6 (8.9)***	29.8 (14.2)*	31.1 (13.4)	
Physical Component Scale (8 items, possible range 0–100): Mean (SD)	39 (12.4)***	39 (11.6)***	41 (10.7)***	48 (11.5)	42 (12.0)
Mental Component Scale (8 items, possible range 0–100): Mean (SD)	49 (12.1)	49 (9.0)	46 (13.2)***	50 (9.4)	49 (10.6)

Note. Significantly different from on-Latino White at * $p < .05$, ** $p < .01$, *** $p < .001$ level.

Table 2
 Cross-Ethnic Comparison of Different Types of Social Support for Physical Health Among Women.

	Non-Latino White				African American				Latino				Chinese							
	β	<i>p</i>	<i>r</i>	% <i>R</i> ²	β	<i>p</i>	<i>r</i>	% <i>R</i> ²	β	<i>p</i>	<i>r</i>	% <i>R</i> ²	β	<i>p</i>	<i>r</i>	% <i>R</i> ²				
Controlled variables																				
Age	-.11	.07	-.15	1.54	6.96	.02	.79	-.06	-1.07	-1.07	-.28	<.01	-.32	9.00	60.30	-.14	.01	-.21	2.92	21.80
Age when arriving in United States	-.17	<.01	-.21	3.68	16.62	-.10	.28	.01	-0.10	-0.73	.02	.75	-.12	-0.29	-1.93	-.14	.02	-.27	3.73	27.85
Education	.16	.01	.22	3.52	15.87	.31	<.01	.30	9.18	68.22	.13	.07	.19	2.55	17.11	.16	<.01	.22	3.54	26.39
Marital status	.14	.05	.25	3.45	15.56	.16	.09	.20	3.22	23.95	.05	.48	.15	0.79	5.29	.06	.21	.09	0.55	4.13
Social support variables																				
Tangible	-.10	.28	.22	-2.25	-10.13	.00	.98	.04	0.01	0.11	-.10	.37	-.02	0.24	1.61	-.12	.07	-.03	0.30	2.22
Informational	.16	.06	.31	4.97	22.42	-.02	.85	.03	-0.07	-0.50	.06	.60	.02	0.13	0.84	-.02	.76	.07	-0.15	-1.10
Financial	.03	.77	.27	0.69	3.12	.02	.88	.11	0.20	1.48	-.14	.16	-.03	0.41	2.77	.01	.89	.09	0.08	0.60
Emotional	.20	.02	.33	6.55	29.57	.09	.42	.13	1.15	8.55	.20	.04	.11	2.09	14.00	.15	.02	.17	2.43	18.11
% Var and % <i>R</i> ² only for social support variables				9.97	44.98				1.30	9.64			2.87	19.22				2.66	19.82	
% Var and % <i>R</i> ² for all variables				22.16	100				13.45	100			14.92	100				13.41	100	

Note. “ β ” denotes the standardized regression coefficient; “*p*” denotes the *p* value for β . *p* values for β .05 are boldfaced. “*r*” is the Pearson correlation; “% Var” is the percentage of observed variance attributable to each (and a set) of the predictors, and “%*R*²” denotes the percentage of *R*² attributable to each (and a set) of the predictors. The second last row sums the % Var and %*R*² and attributable to the set of four social support predictors. The last row sums the % Var and %*R*² attributable to four social support predictors and age, age when arriving in United States, education, and marital status.

Table 3
 Cross-Ethnic Comparison of Importance of Different Types of Social Support for Mental Health Among Women.

	Non-Latino White				African American				Latino				Chinese							
	β	<i>p</i>	<i>r</i>	% <i>R</i> ²	β	<i>p</i>	<i>r</i>	% <i>R</i> ²	β	<i>p</i>	<i>r</i>	% <i>R</i> ²	β	<i>p</i>	<i>r</i>	% <i>R</i> ²				
Controlled variables																				
Age	.08	.21	.05	0.40	2.64	.17	.05	.20	3.36	13.24	.18	.02	.14	2.41	19.27	.10	.08	.04	0.37	6.08
Age when arriving in United States	-.07	.28	-.07	0.43	2.89	-.05	.58	.03	-0.13	-0.52	.00	.97	-.01	0.00	0.02	-.12	.05	-.10	1.17	19.04
Education	.00	.95	.04	-0.02	-0.12	.14	.10	.12	1.67	6.57	.05	.54	.05	0.23	1.80	-.04	.45	.01	-0.06	-0.95
Marriage	.07	.32	.20	1.49	9.90	-.02	.80	.04	-0.09	-0.37	.11	.15	.09	1.00	7.99	.04	.47	.03	0.13	2.16
Social support variables																				
Tangible	.05	.60	.30	1.54	10.22	-.15	.22	.15	-2.27	-8.93	.04	.73	.20	0.77	6.12	-.01	.84	.04	-0.05	-0.88
Informational	.08	.40	.30	2.28	15.13	.11	.34	.23	2.38	9.38	-.09	.43	.16	-1.37	-10.98	-.20	.01	-.01	0.11	1.84
Financial	.01	.93	.28	0.22	1.45	-.01	.92	.22	-0.23	-0.92	-.05	.60	.14	-0.74	-5.90	.12	.06	.13	1.59	25.87
Emotional	.24	.01	.36	8.72	57.88	.46	<.01	.45	20.72	81.54	.34	<.01	.30	10.21	81.66	.18	.01	.16	2.89	46.89
% Var and % <i>R</i> ² only for social support variables				12.75	84.69				20.60	81.07				8.86	70.91				4.54	73.72
% Var and % <i>R</i> ² for all variables				15.06	100				25.41	100				12.50	100				6.16	100

Note. " β " denotes the standardized regression coefficient; "*p*" denotes the *p* value for β ; *p* values for β .05 are boldfaced. "*r*" is the Pearson correlation; "% Var" is the percentage of observed variance attributable to each (and a set) of the predictors, and "%*R*²" denotes the percentage of *R*² attributable to each (and a set) of the predictors. The second last row sums the % Var and %*R*² attributable to the set of four social support predictors. The last row sums the % Var and %*R*² attributable to four social support predictors and age, age when arriving in United States, education, and marital status.