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DEMOGRAPHIC CHARACTERISTICS, MENOPAUSAL STATUS, AND DEPRESSION IN MIDLIFE IMMIGRANT WOMEN

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The purpose of this cross-sectional analysis is to examine symptoms of depressed mood in relation to age, menopausal status, and length of residence in the United States in midlife women who are recent immigrants from the former Soviet Union. Data for this analysis are from a longitudinal study of the impact of acculturation on postimmigration health status and psychological well-being. The mean score for the Center for Epidemiological Studies-Depression (CES-D) scale was 23.56, with 77.3% of the women obtaining a score greater than the usual screening cutoff score for referral. Women taking antidepressant medications had a mean score of 30.52. CES-D scores varied significantly by age group. The lowest CES-D scores were reported by women aged 40–50, and women aged 55–60 had significantly higher scores than younger women and those over 65 years old. Total CES-D scores did not vary significantly by length of residence in United States or use of hormone therapy. Regression analysis indicated that even when use of antidepressant medication was held constant, age and residence in the United States were significant independent contributors to CES-D score: women who were older, had lived fewer years in the United States, and those who took antidepressants had higher CES-D scores. Cultural and immigration-related explanations for high scores on the depression scale are suggested.

Introduction

An extensive epidemiological literature has demonstrated that depression is more prevalent for women than men in the United States, with women reporting symptoms of depressed mood approximately twice as often (Kessler et al., 1994). The gender difference in reported distribution of depression appears to be fairly consistent across ethnicities in this and other countries (Culbertson, 1997). Research findings regarding age in relation to depression are inconsistent, however. Population studies report positive relationships between age and symptoms (Gatz & Hurwicz, 1990), no relationship between age and symptoms (Dorfman, Lubben, & Meyer-Oakes, 1995), or a negative relationship, with a relatively low incidence of depression in the elderly (Kessler et al., 1994).

An increase in psychological symptoms during the transition before menopause has been described, and a decrease in symptoms has been found for postmenopausal women (Wilbur et al., 1998; Freeman et al., 2004). Developmental issues and appropriate timing of events are important culturally defined components of psychological well-being. The multiple family and social roles experienced during midlife in the context of stressful lives have an impact on symptom development (Miller et al., 1998), and stressful life events have been shown to be more important contributors to depression during midlife than physiological changes due to the menopausal transition (Woods & Mitchell, 1997).

A particularly vulnerable group includes midlife and older immigrant women, who tend to have high levels of psychological distress, particularly in the years just following immigration (Tran et al., 1996). Immigrants from the former Soviet Union (FSU) comprise a relatively little-known group that has been found to report even higher scores on depression

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scales than immigrants from some other countries (Gutkovich et al., 1999; Aroian et al., 1998; Miller & Chandler, 2002). Part of a large wave of immigrants who left the FSU following its dissolution in 1989, more than 25% of former Soviet immigrants to the United States during the past decade were women over 50 years old (Schmidley, 2003).

Higher levels of depression have been found for midlife and older immigrant women than for those in the general population. Identifying patterns in the way depressive symptoms are reported in high-risk ethnic groups is important for identifying demographic and cultural differences in postimmigration distress. The purpose of this study is to examine symptoms of depressed mood in relation to age, menopausal status, and length of residence in midlife women from the FSU.

Age, menopausal status, and depression in women

The tendency for women to report symptoms of depression more frequently than men holds across age groups, though the differential decreases with older age (Barefoot et al, 2001; Ried & Planas, 2002). Although there seems to be consensus that major depression rates are higher in younger women than in elderly women (Jeste et al., 1999), Ried and Planas (2002) report increasing symptom levels as women age in relation to declining self-reported health status. Mirowsky and Ross (1992) identified a decrease in levels of depressive symptoms in midlife at around age 45, with increasing levels of symptoms occurring after age 60–65. On the other hand, older adults were found to experience fewer or less intense symptoms than younger adults when marital status, income, and disability were held constant (Gatz & Hurwicz, 1990).

Newmann et al. (1996) propose two distinct depression syndromes, one of which ("depletion syndrome") is more common in the elderly. They suggest that depression in younger adults differs from the profile of symptoms usually reported by the elderly, who emphasize symptoms of loneliness, lack of energy, and sleep disturbance. This is consistent with findings by Christensen et al. (1999), who found an inverse relationship between age and depression but differences in endorsement of symptom items for older respondents even when they had scores for depression similar to young adults. These findings may also be consistent with recent findings that younger women responded with higher remission rates to selected antidepressant medications than older women, though the authors suggest that a hormonal interaction may contribute to antidepressant response (Grigoriadis, Kennedy, & Bagby, 2003). Most studies do not control for the use of antidepressant medication when examining demographic factors related to depression scores.

Despite studies that suggest that women taking estrogen therapy are less depressed (K. Miller et al., 2002), hormonal changes have not been directly related to psychiatric morbidity. Nevertheless, many women experience disturbances in mood during midlife. For some, an increase in psychological symptoms was found during perimenopause with fewer symptoms in postmenopausal women (Wilbur et al., 1998). Many studies of perimenopausal women use samples drawn from clinical populations that may be biased in that they consist of women who are seeking treatment, particularly hormonal therapy. Busch, Zonderman, and Costra (1994) found no increase in depression in nonclinical samples using screening questionnaires. Similarly, Matthews et al. (1990) did not find an increase in depressive symptoms over a 2-year period in women experiencing a natural menopause. The loss of the reproductive role appears to be relatively unproblematic to most middle-aged women, and physiological changes related to menopause have not been shown to directly affect depressed mood (Woods & Mitchell, 1997).

Immigration and depression

Depression is one of the most serious health problems experienced by immigrants. Similar to findings in the general population, studies of immigrants tend to find more psychological distress in women than in men (Ritsner et al., 2001). Contrary to general population studies, however, age is a more consistent correlate of psychological symptoms in immigrants, and people who immigrate during or after their midlife years tend to have greater distress. With few exceptions, older immigrants from the FSU were found to have more difficulty adapting than younger immigrants (Birman & Tyler, 1994; Ritsner & Ponizovsky, 1999).

Depression is a particularly serious problem for immigrant women. Asian- and Mexican-American women have been shown to have high rates of depressive symptoms (Shin, 1994; Salgado de Snyder, Cervantes, & Padilla, 1990). For example, Kim and Rew (1994) report that half of their sample reported scores above the usual cutoff for referral using the Center for Epidemiological Studies—Depression (CES-D) Scale, a well-established depression screening instrument. Women from the FSU living in the United States and Israel have also been found to have high depression scores (Miller & Gross, 2004). In a study of midlife women who were recent immigrants to the United States from the FSU, Miller and Chandler (2002) found that close to 84% of the sample scored over the established CES-D cutoff point. Older age was a significant independent predictor of depression as were lower English usage, lower psychological resilience, and greater immigration demands.

In addition to age and age at immigration, length of residence in the new country has been found to be an important demographic consideration in the study of

depression in immigrants. Most frequently, lower depression scores have been found with longer length of time in the host country, and this is believed to be related to acculturation (Kim & Rew, 1994). However, length of residence per se is not always significantly related to depression (Miller & Chandler, 2002), and some studies report an increase in psychological symptoms over time in immigrants (Pickwell, 1999).

Although the relationships among age, menopausal status, and depression remain inconclusive in the general population, midlife and older immigrant women have been shown to be more vulnerable to depressive symptoms compared to community samples of nonminority women. Women from the FSU report scores on depression instruments that are particularly high. In addition, length of residence also has an inconsistent relationship with depression for some immigrants. Relationships among depression, demographic characteristics, menopausal status, and related factors such as hormone and antidepressant use have not been established in this immigrant group. This study was conducted to address the following questions in this sample of midlife women from the former Soviet Union: (1)Do scores on the CES-D differ by age, length of residence, menopausal status, and hormone replacement or antidepressant therapy? (2) Which of these factors contribute to high levels of depression in this population?

Methods

Design

Data for this cross-sectional analysis are from the Chicago Health after Immigration (CHAI) Project, a longitudinal study of the influence of acculturation, family adaptation, and health behavior on postimmigration health status and psychological well-being. Baseline data are used.

Participants

This analysis includes data for 220 women for whom all baseline measures were complete. Eligibility criteria for the parent study include women who were 40–70 years old, had emigrated from the FSU fewer than 8 years prior to enrollment and who were married with at least one child living in the United States. This volunteer sample was recruited from the community through advertisements in a Russian-language newspaper, English as second language classes, posters in neighborhood businesses, and network sampling. The women resided in both urban and suburban neighborhoods. The study was approved by the Institutional Review Board of the investigators' university.

Procedures

Appointments were made by native Russian-speaking research assistants, who screened women for eligibility over the telephone and invited them to participate if appropriate. Data were collected individually in the participants' homes or in small groups that met in community meeting places. Questionnaires were self-administered under the supervision of the bilingual research assistants. Completion of the questionnaires took approximately 2–3 hours and included information regarding acculturation, individual and family adaptation, and physical health status. Data were collected at baseline and three annual rounds. Self-report and physical data used to determine cardiovascular risk status have been reported elsewhere (Miller et al., 2003; Miller et al., 2004).

Instruments and measures

Self-report of menstrual cycles over the past 12 months was used to determine menopausal status following criteria suggested by McKinlay, Brambilla, and Posner (1992). Women who reported regular menses within the past 12 months were designated as being premenopausal; those who reported menstruating during the past 12 months but having irregular periods were designated as perimenopausal; and women who reported no menses over the past 12 months with no surgical intervention were designated as postmenopausal. Women who reported a hysterectomy or oophorectomy were placed in a surgical postmenopause category. Specific medication information, including hormone and antidepressant therapy, was also obtained by self-report.

Depressed mood was measured by the CES-D scale, a 20-item self-report screening instrument developed for community samples (Radloff, 1977). It has been shown to be a sensitive tool for detecting depressive symptoms in the general population, as well as in psychiatric populations. The instrument is scored using a 4-point Likert scale (0 = rarely or none of the time to 3 = most or all the time) to respond to items that indicate how they felt or behaved in the past few weeks, with a possible range of 0–60. A score of 16 has been designated as a cutoff score to indicate clinical depression or the need for referral for further evaluation.

Translation of this scale into Russian using the committee method has been described elsewhere (Miller & Chandler, 2002). Focus groups following the translation of the instrument suggested that the items were felt to be conceptually sound by Russian-speaking immigrant women of similar age and background to those in this study. Cronbach's alpha was 0.90, similar to the general population and clinical psychiatric samples reported by Radloff (1977).

Data analysis

Descriptive statistics were generated for demographic data, menopausal status, medication use, and scores on the CES-D scale. Frequency distributions of the individual items on the CES-D scale were also obtained. Analyses of variance were conducted to identify differences in the total CES-D by age, menopausal status, length of residence, and medication groups. Finally, a multiple regression model was calculated to identify predictors of total CES-D scores using baseline demographic characteristics, menopausal status, and use of medication.

Results

The mean age of the women in the sample was 56.50 (standard deviation [SD] 8.39), and the mean number of years they had lived in the United States was 3.39 (SD 2.28). Demographic characteristics, menopausal status, and use of therapeutic medications are summarized in Table 1. Education levels were high: 55 (25.2%) had completed general, specialized, or technical secondary school and 162 (74%) had completed a degree at a university or institute. At the time of recruitment, 85 (38.6%) of the women were employed full- or part-time, 70 (31.8%) received retirement or disability benefits, and 65 (29.6%) were unemployed. The majority of the women listed their primary nationality/religion as Jewish (135; 61.4%), and most had emigrated from the Ukraine (90; 40.9%), Russia (68; 30.9%), and Belarus (30; 13.6%). This distribution is consistent with the places of origin for immigrants from the FSU to this country.

Consistent with the age distribution of the sample, more than half of the women had experienced natural menopause and 31 (14%) had surgical menopause. The mean age at natural menopause was 50.90 years (SD 3.90; range: 39–57), and this is similar to other reports in European and American samples. The women who had surgical menopause were aged 40–69, and only three were aged 50 or less. Of the 166 peri- and postmenopausal women, only 20 (12%) were taking female hormones. Twenty-nine (13.2%) of the women reported taking antidepressant medications.

The mean score for the CES-D was 23.56 (SD 9.74), with 77.3% of the women obtaining a score greater than 16. Scores ranged from 2–50. There was a relatively symmetrical distribution of scores; the median score was 23.00. Examination of the individual items on the scale indicated that in spite of high overall scores for the CES-D, 93% of the women reported that they enjoyed life at least some of the time in the past 2 weeks. Also, 91% reported that they felt happy at least some of the time, and the same percent reported that they felt sad at least some of the time as well. Eighty percent of the women reported that they talked less than usual at least some of the time. The item endorsed the least, "people were unfriendly," was reported by only 42%.

Table 1. Demographic characteristics, menopausal status, and medication use (n = 220)

	n	%
Age group		
40–45	26	11.8
45–50	32	14.5
50–55	35	15.9
55–60	29	13.3
60–65	65	29.5
65–70	33	15.0
Length of residence (years)		
0–2	71	32.3
2–4	59	26.8
4–6	59	26.8
6–8	31	14.1
Education level		
Less than high school	2	.9
General, specialized, or technical secondary school	55	25.2
University or institute	162	74.0
Employment status		
Employed full or part-time	85	38.6
Retired or on disability	70	31.8
Unemployed	65	29.6
Nationality		
Jewish	135	61.4
Russian, Ukrainian, other	85	38.6
Menopausal status		
Premenopausal	54	24.5
Perimenopausal	17	7.8
Postmenopausal—natural	118	53.6
Postmenopausal—surgical	31	14.1
Hormone therapy		
Yes	20	9.1
No	200	98.9
Antidepressant medication		
Yes	29	13.2
No	191	86.8

The total CES-D scores varied significantly by age group ($F = 5.58$; df 5, 214; $p < .001$). Post hoc tests (least significant difference, LSD) indicated that the 45- to 50-year-old age group, which had the lowest mean CES-D score, differed significantly from all other groups except the 40- to 45-year-old group. The 55- to 60-year-old age group had the highest mean score and, although not significantly different from the 60- to 65-year-old age group, was significantly higher than the two younger groups as well as the group of women 65–70 years old.

In addition, total CES-D scores varied significantly by menopausal status ($F = 5.58$; df 3, 216; $p < .01$. Post hoc tests (LSD) indicated that the premenopausal women differed significantly from both natural and surgical postmenopausal groups. Postmenopausal women had significantly higher scores on the depression scale than premenopausal women; perimeno-

Table 2. Multiple regression of CES-D scores on age, length of residence, and medication groups (n = 220)

	Beta	p
Age	0.252	<.01
Time in United States	−0.598	<.04
Taking female hormones	2.203	.31
Taking antidepressants	7.259	<.01
R^2	0.139	
Adjusted R^2	0.123	
F (4, 212)	8.548	<.01

pausal women did not differ significantly from any of the other groups.

CES-D scores did not vary significantly by length of time in the United States categorized into four groups, nor was there a significant difference in total CES-D scores between women who were taking female hormones versus those who were not. Women who reported taking antidepressant medications had significantly higher CES-D scores than women who were not (30.52 versus 22.51 respectively) (F = 18.38; df 1, 218; $p < .001$). The women who were taking antidepressant medications were significantly older than those who were not; mean age of women taking antidepressants was 60.60 (SD 5.24) compared to mean age of 55.88 (SD 8.60) for women who were not taking antidepressants.

A multiple regression analysis for total CES-D scores was performed. The best fitting model indicated that with age, residence in United States, hormone and antidepressant medication groups in the equation, all of these except hormone use were significant predictors of CES-D score. Women who were older, had lived fewer years in the United States, and those who took antidepressants had higher CES-D scores. This model accounted for 12% of the variance in total CES-D scores and was significant ($p = .000$; Table 2). As expected because of the high covariance of age and menopausal status, addition of menopausal status variables to the regression analysis obscured the impact of age and did not explain additional variance.

Discussion

As reported previously in this and other samples of immigrants from the FSU, the scores for CES-D were high in comparison to established norms in the United States (Miller & Chandler, 2002; Miller & Gross, 2004; Miller et al., 2004). In addition, the shape of the sample distribution suggests that this group of immigrant women does not resemble a normative U.S. sample.

Radloff (1977) reports a mean for her community sample of 9.25 (SD 8.56), with 19% over 16, and the mean for a clinical psychiatric sample of 24.42 (SD 13.51), with 70% of the clinical sample scoring over 16. In addition, she found that the distribution of scores for the general population were very skewed with a smaller standard deviation and a larger proportion of low scores than in psychiatric patient groups, which had a symmetrical distribution and a large standard deviation. Our distribution was similar to the latter, with a relatively normal (i.e., symmetrical) distribution and a large standard deviation.

Premigration factors such as health care inadequacies, social disruption, and political instability continue to affect physical and mental health for immigrants from the FSU (Cockerham, 2000). In addition, many older immigrants were reluctant to leave their homeland, and did so for their children's benefit when faced with the choice of moving with the family unit or staying behind alone. Present occupation does not reflect premigration social status for many FSU immigrants. High levels of education obtained in the FSU are not readily transferable to comparable occupations in this country, and low English language proficiency creates an additional barrier. Immigration-related losses of their former central roles in their professions and in their families contribute to difficulties in adapting to American life as well as emotional distress.

Additional stresses may include caring for aging parents in a foreign land, different acculturation rates and language abilities between husband and wife or parents and adult children, and unaccustomed autonomy of young adults in living arrangements, with subsequent changes in grandparenting roles and other traditional family expectations (Brod & Heurtin-Roberts, 1992; Smith, 1996; Aroian, Spitzer, & Bell, 1996). Younger immigrants tend to become financially independent and adapt more quickly than older immigrants. The latter often remain in subsidized housing or apartments in neighborhoods that isolate them from mainstream U.S. society. Their ethnic social network may provide support, but the extent to which this slows integration into the mainstream society and the implications for adjustment and mental health are not known.

Another explanation for the high mean score on the CES-D includes the possibility of a cultural difference in reporting symptoms. There may be a greater tendency toward openness in reporting negative emotions in this population than that found in mainstream United States as well as other ethnic groups. A comparative study of Vietnamese and Arab women's responses to questionnaires and interviews found that Vietnamese women were less likely to admit to having depressive symptoms than were Arab women (Matthey, Barnett, & Elliott, 1997).

The internal reliability of the instrument in this sample was quite high and comparable to U.S. and other immigrant samples (Noh, Kaspar, & Chen,

1998). Endorsement of specific items, however, might have been affected by the immigration and acculturation experience. For example, the item endorsed the most ("I talked less than usual") might be explained by being in a situation in which one does not know the English language well enough to converse with neighbors. Similarly, self-confidence (e.g., "I felt I was as good as others"—a reverse-coded item) is less likely to be expected when one is in an unfamiliar situation. Whether endorsement of these items reflects true depressive symptoms or the experiences that lead one to report them contribute to the development of depressed mood is not clear.

Similar to the findings of Noh, Avison, and Kaspar (1992), our sample had relatively high mean scores on the positively worded, reverse-coded items. They interpreted their findings by suggesting that Koreans are not as likely to express emotions in a positive way, while they are able to respond to items that do reflect dysphoria. It is similarly uncommon in Russian culture to express strong positive emotions; indeed, anecdotal evidence indicated that the reverse-coded items were viewed as unusual by the respondents. However, since several non-–reverse-coded items were also highly endorsed, we do not believe their high scores are solely a result of response bias.

Significant differences by age group on total CES-D scores suggests that there are protective factors for women less than 50 years old and perhaps for women over 65. Other studies of women have also found lower scores for depression around age 45, but few studies of immigrants show a second dip for women over 65. This finding supports the notion that discontinuities in developmental expectations contribute to midlife depression in immigrant women from the FSU. Women who immigrate before they are 50 years old tend to have a somewhat easier time learning English and finding employment in this country than older women. In addition, in the FSU women expect to retire from full-time work at age 55–60, and also expect to remain in close proximity to their children and take responsibility for their grandchildren. Social norms in this country may not support these expectations. Women over age 65, however, come to this country with few expectations for employment. Despite many postimmigration difficulties, they are grateful for improvements in their lives, which may be better than their lives would have been in the FSU had they not emigrated.

An increase in depressive symptoms sometimes reported at perimenopause (Wilbur et al., 1998) was not demonstrated in this sample. The findings of this study regarding higher scores on the depression scale for postmenopausal women than pre- and perimenopausal women are consistent with the overall inverse relationship between age and depression in this sample and impossible to separate from the obvious covariation between age and menopausal status. Replications of these analyses are recommended in samples with more even distribution of menopausal status.

The regression analysis suggests that the greatest amount of variance in total CES-D score in this sample was predicted by use of antidepressant medications. This contributes to the validity of this instrument in this population and could indicate that their medications did not have an adequate affect or that the women would have even higher scores if they were not taking medication. Nevertheless, this analysis demonstrates that even when we controlled for antidepressant use, age and length of residence in the United States were significant independent contributors of depression. Older women and those with shorter length of residence in the United States were more likely to be depressed. As is frequently reported in the literature, because menopausal status is so highly correlated with age, we were not able to identify separate contributions for these two variables.

In summary, this study suggests that women who are 55–65 years old are most at risk for depression in this sample of immigrant women from the FSU. Women younger than 50, and those older than 65, appear to be at lower risk. Although postmenopausal women had significantly higher scores on the depression scale, the inevitably high correlation between age and menopausal status obscured the relative impact of these factors. Culturally and developmentally appropriate interventions must be developed that target specific groups of women, and continued research is recommended to identify additional factors that contribute to vulnerability to depression during midlife in minority women.

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