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The impact of relocation stress on cognitively impaired and cognitively unimpaired long-term care residents

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Abstract

Objectives—The aims of this study were to explore the effects of relocation stress on depression and anxiety in long-term care residents and to investigate the moderating effect of cognitive status.

Methods—The study used an existing dataset collected from nursing home and congregate apartment residents. Self-reported measures of relocation stress, cognitive status, depression, and anxiety were examined. Exploratory analyses examined group differences in depression and anxiety within the full sample ($n = 568$) and the sample of first-year residents ($n = 347$). Main analyses were conducted in a subsample of 107 first-year residents who completed the measure of relocation stress.

Results—Residents who had moved in the past year reported more anxiety but not depression than longer-term residents, controlling for location and functional status. Within first-year residents, those who endorsed having moved to a less desirable residence reported more depression and anxiety than those who did not. Relocation stress significantly predicted depression but not anxiety in first-year residents. There was no significant effect of cognitive status or the interaction of cognitive status and relocation stress on depression and anxiety.

Conclusion—Findings suggest that cognitively impaired older adults are no more vulnerable to the negative effects of relocation stress than cognitively unimpaired older adults. Relocating within the past year, moving to a less desirable residence, and relocation stress affected depression and anxiety complexly across samples. Relocation stress should be regarded as a risk factor for depression in long-term care residents, regardless of cognitive status, in the first year after relocation.

Keywords

relocation; dementia and cognitive disorders; institutional care; depression; anxiety

For many older adults, the home is linked to major life events and represents a sense of independence and self-identity (Rubinstein & Parmelee, 1992). For these reasons, most older adults prefer to age in place and modify the home environment to address late-life

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Disclosure of interest

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limitations (Bayer, & Harper, 2000; Wiles, Leibling, Guberman, Reeve, & Allen, 2012). However, some older adults relocate to long-term care settings instead. Research has shown both positive and negative outcomes in response to late-life relocation (Iwasiw, Goldenberg, MacMaster, McCutcheon, & Bol, 1996; Jungers, 2010). Theory suggests that older adults with cognitive impairment are more vulnerable to the negative effects of relocation, but research on the topic yields inconsistent results (Mirotznik & Kamp, 2000). With over 80% of nursing home residents having some form of dementia (Bergh, Holmen, Saltvedt, Tambs, & Selbæk, 2012), it is important to understand the effects of relocation on older adults both with and without cognitive impairment.

Relocation to long-term care is viewed negatively by many older adults and is frequently associated with negative physical and mental health outcomes. Older adults often view relocation as a loss of independence and identity (Jungers, 2010; Riedl, Mantovan, & Them, 2013). Qualitative research on late-life relocation reports consistent themes of loneliness, powerlessness, anger, devalued self, depression, and betrayal (Chenitz, 1983; Iwasiw et al., 1996; Nay, 1995). Many older adults experience negative relocation outcomes, including morbidity, mortality, and psychological distress (Danermark & Ekstrom, 1990; Laughlin, Parsons, Kosloski, & Bergman-Evans, 2007). These negative outcomes have been described as *transfer anxiety*, *transfer stress*, *translocation syndrome*, and, most recently, *relocation stress* (McKinney & Melby, 2002). In 1992, the North American Nursing Diagnosis Association (NANDA) created the official diagnosis of Relocation Stress Syndrome (RSS) to describe the anxiety, confusion, depression, and loneliness associated with moving in late life.

However, not all older adults experience RSS (Newson, 2008). Many of the qualitative studies reporting themes of loneliness and powerlessness among new residents also describe residents who respond positively to relocation (Iwasiw et al., 1996; Jungers, 2010; Sullivan & Williams, 2016). In a qualitative study by Jungers (2010), a small cohort of participants demonstrated positive aging after relocation by exploring new interests, forming new relationships, and getting involved in their new residence. Similarly, a study by Iwasiw and colleagues (1996) found that residents adjusted to their new environment by participating in enjoyable activities and personalizing their rooms. In a study by Walker, Curry, and Hogstel (2007), some residents voiced appreciation for the conveniences of long-term care, such as medication reminders and scheduled social activities. Older adults may also express relief at no longer living alone and feeling physically safe in their new residence (Iwasiw et al., 1996).

The transactional model of stress and coping (Folkman & Greer, 2000; Lazarus & Folkman, 1987) provides one theory for why some older adults respond more positively to relocation than others. According to the transactional model, the stress process begins when individuals recognize a threatened change (e.g., potential relocation to long-term care). The model highlights two processes used to deal with such a change: appraisal and coping. Appraisal refers to how individuals evaluate the personal significance of an event and their level of control over the event. Coping refers to how individuals regulate distress, manage problems that cause them distress, and maintain positive affect in the face of stress. Appraisals and coping strategies are assumed to be constantly changing, with individuals reappraising their

relationship to the environment with each new event (Folkman & Greer, 2000). Whether an event is appraised as a harm or loss, a threat, or a challenge dictates an individual's emotional response.

Cognitively impaired older adults are thought to be more vulnerable to the negative effects of relocation due to differences in appraisal and coping. Stress reaction models suggest that, compared to healthy older adults, cognitively impaired older adults find relocation to be more stressful (Mirotznik & Kamp, 2000). For example, Lawton and Simon's (1967) environmental docility hypothesis posits that cognitively impaired older adults are more dependent on the external environment and are therefore more affected by environmental stressors. In this way, cognitively impaired older adults are more likely to appraise relocation as a stressor, making them more vulnerable to negative relocation outcomes than their cognitively unimpaired peers.

Despite these theories, research on the relation between relocation and cognitive impairment yields inconsistent results. While some studies report greater mortality or morbidity in response to relocation of the cognitively impaired (Friedman et al., 1995; Goplerud, 1979; Kral, Grad, & Berenson, 1968; Lander, Brazill, & Ladrigan, 1997; Markus, Blenkner, Bloom, & Downs, 1972), others fail to produce such findings (Gutman & Herbert, 1976; Ogren & Linn, 1971). For example, Mirotznik and Kamp (2000) investigated the mass transfer of residents from one building to another within the same nursing home to test the hypothesis that cognitively impaired residents are particularly vulnerable to the negative effects of relocation. While movers were more likely than nonmovers to decline in physical health, this relation did not differ based on cognitive status (Mirotznik & Kamp, 2000). In a similar study of single-person, intrabuilding room transfers, cognitive status again failed to influence the association between relocation and negative health effects (Mirotznik, 2002).

Diverse samples and methodologies may account for some of the inconsistencies in the literature. Research on cognitive status and relocation outcomes may yield differing results depending on the nature of the relocation. Mirotznik and Kamp (2000) noted, for example, that the movers in their study were informed of their transfer 6 months in advance and provided with ample support throughout the process. Many studies on relocation outcomes draw their samples from long-term care settings undergoing a planned relocation (e.g., relocation due to building demolition or renovation; Gutman & Herbert, 1976; Lander et al., 1997). However, most older adults do not experience such preparation and support when moving into long-term care. The present study therefore examined residents who relocated from outside the observed long-term care facility to either nursing home care or congregate housing within the facility. By including both nursing home and apartment residents at a single site, the current study was also able to examine relocation outcomes in residents across a broader range of cognitive status. However, the combination of cognitive deficits and depression may be more prevalent in nursing home compared to apartment residents (Parmelee, Katz, & Lawton, 1989). Location was therefore included as a covariate, allowing the current study to examine the effects of cognitive status above and beyond that of location.

Relocation outcomes also tend to change over time, as individuals adjust to their new environments. Using a similar sample of nursing home and apartment residents, Parmelee, Katz, and Lawton (1989) found that newly admitted residents were more likely to display symptoms of possible major depression than longer-term residents. Although the most adverse psychological effects of relocation occur shortly after the move, assimilation to long-term care is thought to occur throughout the first 12 months of residency (Iwasiw, Goldenberg, Bol, & MacMaster, 2003; Kao, Travis, & Acton, 2004). Clinical symptoms of RSS may also continue throughout the first year (Melrose, 2004). However, few studies have specifically attended to relocation outcomes within the first year of residency. For this reason, the current study focused on first-year residents, comparing them to longer-term residents in the facility and examining the impact of relocation stress within this group.

Finally, existing research on relocation typically compares groups of movers to nonmovers or follows participants longitudinally, comparing outcomes before and after relocation. Differences in outcomes in these studies are thus attributed to relocation. Rather than examining the effects of relocation itself, the present study took a novel approach by investigating the impact of *perceived* relocation stress. In this way, we aimed to investigate how residents' appraisals of the relocation process influence outcomes. As noted earlier, according to stress reaction models, this appraisal may differ based on cognitive status, with cognitively impaired older adults perceiving relocation to be more stressful (Lawton & Simon, 1967; Mirotznik & Kamp, 2000).

We therefore hypothesized that perceived relocation stress would predict greater depression and anxiety, with cognitive status moderating this relation. More specifically, cognitively impaired residents were expected to exhibit a stronger association between relocation stress and negative psychological outcomes than cognitively unimpaired residents. We tested this hypothesis using secondary data collected from cognitively impaired and cognitively unimpaired long-term care residents, examining the effect of self-reported relocation stress on depression and anxiety in a subsample of first-year residents.

Methods

Participants

The present study used an existing baseline dataset from a study on depression, physical frailty, and cognitive impairment among elderly institution residents (Parmelee, 1996a). Original data were collected between February 1993 and January 1996 at a large residential facility for elderly Jewish residents in the Northeastern US. Residents lived either in a nursing home or a congregate apartment complex for more able elderly within the facility. All residents who were able to respond meaningfully to self-report measures were included. Although including individuals with moderate to severe cognitive impairment increases the possibility of invalid or unreliable responses, previous research suggests that cognitively impaired individuals are able to accurately report pain (Fisher, Burgio, Thorn, & Hardin, 2006; Parmelee, 1996b; Parmelee, Smith, & Katz, 1993), quality of life (Arlt et al., 2008; Brod, Stewart, & Sands, 1999; Trigg, Jones, & Skevington, 2007), and affective states (Parmelee, Katz, & Lawton, 1989; Parmelee, Lawton, & Katz, 1989).

All new residents were approached for in-person interviews approximately 2 weeks post-admission. Existing residents were approached for interviews during their anniversary month of admission. Those who refused the initial interview were reapproached 6 months later and were excluded from the study after a second refusal. Individuals who were unable to complete the interview or respond meaningfully to self-report measures due to physical or cognitive impairments were also excluded from the study. Of 998 older adults screened, 430 (43.1%) were excluded due to severe disorientation ($n = 66$, 6.6% of total sample), severe physical illness (16, 1.6%), speech, hearing, or language impairments (16, 1.6%), other physical or psychological impairments (28, 2.8%), or refusal to participate (304, 30.5%). The final sample thus consisted of 568 (56.9%) of the 998 originally screened residents.

Subsamples—Relocation stress and its associated symptoms are thought to persist throughout the first year after relocation (Melrose, 2004). To capture these relocation effects, the present study focused on a subsample of first-year residents. Of the full sample of 568 residents, 347 (61.1% of total) had moved to the facility in the past year. Within this sample of first-year residents, 107 (30.8%) endorsed having moved to a less desirable residence in the past year while 139 (40.1%) did not (with the remaining 29.1% missing data). Exploratory analyses were conducted to examine differences between these two groups (reported below). The subsample of 107 residents who endorsed having moved to a less desirable residence over the past 12 months provided ratings of relocation stress and were therefore examined in the main analyses.

Measures

The present study used measures of relocation stress, cognitive status, functional status, anxiety, and depression included in an existing dataset.

Relocation stress—The Elders Life Stress Inventory (ELSI) is a 31-item self-report measure that asks respondents whether they have experienced certain stressful life events over the past year (Aldwin, 1990, 1991). For each stressful life event respondents have experienced, they rate the stressfulness of the event on a 5-point scale, ranging from (1) not at all stressful to (5) extremely stressful. Relocation stress was measured using residents' self-rated stress in response to the single item 'moving to a less desirable residence.' This rating of relocation stress was completed by only the respondents in the final subsample of 107 first-year residents who endorsed this item.

Cognitive status—Cognitive status was assessed using Fuld's (1978) modification of the Blessed Information-Memory-Concentration (IMC) test (Blessed, Tomlinson, & Roth, 1968). The Blessed IMC test includes 26 total items on information (e.g., Name this city), memory (e.g., Who was the last president), and concentration (e.g., Count backwards from 20 to 1). The total possible score on the Blessed IMC test is 33, with higher scores indicating greater impairment. Average correlation coefficients between the Blessed IMC test and the Mini-Mental State Examination (MMSE) ranged from -0.73 to -0.83 after repeated administration over 6 weeks, suggesting convergent validity (Thal, Grundman, & Golden, 1986). Cronbach's alpha was .88 in the full sample and .82 in the final subsample for the current study.

Functional status—Functional status was included as a covariate and assessed using the Physical Self-Maintenance Scale (PSMS; Lawton & Brody, 1969). The PSMS measures performance of basic activities of daily living, such as toileting, dressing, and grooming. For each item, participants were asked whether they could complete the activity (1) without help, (2) with some help, or (3) with total help. Scores were summed across the 8 nonredundant items to yield a composite functional disability score ($\alpha = .79$ for full sample and .81 for subsample). Higher scores indicate greater functional impairment. Lawton and Brody (1969) demonstrated the validity of the PSMS by determining the correlation of the scale with three other functional measures.

Depression—The Geriatric Depression Scale (GDS; Brink et al., 1982; Yesavage et al., 1982) was used to measure self-reported depression. The GDS consists of 30 yes-no items, with higher scores indicating higher levels of depression. Using data collected at the same residential facility as the present study, Parmelee, Lawton, and Katz (1989) found no differences in the reliability or validity of the GDS for cognitively impaired compared to cognitively unimpaired older adults ($\alpha = 0.92$ and 0.91, respectively). The GDS obtained a Cronbach's alpha of .92 for the full sample and .90 for the subsample in the current study.

Anxiety—Anxiety was assessed using the total number of anxiety symptoms endorsed on a modified version of the Schizophrenia and Affective Disorders Schedule (SADS; Spitzer & Endicott, 1979). The SADS is a diagnostic interview that requires respondents to describe their symptoms when they were at their most severe over the past 2 weeks. Scores on the SADS indicate that the symptom was either (1) not present, (2) present but of doubtful significance, (3) present but attributed by the resident to non-psychological causes, or (4) present and significant. In accordance with Parmelee, Katz, and Lawton (1993), ratings of (3) or (4) were considered indicative of a clinically relevant symptom. Symptoms included worrying/brooding, somatic anxiety, psychic anxiety, fatigability, decreased concentration, agitation, insomnia, and panic ($\alpha = 0.69$ for full sample and 0.74 for subsample).

Statistical analysis

Exploratory analyses examined group differences in the full sample ($n = 568$) and in the sample of first-year residents ($n = 347$). Two-way analyses of covariance (ANCOVAs) were conducted to examine the effects of residency (first-year or longer-term resident) and cognitive status on depression and anxiety in the full sample. Two-way ANCOVAs were also conducted in the sample of first-year residents to examine the effects of endorsement of 'moving to a less desirable residence' and cognitive status on depression and anxiety. Cognitive status was treated as a categorical variable for the two-way ANCOVAs using cutoff scores of 0–6 (normal cognitive functioning), 7–10 (cognitive impairment), and 11–33 (dementia). Previous research using the cutoff score of 11 to identify possible dementia found that this yields acceptable agreement with clinical diagnoses (Parmelee, Katz, & Lawton, 1989). Location (i.e., nursing home or congregate apartments) and functional status were included as covariates in the analyses.

Main analyses were conducted in the subsample of first-year residents who endorsed moving to a less desirable residence ($n = 107$). Hierarchical multiple regression was used to test the

main effect of relocation stress on depression and anxiety and the moderating effect of cognitive status on these relations. Cognitive status was treated as a continuous variable in the regression analyses. The continuous independent variable (relocation stress) and moderator (cognitive status) were mean-centered. Separate analyses were run for each of the outcome measures of depression and anxiety. Covariates (i.e., location and functional status) were entered into the model first, followed by the key variables of relocation stress and cognitive status. The multiplicative interaction term of relocation stress with cognitive status was subsequently added to the model to test the moderation. Although the literature does not suggest an expected effect size for the interaction of cognitive status and relocation stress on psychological outcomes, a power analysis using G*power indicated that the total sample of 107 residents provided 80% power to detect an effect size (f^2) of 0.08 in R^2 change values with alpha at .05 (Faul, Erdfelder, Lang, & Buchner, 2007). Participants who were missing data for key variables were excluded from the analyses. All data analyses were conducted in SPSS statistical software, with alpha set at .05.

Results

Sample characteristics

The full sample of 568 residents was 70.2% female, ranging in age from 58 to 105 years ($M = 86.10$, $SD = 6.27$). All participants were non-Hispanic white and Jewish. The sample included 269 (47.4%) nursing home residents and 299 (52.6%) apartment residents. The majority of nursing home (64.3%) and apartment (58.2%) residents had moved to the facility in the past year. After exploring group differences in the full sample and among first-year residents, main analyses were conducted in a subsample of 107 first-year residents who provided ratings of relocation stress. Relocation stress ratings ranged from (1) not at all stressful to (5) extremely stressful, with a mean rating of 3.38 ($SD = 1.50$). The subsample was 72% female, ranging in age from 63 to 100 years ($M = 84.49$, $SD = 6.80$). Thirty-six (33.6%) residents lived in the nursing home and 71 (66.4%) lived in the congregate apartments during data collection. The majority of nursing home residents demonstrated some cognitive impairment (75.0%), whereas the majority of apartment residents were cognitively unimpaired (66.2%). Nursing home residents showed significantly more depression ($M = 15.37$, $SD = 6.74$) than apartment residents ($M = 10.68$, $SD = 7.20$), $F(1, 105) = 10.53$, $p = .002$. Group differences between nursing home ($M = 1.84$, $SD = 2.11$) and apartment ($M = 1.06$, $SD = 1.52$) residents were only marginally significant for anxiety, Welch's $F(1, 53.98) = 3.93$, $p = .053$. Consistent with previous literature (Parmelee, Katz, & Lawton, 1992, 1993), functional status was also significantly associated with depression, $r(105) = .38$, $p < .001$, and anxiety, $r(105) = .32$, $p = .001$. Location and functional status were included as covariates in the current analyses to control for these effects.

Exploratory analyses of group differences

Full sample—Two-way ANCOVAs were performed to examine the effects of residency and cognitive status on depression and anxiety, controlling for location and functional status. Anxiety data were positively skewed, as assessed by visual inspection of histograms, so a log transformation was performed. As the transformation did not yield any changes in statistical conclusions, we have reported the results for the untransformed data. Raw means,

adjusted means, and standard deviations appear in Table 1. There was no significant difference between first-year and longer-term residents on depression, $F(1, 471) = .43, p = .51$. However, a main effect of residency was found for anxiety, $F(1, 472) = 4.95, p = .03$. Residents who had moved in the past year ($M = .94, SD = 1.45$) reported significantly more anxiety than longer-term residents ($M = .63, SD = 1.24$). Cognitive status did not have a statistically significant main effect on depression, $F(2, 471) = .57, p = .56$, or anxiety, $F(2, 472) = .002, p = .998$. There was no significant interaction between residency and cognitive status on depression, $F(2, 471) = .53, p = .59$, or anxiety, $F(2, 472) = .02, p = .98$.

First-year residents—In the sample of first-year residents, two-way ANCOVAs tested the effects of endorsement of ‘moving to a less desirable residence’ and cognitive status on depression and anxiety, controlling location and functional status. Raw means, adjusted means, and standard deviations appear in Table 2. First-year residents who endorsed having moved to a less desirable residence in the past year reported significantly more depression, $F(1, 238) = 30.06, p < .001$, and anxiety, $F(1, 238) = 15.48, p < .001$, than those who did not. Cognitive status did not have a statistically significant main effect on depression, $F(2, 238) = .09, p = .91$, or anxiety, $F(2, 238) = .09, p = .91$. There was no significant interaction on depression, $F(2, 238) = .52, p = .60$, or anxiety, $F(2, 238) = .62, p = .54$.

Effects of relocation stress

Depression—Hierarchical multiple regression was conducted in the subsample of 107 who reported relocation stress to test the moderating effect of cognitive status on the relation between relocation stress and self-reported depression. The results are presented in Table 3. The first model including the covariates was statistically significant, $F(2, 104) = 9.30, p < .001, R^2 = .15$, with functional status driving the effect, $\beta = .30, p = .008$. The addition of relocation stress and cognitive status in Model 2 led to a significant increase in explained variance, $R^2 = .05, F(2, 102) = 3.47, p = .04$. Functional status, $\beta = .27, p = .02$, and relocation stress, $\beta = .23, p = .01$, were significant predictors of depression. In Model 3, addition of the interaction term did not significantly improve prediction, $R^2 = .004, F(1, 101) = .52, p = .47$.

Anxiety—Results of parallel analysis of anxiety are presented in Table 4. The model including the covariates was again statistically significant, $F(2, 104) = 6.12, p = .003, R^2 = .11$. Functional status, but not location, was a significant predictor of anxiety, $\beta = .31, p = .009$. The addition of relocation stress and cognitive status in Model 2 did not significantly improve prediction, $R^2 = .02, F(2, 102) = 1.02, p = .37$. The addition of the interaction term in Model 3 also did not lead to a significant increase in explained variance, $R^2 = .002, F(1, 101) = .27, p = .60$.

Discussion

The aims of the present study were to explore the effects of relocation stress on depression and anxiety in first-year long-term care residents and to investigate the moderating effect of cognitive status. Exploratory analyses within the full sample found that residents who had moved in the past year reported more anxiety but not depression than longer-term residents.

Within first-year residents, those who endorsed having moved to a less desirable residence reported more depression and anxiety than those who did not. In the final subsample of first-year residents who endorsed having moved to a less desirable residence, relocation stress predicted depression but not anxiety. Contrary to our hypothesis, cognitive status did not moderate the relation between relocation stress and depression or anxiety.

In contrast to previous theory, this finding suggests that cognitively impaired older adults are no more vulnerable to the negative effects of relocation stress than cognitively unimpaired older adults. These results contradict stress reaction models but parallel other work comparing movers and nonmovers in long-term care (Goldfarb, Shahinian, & Burr, 1972; Lieberman & Tobin, 1983, p. 149; Mirotznik, 2002; Mirotznik & Kamp, 2000). Although these studies failed to find a moderating effect of cognitive status, significant relocation main effects suggest that both cognitively impaired and unimpaired residents experience negative relocation outcomes (Mirotznik & Kamp, 2000). Relocation stress should therefore be regarded as a risk factor for depression in all long-term care residents, regardless of cognitive status, in the first year after relocation. It should be noted, however, that residents who were unable to self-report due to severe cognitive impairment were excluded from our sample. Further research is needed to explore the impact of relocation on the most severely cognitively impaired. As proxy reports may contain bias or vary by reporter (Teri & Wagner, 1991), behavioral observation may also be used to assess relocation outcomes in this population.

Further research is also needed to elaborate on the differences in findings for depression and anxiety. Our results for depression and anxiety alternated across samples, which may reflect the substantial overlap between these disorders (Gorman, 1996). To differentiate overlapping symptoms, future work following Parmelee, Lawton, and Katz (1998) is needed to examine specific facets of depression (e.g., depressed mood, somatic symptoms, psychic anxiety) in the context of relocation. Although both depression and anxiety have been identified as defining characteristics of RSS (Carpenito, 2013), less is known about interindividual differences in the presentation of RSS. Our findings suggest that relocation factors may influence the presentation of RSS in long-term care residents, leading to differing levels of depression and anxiety. Future research may benefit from looking more closely at the impact of relocation on comorbid depressive and anxiety symptoms.

Limitations of the current study include the use of an exclusively White, Jewish sample. Due to the homogeneity of this sample, it is possible that the results will not be generalizable to other ethnic and religious populations. The current study also uses secondary data collected in the mid-1990s, which may affect the generalizability of the results to current long-term care residents. Future research should aim to replicate the results of the present study with a more diverse, current sample. A second limitation is that no data were collected from the original sample on the context of the participants' relocation. The proportions of older adults who moved from an independent residence, a hospital, or some other residential environment are therefore unknown. The current study also uses a single-item measure of relocation stress, which cannot guarantee reliability. However, it should be noted that significant results were acquired using this limited measure, suggesting that the item performed well in differentiating individuals who did and did not experience stress. Finally,

the current study uses a correlational design, which means that causal inferences cannot be drawn. Future research should follow movers before and after relocation to explore possible causation and the directionality of the effect of relocation stress on negative psychological outcomes.

Implications

The results of the present study have important practical applications for late-life relocation. Relocation stress was found to predict depression in first-year long-term care residents, regardless of residents' cognitive status. Older adults and their family members should therefore be made aware of the risks of relocation stress. Nursing assistants and long-term care staff may benefit from monitoring residents more closely and assessing for the symptoms of RSS in the first year after relocation. An assessment tool and flowsheet have been developed that can be used to screen for individuals at risk for post-relocation maladjustment (Hertz, Koren, Rossetti, & Tibbits, 2015). According to Hertz, Koren, Rossetti, and Tibbits (2016), these assessments should be updated at least weekly for the first month after relocation and then monthly for up to the next year.

Relocation stress may also be targeted in future interventions aimed at easing the transition to long-term care. Evidence-based practice guidelines exist to help cognitively intact older adults adapt to relocation (Hertz et al., 2016). However, the present findings suggest that such guidelines should be applied or adapted to cognitively impaired older adults as well. One suggested intervention in the Hertz et al. (2016) guidelines is to use positive reframing of the move to promote adjustment. In the current study, residents who viewed their relocation as less desirable or more stressful demonstrated more negative psychological outcomes. According to the transactional model of stress and coping (Folkman & Greer, 2000), these residents may be activating a harm or loss appraisal. These findings suggest that interventions may benefit from using positive reframing to target residents' appraisals of relocation to long-term care.

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Table 1.Means, standard deviations, and adjusted means in full sample two-way ANCOVA ($n = 568$)

	First-Year Residents			Longer-Term Residents		
	Normal	Cognitive Impairment	Dementia	Normal	Cognitive Impairment	Dementia
Depression						
<i>M</i>	9.339	10.211	10.259	7.982	9.855	9.940
(<i>SD</i>)	(6.552)	(7.508)	(7.596)	(6.834)	(6.960)	(7.440)
<i>M_{adj}</i> ^a	9.806	9.853	9.891	8.677	10.505	9.044
Anxiety						
<i>M</i>	.929	.990	.930	.546	.577	.748
(<i>SD</i>)	(1.492)	(1.443)	(1.430)	(.918)	(1.292)	(1.484)
<i>M_{adj}</i> ^a	.958	.927	.923	.627	.639	.649

^aMeans adjusted for location and functional status

Table 2.Means, standard deviations, and adjusted means in first-year resident sample two-way ANCOVA ($n = 347$)

	Endorsed move to less desirable residence			Did not endorse move		
	Normal	Cognitive Impairment	Dementia	Normal	Cognitive Impairment	Dementia
Depression						
<i>M</i>	11.139	12.462	14.150	7.160	7.265	7.552
(<i>SD</i>)	(7.117)	(8.256)	(7.038)	(5.595)	(5.757)	(6.712)
<i>M</i> _{adj} ^a	11.724	12.381	13.129	7.745	7.200	7.221
Anxiety						
<i>M</i>	1.212	1.175	1.622	.568	.609	.466
(<i>SD</i>)	(1.828)	(1.550)	(1.817)	(1.043)	(1.076)	(.805)
<i>M</i> _{adj} ^a	1.301	1.157	1.445	.660	.593	.427

^aMeans adjusted for location and functional status

Table 3.Summary of hierarchical regression analysis for variables predicting depression ($n = 107$)

Variable	Model 1		Model 2		Model 3	
	<i>B</i>	β	<i>B</i>	β	<i>B</i>	β
Location	−1.922	−.124	−.920	−.059	−.891	−.057
ADLs	.710	.304 **	.633	.271 *	.616	.264 *
Relocation stress			1.146	.233 *	1.163	.236 *
Cognitive status			.109	.082	.112	.084
Relocation stress $\times$ cognitive status					.058	.064
R^2	.152		.206		.210	
F	9.302 **		6.605 **		5.363 **	
R^2	.152		.054		.004	
F	9.302 **		3.468 *		.519	

*
 $p < .05$.**
 $p < .01$.

Table 4.Summary of hierarchical regression analysis for variables predicting anxiety ($n = 107$)

Variable	Model 1		Model 2		Model 3	
	<i>B</i>	β	<i>B</i>	β	<i>B</i>	β
Location	-.116	-.031	.033	.009	.038	.010
ADLs	.171	.305**	.161	.287*	.158	.282*
Relocation stress			.155	.131	.158	.133
Cognitive status			.017	.053	.017	.055
Relocation stress $\times$ cognitive status					.011	.049
R^2	.105		.123		.125	
F	6.120**		3.568**		2.888*	
R^2	.105		.017		.002	
F	6.120**		1.015		.272	

*
 $p < .05$.**
 $p < .01$.