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Longitudinal Study of Stress, Social Support, and Depression In Married Arab Immigrant Women

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Abstract

Using a stress and social support framework, this study explored the trajectory of depression in 388 married Arab immigrant women. The women provided three panels of data approximately 18 months apart. Depression at Time 3 was regressed on Time 1 depression, socio-demographic variables, and rate of change over time in stress and social support. The regression model was significant and accounted for 41.16% of the variation in Time 3 depression scores. Time 1 depression, English reading ability, husband's employment status, and changes over time in immigration demands, daily hassles, and social support from friends were associated with Time 3 Depression.

War, sectarian conflict, and poverty have prompted Arab immigration to European and American countries. In the U.S., there are approximately one million Arab immigrants and about one fourth are women (Asi & Beaulieu, 2013; Brittingham & de la Cruz, 2005). Like many other immigrant groups (Aroian, 2001; Fazel, Wheeler, & Danesh, 2005), Arab immigrant women have a high incidence of depression (Amer & Hovey, 2007; Authors, & Ullah, 2015; Hassounah & Kulwicki, 2007; Jamil et al., 2008; Wrobel & Paterson, 2014). Prevention and early intervention of depression in Arab immigrant women requires developing group-specific explanatory models of depression.

In a previous study, we employed a theoretical framework of stress and social support (Cohen, Underwood, & Gottlieb, 2000; Taylor, 2007) and used cross-sectional data to investigate an explanatory model that determined the relationship between socio-demographic risk, two classes of stress (i.e., immigration demands and daily hassles), three sources of social support (i.e., husband, family, and friends) and depression in married Arab immigrant women (Authors et al., 2015). Immigration demands, followed by daily hassles and husband support, explained most of the variance in these women's depression; greater immigration demands and daily hassles contributed significantly to higher depression and

more husband support contributed significantly to lower depression. Given the likelihood that the stress and social support are not immutable and change with adaptation to resettlement, the present study includes longitudinal data to further explore the trajectory of depression in these women.

Explanatory Models of Depression in Immigrant Women

Explanatory models for depression in immigrant women typically include socio-demographic risk and one or more classifications of stress (Aroian, 2001; Dunn & O'Brien, 2010; Mourad & Carolan, 2010; Torres & Wallace, 2013). Common socio-demographic risk variables include age, marital status, education, and income, but demographic risk typically explains less variance in depression once stressors are taken into account (Aroian & Norris, 2003).

Two classifications of stress are of particular interest – immigration-specific stressors and daily hassles. Immigration is a major stressful life event that sets off a cascade of stressors that are unique to migration and resettlement, such as language, novelty, and not feeling at home (Aroian, 1990; Ayers et al., 2009; Yakhnich, 2008). Another classification of stress is daily hassles. Daily hassles are microstressors or everyday problems in various life domains (e.g., family, health, money, work) that are experienced by general as well as immigrant populations (Kanner, Coyne, Schaefer, & Lazarus, 1981). The general stress literature suggests that daily hassles contribute more to depression than other classifications of stress because daily hassles are ubiquitous and occur often (McIntosh, Gillanders, & Rodgers, 2010; Wagner, Compass, & Howell, 1988). In contrast, immigration-specific stressors are presumably time limited and likely at their highest during early resettlement. Yet, there is evidence that immigration demands are long lasting in some immigrants and when this is the case, their depression persists beyond early resettlement or worsens over time (Aroian & Norris, 2003).

Many explanatory models of immigrant women's depression also include social support (Ayers et al., 2009; Dunn & O'Brien, 2009; Levitt, Lane, & Levitt, 2005; Miller, Sorokin, & Fogg, 2013; Remmenick, 2005). Social support includes material as well as emotional support and has two dimensions – perceived and actual/enacted support. Together these dimensions include both the perception that others can be relied upon for support if needed and the actuality of receiving support (Cohen et al., 2000).

A vast body of literature suggests that the mitigating effect of social support on depression is not limited to immigrants (Cohen et al., 2000; Hinrichsen & Emery, 2005; Martire & Schulz, 2007; Talley & Crews, 2007). However, social support is of interest to the field of immigration and mental health for reasons that correspond with its actual and perceived dimensions. First, the process of immigration and resettlement restricts access to actual social support because important sources are left behind in the homeland and language and cultural barriers interfere with acquiring new sources in the resettlement country (Wrobel, Farrag, & Hymes, 2009). The perceived dimension of social support is also pertinent to the field because perceptions are shaped by cultural expectations about role relationships. For example, immigrants from collectively oriented societies expect family rather than

nonfamily to provide them with social support when needed (Mulvaney-Day, Alegría, & Sribney, 2007; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988; Yeh, Arora, & Wu, 2006). Because of this expectation, social support from family may be more effective than social support from nonfamily for mitigating depression.

However, the effect of different sources of social support on immigrant women's depression has received scant attention. We could locate only one study that differentiated social support by source and it pertained to the special case of foreign brides in transnational-brokered marriages (Chae, Park, & Kang, 2014). This study reported mean social support scores for each of the sources under study, but used the total social support score to investigate the relationship between social support and depression. This approach obscured determining whether support from a particular source was accounting for more of the variance in the women's depression. Also, the special case of foreign brides in transnational-brokered marriages may not apply to Arab immigrant women since Arab immigrant women typically emigrate as wives in nuclear families (Aloud & Rathur, 2009; Brittingham & de la Cruz, 2005). The collective nature of Arab culture (Beitin & Aprahamian, 2014) and life circumstances surrounding Arab immigration makes Arab immigrant women a special case that warrants investigation.

Arab Culture and Immigrant Women's Life Circumstances of

Most Arab immigrant women live in ethnic enclaves with other Arab immigrants and these ethnic enclaves are reminiscent of and reinforce Arab cultural values and norms from their homeland (Kayyali, 2006). Although there is considerable variability in how cultural norms are embraced, scholars on Arab culture typify traditional Arab culture as hierarchical and collective in social orientation (Awad, Martinez, & Amer, 2013; Beitin & Aprahamian, 2014; Reed, 2004). Family, including extended family, is the most important social unit. Marriage is an expectation, gender roles are segmented, and the dominant role for women is wife and mother (Cainkar & Reed, 2014). Although marital relationships are undergoing change in the Arab world (Beitin & Aprahamian, 2014), the nuclear family structure and reliance on spousal support that is the norm in Euro-American countries is not traditional in Arab culture. Extended family, rather than spouse, is the traditional source of social support for married Arab women (Aloud & Rathur, 2009).

Statistics about Arab American households and labor force participation suggest that norms pertaining to marital status and segmented gender roles also persist post-migration. More specifically, Arab Americans are more likely to be married and living in married households than non Arab Americans and Arab American women are less likely to be participating in the labor force than non Arab American women (Asi & Beaulieu, 2013; Brittingham & de la Cruz, 2005).

Arab immigrants' lives are also colored by pervasive discrimination (Awad, 2010; Nassar-McMillan, Lambert, & Hakim-Larson, 2011). The media in non Arab countries routinely portrays Arabs negatively and Arab immigrants regularly encounter discrimination when interacting with people who don't share their ethnic identity. Arab Muslim women in non Arab countries are more frequently targeted for interpersonal discrimination than Arab men

because their traditional dress is a visible marker of their identity (Aroian, 2012; Awad, 2010).

These cultural features and life circumstances likely shape access to and perceptions of social support in number of ways. Although husband and friend support may be available in the resettlement country due to marriage and living in an Arab enclave, support from these sources may not be effective in preventing or alleviating depression if they are perceived as a poor substitute for family support. Living in an Arab enclave, limited participation in the labor force, language barriers, and discrimination also restrict Arab immigrant women's exposure to new norms about acceptable sources of social support. For example, discrimination likely limits both opportunity and desire for inter-cultural communication.

Findings from our previous study were somewhat consistent with these assumptions about how culture and life circumstances influence which sources of social support are effective for mitigating the women's depression. The women in the previous study were all living in metropolitan Detroit, one of the largest Arab immigrant communities in the U.S. (Akhtar, 2015, 2006; Schopmeyer, 2000). At the time of data collection, they were, on average, in the U.S. for 8.25 years (S.D. = 4.21). They reported high levels of husband, family, and friend support, most likely because of the number of years they had been residing in this large Arab immigrant community. Unexpectedly, however, husband support was the only social support variable that was significantly related to depression (Authors et al., 2015). We reasoned that the women had acculturated to the nuclear family structure that dominates in U.S mainstream culture but not yet relinquished Arab cultural norms about the division between family and nonfamily.

The Present Study

The focus of the present study was to use three waves of longitudinal data to test an explanatory model for the women's depression. The independent variables were depression at Time 1, socio-demographic variables from Time 3, and the rate of change in the stress and social support variables between Times 1, 2, and 3. The socio-demographic variables included the woman's age, number of children, education, country of origin, immigration status, employment, English speaking and reading ability, and her husband's education and employment status.

We hypothesized the following: (H1) Depression at Time 1 will be positively associated with Depression at Time 3. (H2) An increased rate of change over time in both stress classifications – daily hassles and immigrations demands – will contribute to higher depression at Time 3. (H3) An increased rate of change over time in all three sources of social support – husbands, friends, and family – will contribute to lower depression at Time 3.

Methods

Participants

The sample was married Arab immigrant women who provided data at all three time points. Of the 538 participants who provided data at Time 1, 72% met this criterion, yielding a sample of 388 women for the longitudinal analyses. English speaking ability and writing ability were not criteria for study participation because data were collected verbally in the participant's language of preference (i.e., English or Arabic). The majority of women (97%) chose Arabic.

The most frequent reason for attrition was refusing further participation, which included scheduling difficulty. Given repeated attempts to accommodate scheduling difficulty, we interpreted it as a "polite" form of refusal. The second most frequent reason for attrition was due to moving out of the study area. Only 7% of the attrition was due to not being able to locate the participant. Participants lost to follow-up were compared to the participants remaining in the study at Time 3 on all of the study variables. There were no significant differences in any of the study variables for the group who was lost to the study and those who remained in the analysis except that the Demands of Immigration score was significantly lower at Time 1 for the women who did not participate further (0.96 vs. 1.08, $p = .009$). This was a somewhat small effect ($\eta^2 = 0.26$).

The study site was metropolitan Detroit, an area in the Midwestern United States with a large, ethnically dense population of Arab immigrant families which has been described by local cultural experts as highly traditional (Author, Katz, & Kulwicki, 2006). To participate, the women had to self-identify as Arab and have emigrated since 1989, which marked the beginning of large local influx of Arab immigrants from the first Gulf war.

The sample was recruited purposively through network sampling by 12 Arabic-speaking research assistants who were also Arab immigrants living and working in the local Arab community. The research assistants were purposefully selected to be representative of the countries of origin for the local study population so that recruitment from their networks would yield similar representation. The research assistants verbally advertised the study and recruited interested participants during informal day-to-day contact with Arab immigrants. See Author and colleagues (2006) for further details about recruitment.

All of the women were Muslim, which is characteristic of Arab immigration during the study period (Kayyali, 2006). Table 1 displays the additional demographic and migration characteristics of the sample. Mothers' average age reflects the fact that the women were part of a larger study on mother-child adjustment (Author, Templin, Hough, Ramaswamy, & Katz, 2011) and that only women with a child between the ages of 11 to 15 at Time 1 were eligible for participation in the larger study. The number of women who were married and/or reported homemaker as their employment status is consistent with traditional Muslim expectations for Arab women (Beitin & Aprahamian, 2014).

Instruments

The measures for the study variables included a demographic and migration questionnaire, the Demands of Immigration Scale (DIS; Aroian, Tran, & Schappler-Morris, 1998), the Daily Hassles Scale (DHS; Kanner et al., 1981), an adapted version of the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) – the MSPSS-AW (Aroian, Templin, & Ramaswamy, 2010) – and the Center for Epidemiological Depression Scale (CES-D; Radloff, 1977). Arabic language versions of the measures were developed through translation, back translation, and committee consensus. Translation was symmetrical, aiming at loyalty of meaning and equal familiarity in both languages (Werner & Campbell, 1970). A committee of five bilingual immigrants from the primary countries of origin for study population (i.e., Lebanon, Iraq, and Yemen) further evaluated the translation, resolving disagreement and achieving consensus before accepting the final version. Although there are different dialects of Arabic, the committee was able to reach consensus on terms that would be understandable to the local study population. See Author (2013) for more detail.

The Demands of Immigration Scale (DIS) measures immigration related stressors about loss, not feeling at home, novelty, occupation, language, and discrimination (Aroian et al., 1998). Respondents rate along a 6-point scale ranging from *not at all* (0) to *very much* (5), the extent to which they had been distressed within the last 3 months by each of the stated demands. A “*not applicable*” option, also rated as zero, was available for those who did not have work experience outside of the home. A mean total score was calculated by summing the 23 items in the scale. A higher score indicated greater exposure to immigration related stressors. The reliability and validity of the DIS has been established with various immigrant groups, including Arabs (Aroian et al., 1998; Aroian, 2003; Aroian, Kaskiri, & Templin, 2008).

The Daily Hassles Scale (DHS) measures everyday problems with family, health, money, neighbors, work, and other areas of daily life (Kanner et al., 1981). In this study, we added a potential everyday hassle for Muslim women - religious obligations. Although religion is not typically conceptualized as a hassle, the obligations it incurs can be, such as when religious obligations involve preparing special meals and entertaining guests. In addition, we omitted an item about alcohol use because asking about it can be viewed as an affront to religious group that prohibits it (Carolan, Bagherinia, Juhari, Himelright, & Mouton-Sanders, 2000). Each hassle was measured on a 4-point scale, ranging from *did not happen or was not annoying* (0) to *extremely annoying* (3). The total score was calculated by summing ratings for all of the items. High scores on both measures indicate greater exposure to stressors.

Perceived adequacy of social support from husband, family members other than husband, and friends was measured by the MSPSS-AW (Aroian et al., 2010). The MSPSS-AW was an adapted version of the original Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988). The original MSPSS assesses perceived adequacy of support from family, friends, and a “special person,” which was intended to refer to a particularly close relationship that could be of a romantic nature. In the MSPSS-AW, “husband” was substituted for “special person.” With regard to the Family subscale, respondents were instructed that husband was to be considered separately from other family members. The

original 7-point scale ranging from *very strongly disagree* (1) to *very strongly agree* (7) was modified to 3 points. Arabs, like select other ethnic groups (Hui & Triandis, 1989; Marin & Marin, 1991), are less likely to use middle response categories when presented with this many options. The three points were coded *disagree* (1), *neutral* (4), and *agree* (7) to maintain comparability with prior versions of the scale. High scores indicated more social support. The revised version had excellent construct and concurrent validity (Aroian et al., 2010).

Depression was measured by the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). The CES-D assesses the presence of depressive symptoms based upon how respondents felt during the prior week. Items were scored from 0 (*rarely*) to 3 (*most or all of the time*), with a high score reflecting increased depressive symptomatology. The CES-D has documented reliability and validity with Arabs (Ghubash, Daradkeh, Al-Naseri, Al-Bloushi, & Al-Daheri, 2000).

The demographic and migration questionnaire asked about the woman's age, number of children, family income, country of origin, English reading and speaking ability, immigrant status (refugee, non refugee), and the woman's and her husband's employment and education.

Procedure

Bilingual research assistants collected the data in the participants' homes. Informed consent was obtained at the first data collection appointment (Time 1) and included consent for subsequent time points (i.e., Times 2 and 3). Participants were verbally asked to respond to the demographic and migration questionnaire, the DIS (Aroian et al., 1998), DHS (Kanner et al., 1981), MSPSS-AW (Aroian et al., 2010), and the CES-D (Radloff, 1977). They were given \$60 each time they participated.

Data Analysis

Regression analysis was used to identify the explanatory variables that predict women's Time 3 depression. Depression at Time 3 was regressed on Depression at Time 1, socio-demographic variables from Time 3, and rate of change in the stress and social support variables over the three time periods. The rates of change in the stress and social support variables over time was calculated by using the slope of the corresponding linear regression lines for each of stress and social support variables with time as the independent variable. The slopes were calculated with three time points except in cases with missing data. When data were missing (Friend support, $n = 1$; Husband support, $n = 10$), the slopes were calculated with two instead of three time points. To meet statistical assumptions required for multiple regression (i.e., normal distribution and constant variance), depression scores at Time 1 and 3 were transformed to their square root values.

Each of the independent variables was evaluated first using univariate analyses (i.e., correlation, t-test, ANOVA) to identify potential predictor variables for the multiple regression analysis. Correlation analyses of continuous variables and Chi-square tests of associations of pairs of categorical variables were carried out to check for multicollinearity among independent variables (see Table 2). All variables found significant under the

univariate analyses were included in the multivariate model. A stepwise variable selection procedure was utilized to identify all significant predictors of depression scores at Time 3.

Findings

The mean rate of change over the approximately three-year study period for the stress and social support variables are displayed in Table 3. The rate of change was significant for all of the stress and social support variables except for Husband support. As indicated by the negative slopes for the DIS and DHS scores, both types of stressors decreased significantly over time. However, the decreases in both variables were small. As indicated by the positive slopes for Family and Friend support, social support from these two sources increased significantly over time.

Univariate Analyses

Univariate analyses with each of the independent variables reveals that Time 1 Depression was the most significantly positively associated predictor variable of Time 3 Depression, explaining 33% of the variation in the transformed depression scores at Time 3. Other independent variables that were found to be significantly associated with Time 3 Depression under the univariate analyses were the woman's country of origin ($p < .001$), immigration status ($p = .001$), age ($p = .013$), education ($p = .032$), ability to read English ($p < .001$), ability to speak English ($p < .001$), change in immigration demands ($p = .024$), change in friend support ($p = .002$), and her husband's education ($p < .001$) and employment status ($p < .001$). Not significantly associated with Time 3 Depression were the women's employment status ($p = .574$), length of time in the U.S. ($p = .983$), number of children ($p = .243$), change in total support ($p = .050$), change in husband support ($p = .517$), change in family support ($p = .968$), and change in daily hassles ($p = .051$).

Multivariate Regression

The residual analysis revealed no significant departure from normality (Shapiro-Wilk $W = .997$, $p = .731$). However, five observations were detected to be outliers and influential observations and were deleted prior to final run of the regression model.

The regression model was significant ($F(6, 379) = 45.88$, $p < .001$) and accounted for 41.16% (R-square = .421, Adj-R-square = .412) of the variation in the transformed Time 3 Depression scores. Time 1 Depression; changes in immigration demands, daily hassles, and friend support; ability to read English, and husband's employment status were associated with Time 3 Depression (see Table 4). The negative beta coefficients for ability to read English and changes in friend support indicate that these variables, when adjusted for all of the other variables, contributed to lower depression scores at Time 3. The positive beta coefficients for Time 1 Depression, change in immigration demands, change in daily hassles, and husband's employment status indicate these variables, when adjusted for all of the other variables, contributed to higher Time 3 depression scores. These findings suggest that women with increased friend support and ability to read English were, on average, less depressed at Time 3. Women with increased immigration demands and daily hassles and women with retired or disabled or unemployed husbands who are not looking for work were,

on average, more depressed than other women, given the same values for other independent variables.

Discussion

Two of the three study hypotheses were supported and the third was partially supported by the study findings: Depression at Time 1 was positively associated with depression at Time 3 and an increased rate of change over time in daily hassles and immigrations demands contributed to higher depression at Time 3. However, the hypothesis about the influence of husband, family, and friend support on depression was only partially supported. An increased rate of change over time in friend support contributed to lower depression at Time 3. However, changes over time in support from husband and support from family were not significant predictors of depression at Time 3. Of the socio-demographic variables, only two contributed significantly to the women's Time 3 depression – English reading ability and husband's employment status. When adjusted for all other variables, women who were able to read English at Time 3, on average, reported lower depression at Time 3 and women with unemployed husbands who were not looking for work at Time 3, on average, reported higher depression at Time 3. The premise for undertaking the longitudinal analyses, that is that immigrant women's stress and social support are not immutable but change over time, was also upheld. Over the course of the approximately three-year study period, the women, on average, reported a significant decrease in daily hassles and immigration demands and a significant increase in social support from family and friends.

The contribution of Time 1 Depression to Time 3 Depression is not surprising, particularly if the women's prior depression was not treated or resolved between Time 1 and Time 3. The relationship between immigration demands, daily hassles, and depression is also not surprising given that numerous studies have found a relationship between stress and depression in general as well as immigrant populations (Aroian, 2001; Capielo, Delgado-Romero, & Stewart, 2015; Fried, Nesse, Guille, & Sen, 2015; Hammen, 2005; Mazure, 1998). Yet, few studies have investigated the influence of different classifications of stress over time on immigrants' emotional status. In our study, both DIS scores and DHS scores, on average, decreased significantly over the three-year study period, but the changes were very small. At the last data collection point, the women had been living in the U.S., on average, for 11.7 years (SD = 4.33). The small decrease in immigration demands over the study period suggests that Arab immigrant women, on average, are not resolving their immigration difficulties even after living in the U.S. for 7 to 16 years. On the other hand, the small change over time in daily hassles fits the conceptualization of daily hassles as ubiquitous and occurring regularly (Kanner et al., 1981). Nonetheless, ongoing immigration demands related to novelty, occupation, language, discrimination, loss, and not feeling at home may generate the regular occurrence of daily hassles. For example, novelty with how things are done in the U.S. can generate daily hassles like “trouble making decisions.”

Change in husband support was not a significant predictor of Time 3 Depression but husband support was significant in the cross-sectional study (Authors et al., 2015). In fact, husband support was the only source of social support that contributed significantly to depression in that study. However, Time 1 scores for husband support were at the top of the

range of possible scores and most likely ceiling effects restricted the possible rate of change in this variable. The significant relationship between increased friend support over time and lower Time 3 depression is consistent with literature describing friends as fictive kin for immigrants (Ebaugh & Curry, 2000). The potential for friends to become “like family” requires time for intimacy to develop, which likely explains both the increase in friend support over the study period as well as the significance of this variable for Time 3 Depression. Findings about friend support also suggest a loosening of Arab cultural values about the dominance of family over friends. The insignificance of family support for Time 3 depression is consistent with findings from the cross sectional study (i.e., Time 1 Family Support was not significantly related to Time 1 Depression; Authors et al., 2015). The explanation for the insignificance of family support is more tentative. We did not inquire about whether reports of family support pertained to people residing in the homeland or resettlement country. If the former, family members may not have been able to provide support relevant to the women’s resettlement experiences. If the latter, the women may have felt conflicted about receiving social support from family members who were also likely burdened by their own immigration demands.

The contribution of English language skills to immigrants’ adjustment and emotional status has been documented in many immigrant groups (Bhattacharya & Schoppelrey, 2004; Hovey & Magaña, 2002; Mills & Henretta, 2001), including Arabs (Ajrouch & Jamal, 2007; Wroebel et al, 2009). However, it is noteworthy that English reading ability, but not English speaking ability, was significantly associated with depression at Time 3 in our study. English reading ability is considerably more complicated for Arabs than speaking ability because reading English requires mastering a different alphabet and reading in a different direction (i.e., from left to right, whereas Arabic is read from right to left). In the cross-sectional study (Authors et al., 2015), English speaking ability, but not English reading ability, was significantly associated with depression at Time 1. Perhaps the shared variance between English speaking ability and Time 1 Depression masked the unique contribution of English speaking ability to Time 3 Depression. (Time 1 Depression and English speaking ability were both independent variables in the longitudinal regression analyses.) On the other hand, reading ability may be of greater import later in resettlement because it decreases feeling alienated or isolated and enables participating more widely in American society (Ajrouch, 2007; Wrobel & Paterson, 2014). For example, reading ability allows shopping in mainstream stores and passing citizenship and driving tests.

Only 14.43% of the women in this study reported full or part time employment, which reflects Arab cultural values about gender role segmentation, specifically for women to devote their attention to domestic activities while husbands function as the breadwinner (Cainkar & Reed, 2014). This cultural expectation may explain the significance of husband’s employment status at Time 3 for the women’s depression. However, post hoc analyses of husband’s employment status revealed that “unemployed and *not looking for work*” was the category contributing to the women’s Time 3 Depression. Almost one fourth (22.74%) of the husbands who were in this category were retired or on medical leave or disability. Perhaps being unemployed and not looking for work functioned, in part, as a proxy for having a husband in poor or declining health. One would expect that husbands’ poor health increases

women's risk for depression irrespective of cultural expectations about men's role as breadwinner.

The strength of this study was its longitudinal design, but a number of limitations also warrant mentioning. Recruiting the sample from metropolitan Detroit, an area known for its large population of immigrants from the most recent wave of Arab immigration (Akhtar, 2015, 2006; Schopmeyer, 2000), enabled recruiting a large sample of relatively recent Arab immigrant women and focusing on a period of resettlement when stress trajectories and sources of social support were expected to change. However the study location and focus on relatively recent immigrants restricts generalizing the study findings to other locations and waves of Arab immigrants. In all likelihood, the dense population of relatively recent Arab immigrants in metropolitan Detroit afforded good opportunities for deriving friend support from co-ethnics without having to negotiate language barriers. Social support deficits are likely to be greater in less dense Arab American communities. The criterion of 1989 as the earliest possible year of emigration for study participation also limits generalizing the study findings to Arab immigrants from earlier waves of migration. The most recent wave of Arab immigrants to the U.S. are primarily Muslim, traditional in cultural orientation, fleeing war and political violence, and less educated than other Arab Americans (Abu Ras, 2009; El-Arby Aly & Ragan, 2010; Wingfield, 2006). Another limitation of the study is that the women were paid \$60 each time they participated in the study. This incentive, along with the study focus on immigrant adjustment, may have biased the sample toward women who were seeking assistance for poor financial conditions or emotional distress. Unfortunately, we did not collect information, demographic or otherwise, about the women who declined study participation. However, this potential for bias is consistent with our finding that women who did not participate beyond the first data collection had, on average, significantly lower demands of immigration at Time 1.

Despite study limitations, findings suggest that resettlement efforts should be geared towards helping Arab immigrant women learn how to read as well as speak English. Detecting and treating depression early in resettlement is particularly important given the study finding that Time 1 Depression was the strongest predictor of Time 3 Depression. However, healthcare providers should continue to assess Arab immigrant women for depression risk well into the first decade or decade and a half of resettlement. In addition to English reading ability, women with unemployed husbands who are not looking for work (including those who are retired or on medical leave or disability) as well as women with high immigration demands and daily hassles and low levels of social support from friends should be considered at risk for longstanding depression.

Ongoing political conflicts in the Arab world continue to prompt growth in Arab immigration, making future research about Arab immigrant women a priority. Our study findings raise the need to investigate the conditions that prolong immigration demands past the first few years of resettlement so that resettlement policies and early intervention programs can be developed to shorten their trajectory. How different sources of social support develop over time and how to increase their capacity to reduce Arab immigrant women's risk for depression is another important area for inquiry. Presently, little is known about the mechanisms that underlie the relationship between social support and emotional

status (Feeney & Collins, 2015) and even known less is known about how social support operates in context with individualism and collectivism (Chang, 2015). However, this understanding is essential for optimizing the salutogenic potential of social relationships in Arab immigrant women.

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Table 1

Socio-Demographic Characteristics of Participants (N =388)

Variable	M (SD) or %
Woman's age (years)	42.97 (5.92)
Number of Children	4.39 (1.69)
Country of origin:	
Iraq	44.27
Lebanon	36.46
Yemen	11.2
Other Arab Country ^a	8.07
Length of time in U.S. (years)	11.07 (4.33)
Immigration status:	
Refugee	44.59
Immigrant	47.16
Tourist, student, or work visa	8.25
Woman's Education	
Less than high school	64.59
High school and some college	27.03
College Degree	8.38
Woman's employment	
Homemakers	85.53
Employed full or part time	14.47
Husband's education	
Less than High School	50.54
High school and some college	30.00
College Degree	19.46
Husband's employment	
Full or Part time	62.27
Unemployed	14.99
Other ^b	22.74
English Speaking Ability	
Yes	20.67
A Little	37.21
No	42.21
English Reading Ability	
Yes	25.06
A Little	33.59
No	41.34
Family income ^c	
< 20,000	71.43
20–60,000	26.14
> 60,000	2.43

^a = Jordan, Kuwait, Egypt, Morocco, Saudi Arabia, Palestine, Syria, or the United Arab Emirates.

^b = Retired, medical leave, or disabled.

^c Percent based on women who reported family income, n = 305.

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Table 2

Correlations among continuous variables.

Variables	Time 3 Depression	Time 1 Depression	Friend Support	Husband Support	Family Support	Total Support	DH	DI	Length in USA	Age
Time 3 Depression										
T1 Depression	.58**									
Friend Support	-.16**	-.08								
Husband Support	-.03	-.00	-.05							
Family Support	-.00	.00	.33**	.03						
Total Support	-.10*	-.02	.76**	.32**	.74**					
DH	.10	-.15**	-.04	-.05	-.03	-.06				
DI	.11*	-.13*	.04	-.05	.04	.03	.29**			
Length in USA	-.00	.05	.07	-.07	.03	.04	.01	.07		
Age	.13*	.10	.00	.02	.02	.01	-.02	-.04	-.03	
# of children	.06	.04	-.04	-.09	.03	-.04	.04	-.02	.05	-.11*

Note: DI = Demands of immigration; DH = Daily hassles.

* P < .05,

** P < .01.

Table 3

Mean change in stress and social support scores.

Variable	Mean (SD)
Demands of Immigration	-0.005(0.013) *
Daily Hassles	-0.003(0.011) *
Friend Support ^a	0.009(0.062) *
Family Support	0.013(0.051) *
Husband Support ^b	-0.002(0.036)
Total Support	0.007(0.034) *

Note: Change scores () measured by regression slopes of each variable, with time as the independent variable.

N = 387 unless indicated otherwise.

^aN = 386;

^bN = 377.

* $P < .01$.

Table 4

Multiple Regression Analysis of Time 3 Depression.

Variables	Mean (SD) or %	Parameter (B) Estimate	Standardized Estimate (β)	VIF	Semi-Partial R ²
T3 Depression	0.856 (0.355)				
T1 Depression **	0.915(0.326)	0.60	0.55	1.16	.26
Friend Support *	0.009 (0.062)	-0.58	-0.10	1.01	.01
DI **	-0.005(0.013)	4.11	0.15	1.10	.02
DH *	-0.003(0.011)	3.77	0.12	1.13	.01
Husband's Employment ^a	29.72% (1) 70.28%(0)	0.07	0.09	1.11	.01
Reads English ^b *	58.66% (1) 41.34% (0)	-0.08	-0.12	1.12	.01
Intercept		0.37		Total Unique	.32
				R ²	.42
				Adj-R ²	.41

^a coded as 1 if unemployed and not looking for job, disabled, retired, or on medical leave, and as 0 if employed full/part-time, or unemployed but looking.

^b coded as 1 if read/write at least a little English, and as 0 if do not read/write English.

* $P < .01$,

** $P < .001$.