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Psychometric Properties of the Pressure to Move Scale in Relocated American Older Adults: Further Evaluation

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Abstract

The number of elders who relocate to retirement communities is increasing exponentially, and their ability to exercise free choice, personal control, and autonomy has been associated with relocation adjustment and positive outcomes in regard to physical, emotional, and social well-being. Although a measure of relocation controllability (the degree of personal control associated with the move) exists, there is limited evidence of its psychometric adequacy. This study tested the reliability and validity of

the Pressure to Move Scale (PTMS). A convenience sample of 104 American elders who relocated to six Northeast Ohio retirement communities was recruited. Study participants completed the nine-item PTMS and two validation measures during structured interviews. Cronbach's alpha was .71. Homogeneity was supported by item-to-total correlations between .30 and .70, except for two items. Deletion of the item asking about the elder's first impression of relocation improved the alpha to .74. The PTMS was correlated in the expected direction with positive cognitions ($r = -.37, p < .01$) and relocation adjustment ($r = -.62, p < .01$), indicating convergent validity. Factor extraction generated three factors, the first reflecting "internal" control factors and the second reflecting "external" control factors; a third factor, containing two items with low item-to-total correlations, reflected another level of "external" control. With preliminary evidence of its reliability and validity, this scale can be a useful tool for screening for pressure to move or involuntary relocation among older adults so that negative outcomes associated with relocation can be prevented through tailored interventions.

The population of older adults in the US is increasing rapidly, and their number is projected to increase to 71 million by the year 2030 (Rossen, 2007). It is estimated that 23% of older adults will experience relocation (Rossen, 2007). While relocation can be stressful for all ages, it is more stressful for elders because of their limited coping resources (Hertz, Koren, Rosetti, & Roberston, 2008). Relocation can lead to depression, anxiety, a sense of devalued self, and poor self-rated health (Rossen, 2007; Rossen & Knafli; 2003, 2007). Yet, many relocated older adults feel more secure and less lonely as a result of relocation (Bekhet, Zauszniewski, & Nakhla, 2009; Reed & Roskell Payton, 1996; Rossen, 2007); they also describe the discovery of new love and affection and a strengthening of the family union (Smith & Bengston, 1979). Thus, relocation can be either a positive or a negative experience depending on different factors. Relocation controllability (Bekhet, Zauszniewski, & Wykle, 2008; Bekhet et al., 2009; Schultz & Brenner, 1977), which refers to the degree of personal control that a person can exercise over the move and their ability to manipulate environmental aspects, has been identified as a determining factor in the experience of relocation (Lutgendorf, Vitaliano, Reimer, Harvey, & Lubaroff, 1999; Schultz & Brenner, 1977; Tesch, Nehrke, & Whitbourne, 1989). Lack of personal control over one's relocation can lead to depression, anger, withdrawal, aggression toward the family or the staff (Chen, Zimmerman, Sloane, & Barrick, 2007; Chentiz, 1983), and increased mortality (Laughlin, Parsons, Kosloski, & Bergman-Evans, 2007). In contrast, being able to exercise choice and having control over the move can lead to relocation adjustment and bio-psychosocial well-being (Capezuti, Boltz, Renz, Hoffman, & Norman, 2006; Chentiz, 1983; Deborah, Rutman, & Jonathan, 1988; Johnson & Hlava, 1994; Porter & Clinton, 1992; Rossen & Knafli, 2007).

Unfortunately, the Pressure to Move Scale (Smider, Essex, & Ryff, 1996) is the only known scale for measuring relocation controllability. Lutgendorf, Vitaliano Reimer, Harvey, and Lubaroff (1999) used two items to assess the controllability of the move as a part of a scale called "Factors Contributing to the Decision to Move." These two items were "To what extent did participants decide to move while they were still in control of the move?" and "To what extent had participants themselves chosen the move?" However, no evidence of reliability or validity has been reported for these two items.

THE PRESSURE TO MOVE SCALE

The Pressure to Move Scale (PTMS) developed by Smider, Essex, and Ryff (1996) consists of nine items that reflect the extent to which the respondent felt that he or she was pressured or pushed to relocate by others or by circumstances. Response options are on a 6-point continuum, where a "1" means "not at all" and a "6" means "very much." There are no specific options associated with the numbers 2 to 5. Participants are asked to state the number that best corresponds to where they place themselves on the continuum. Four items are reverse coded. The scores for the individual items are then summed. Scores may range from 9 to 54. The higher the scores, the greater the pressure to move. More specifically, a high score means that someone felt considerable pressure from others, while a low scale score means that the person felt very little pressure from others. A score of 9 indicates no pressure at all. As a newly developed scale, the reported reliability of the scale is adequate (Cronbach's alpha = .70). However, no evidence for validity or factor analysis has been reported (Smider et al., 1996). Thus, there is limited evidence for its psychometric adequacy. Furthermore, the sample used to test the scale's reliability included only older women who had moved from one independent setting to another. That population differs from elders who relocate to retirement communities for assisted living or continuing care. Therefore, it is important to determine the psychometric properties of the PTMS with older adults (males and females) who relocate to assisted or continuing care retirement facilities. This study therefore examined the psychometric properties of the PTMS among older adults who had relocated to assisted and continuing care retirement facilities. The study was part of a larger study of relocation to retirement communities, which has been reported elsewhere (Bekhet et al., 2008, 2009).

METHODS

Sample

The convenience sample consisted of 104 adults aged 65 years and older who were cognitively intact and had relocated to six retirement communities. In the parent study, the Short Portable Mental Status Questionnaire (SPMSQ; Pfeiffer, 1975) was used to screen for cognitive functioning; ten older adults who have a score of 3 or more were excluded from further participation (Bekhet et al., 2008). The mean age of the adults who remained in the sample was 82 years. Sixty-six percent were women. Seventy-five percent had transferred from home, and 25% had transferred from hospitals, other units, or other sites. Perceived social support from friends and family was measured by the Perceived Social Support Scale developed by Procidano and Heller (1983) in the parent study (Bekhet et al., 2008). In the parent study, perceived social support from friends was a significant predictor of relocation adjustment. Therefore, their effects were controlled for statistically (Bekhet et al., 2008). Based on the criterion of needing at least 5–10 participants per item on the instrument (Hair, Anderson, Tatham, & Black, 1998; Nunnally & Bernstein, 1994; Stevens, 2002), the sample size of 104 participants was sufficient to conduct factor analysis with the nine-item PTMS. Prior to sample recruitment, approval was obtained from the University's Institutional Review Board (IRB) to conduct the parent study whose data were used in this secondary analysis.

Instruments

A demographic questionnaire developed by the researchers was used to assess individual characteristics such as age and gender. In addition, the Index of Relocation Adjustment Scale (Prager,

1986) and The Depressive Cognition Scale (DCS; Zauszniewski, 1995) were used to determine the construct validity of The Pressure to Move Scale (PTMS).

Positive cognitions were measured by the DCS (Zauszniewski, 1995). The scale measures positive cognitions when scores are not reversed because all the scale items are phrased in a positive direction (Zauszniewski, McDonald, Krafcik, & Chung, 2002). The DCS consists of eight items on a 6-point Likert-type scale that range from 0 (strongly disagree) to 5 (strongly agree). Scores may range from 0 to 40 with higher scores indicating a greater number of positive cognitions (Zauszniewski, Bekhet, & Suresky, 2008). The scale has acceptable internal consistency (Cronbach's alpha = .78) (Zauszniewski, 1995). Construct validity for the DCS was demonstrated by significant correlations in the expected directions ($p < .001$) with measures of depression, resourcefulness, adaptive functioning, and life satisfaction ($r_s = .54, -.37, -.60, -.57$, respectively) (Zauszniewski, 1997).

The initial psychometric evaluation of the DCS was undertaken on a convenience sample of 60 older adults living in the community of a Midwestern city (Zauszniewski, 1995). Further psychometric evaluation of the DCS was undertaken on 160 older adults (Zauszniewski, 1997). The DCS has been tested across different populations, namely diabetic women aged 21–60 years (Zauszniewski, Chung, Krafcik, & Sousa, 2001), African American women caregivers and non-caregivers (Zauszniewski, Picot, Debanne, Wykle, & Roberts, 2002), women relatives of adults with mental illness (Zauszniewski, & Suresky, 2010), and first year Egyptian nursing students (Bekhet, ElGeunidi, & Zauszniewski, 2011).

TABLE 1 Descriptive Statistics for The Pressure to Move Scale and construct validation measures in relocated older adults (N = 104)

Validating Construct	Measuring Scale	Mean (St. Dev.)	Possible Range	Actual Range	Cronbach's Alpha
Relocation adjustment	Relocation Adjustment Scale	12.96 (3.59)	0–18	0–18	.86
Relocation controllability	Pressure to Move Scale	20.39 (8.47)	9–54	9–42	.71
Positive cognitions	Depressive Cognition Scale (scores not reverse-coded)	33.31 (5.80)	0–40	8–40	.84

TABLE 2 The Pressure to Move Scale Item Analysis and Factor Analysis (N = 104)

PTMS Item	Apha if Deleted	Item to Total Scale Correlation	Communality Values
1. The original idea of moving was yours.	.67	.43	.61
2. This move is something you simply want to do	.65	.52	.69
3. Anyone in your family urged you to move	.67	.43	.72
4. Anyone in your family pushed or pressured you to move	.65	.54	.77
5. Any of your friends or acquaintances urged you to move	.68	.39	.47
6. Your doctor or other professionals urged you to move	.71	.21 ⁺	.50
7. Do you feel that you could continue to live here?	.69	.34	.83

8. Felt free to make plans about your move as you wanted to	.66	.51	.76
9. When you first thought of moving, how much was it because you felt you had to move?	.74 ⁺⁺	.13 ⁺	.41

*Less than the recommended range of item-to-total correlation (.30 to .70).

**Deletion of this item would improve the alpha to .74.

Relocation adjustment was measured by the Index of Relocation Adjustment scale (IRA; Prager, 1986). This scale consists of six items on a 4-point Likert-type scale, ranging from completely disagree to completely agree. The scale has good reliability (Cronbach's alpha = .87). Construct validity was indicated by the relatively high correlation of .79 between a measure of relocation adjustment and the 25-item General Contentment Scale (GCS; Hudson, 1982).

The Index of Relocation Adjustment (IRA) was developed and tested primarily on older adults who relocated to Israel from Western countries (Prager, 1986). In 1993, the IRA was used to measure relocation adjustment in American older adults who relocated to congregate settings (Armer, 1993).

RESULTS

Characteristics of the Main Study Variables

In this sample, the PTMS scores ranged from 9 to 42 ($M = 20.39$, $SD = 8.47$). The Index of Relocation Adjustment scores ranged from 0 to 18 ($M = 12.96$, $SD = 3.59$), and Positive Cognitions scores ranged from 8 to 40 ($M = 33.31$, $SD = 5.80$) (Table 1).

Internal Consistency and Homogeneity

The overall estimate of the reliability (Cronbach's alpha) of the PTMS was .71. This estimate exceeded the recommended criterion for internal consistency of at least .70 for a newly developed scale (Nunnally & Bernstein, 1994). However, deletion of the item asking about the elder's first impression of relocation would improve the alpha to .74 (see Table 2).

To determine the homogeneity of the instrument, corrected item-to-total scale correlations were examined. Evidence of homogeneity is found when a substantial number of items have corrected item-to-total correlations between .30 and .70 (Cronk, 2004). As shown in Table 2, homogeneity was supported by item-to-total correlations between .30 and .70, with the exception of two items (Table 2).

The reliability of The Pressure to Move Scale also was assessed by examining inter-item correlations. Inter-item correlations should average between .30 and .70; correlations greater than .70 indicate item redundancy (Nunnally & Bernstein, 1994). Applying this criterion, only 28% of the 36 possible inter-item correlations fell within the desired range. No inter-item correlations were indicative of redundancy (Table 3) but 26 inter-item correlations fell below the minimum criterion of .30. These correlations that fell outside the recommended range might have reflected the sample characteristics and therefore require cautious interpretation. Since the majority of this sample was living in a continuing care retirement facility, where elders were mostly independent, replication of the study with a more diverse population that includes dependent elders is recommended.

Dimensionality and Construct Validity

Before conducting factor analysis, several assumptions were tested to ensure the adequacy of the sample and suitability of the correlation matrix. The Kaiser-Meyer-Olkin value of .69 indicated that the sample size was adequate for proceeding with factor analysis, because it exceeded the recommended value of .60 (Tabachnick & Fidell, 2001). Furthermore, the Bartlett test of sphericity ($X^2 = 251.23$; $p < .001$; determinant = .079) indicated that the correlation matrix was suitable for conducting factor analysis (Strickland, 2003).

A principal components factor analysis with varimax rotation was conducted on the PTMS items to extract the minimum number of factors that explained the maximum variance in the scale scores. Exploratory factor analysis was needed because no previous study reported factor analysis, and therefore we had no information on the basic dimensions underlying the scale (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Factor extraction generated three factors; the first two reflected “internal” and “external” control factors; the third factor contained the two items with low item-to-total correlations (Table 4). Items 1, 2, 7, and 8 reflected internal control factors and items 3, 4, and 5 reflected external control factors. The third factor (items 6 and 9) also reflected external control factors that might be associated with a higher level of seriousness/severity (Table 4). In our analysis, the first factor was found to be correlated with the second factor ($r = .33$, $p < .01$) but not with the third factor ($r = .12$, $p > .05$); however, the second and the third factors were correlated ($r = .21$, $p < .05$).

TABLE 3 The Pressure to Move Scale Inter-item Correlation Matrix (N = 104)

Item	1	2	3	4	5	6	7	8	9
1. PTMS-1		.51	.29	.32	.1	.05	.29	.35	-.03
2. PTMS-2			.29	.43	.27	-.01	.34	.41	.01
3. PTMS-3				.64	.33	.15	-.12	.10	.18
4. PTMS-4					.46	.18	-.003	.22	.03
5. PTMS-5						.21	.06	.27	.05
6. PTMS-6							.15	.19	.11
7. PTMS-7								.67	.15
8. PTMS-8									.13
9. PTMS-9									

TABLE 4 Exploratory Factor Analysis of PTMS: Three Factors Emerged

PTMS	Three Factor Solution Factor Loadings		
1. The original idea of moving was yours.	.62		
2. This move is something you simply want to do	.64		
3. Anyone in your family urged you to move		.84	
4. Anyone in your family pushed or pressured you to move		.87	
5. Any of your friends or acquaintances urged you to move		.60	
6. Your doctor or other professionals urged you to move			.68
7. Do you feel that you could continue to live here?	.85		
8. Felt free to make plans about your move as you wanted to	.82		

9. When you first thought of moving, how much was it because you felt you had to move?			.64
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Replication of the study is needed before deciding whether the two items with low item-to-total correlations that constituted the third factor need to be deleted. A recommendation of deletion would be premature at this stage since the scree plot suggested that there are three factors in the scale. The internal and the two external control factors together explained 64.04% of the variance in the scale scores. All communalities values were above .30, as recommended by Tabachnick and Fidell (2001) (see Table 2).

The PTMS score was strongly correlated with the total Positive Cognitions score and the Index of Relocation Adjustment score in the expected direction ($r = -.37, p < .01$; $r = -.62, p < .01$), thereby suggesting construct validity.

DISCUSSION

This study represents the first attempt to examine the reliability and validity of a measure of relocation controllability; the nine-item Pressure to Move Scale (PTMS). The findings provide support for the scale's reliability and validity among older adults who relocate to a retirement community. Reliability was demonstrated through adequate estimates of internal consistency; Cronbach's alpha was .71, exceeding the minimum criterion of .70 (Nunnally & Bernstein, 1994). This internal consistency estimate is consistent with the findings from the previous study of the relocation controllability measure, which reported an alpha of .70 in a sample of older women who had experienced community relocation (Smider et al., 1996). Homogeneity was supported by item-to-total correlations between .30 and .70, except for two items, which may reflect something other than the situation of this sample. Therefore, the psychometric properties of the PTMS need to be tested with a more diverse population.

Reliability of the Pressure to Move Scale was also assessed by examining inter-item correlations, which should average between .30 and .70 (Nunnally & Bernstein, 1994). Applying this criterion, only 28% of the 36 possible inter-item correlations fell within the desired range. However, as noted above, the correlations that fell outside the recommended range might have reflected the sample characteristics, and therefore replication of the study with a more diverse population, including dependent elders, is recommended.

In addition to providing evidence for the reliability of the PTMS, the findings indicate that the measure has construct validity, as evidenced by significant correlations ($p < .01$) in the expected directions with established measures of positive cognitions and relocation adjustment. The findings also are consistent with the findings of a previous study, which found a significant positive correlation between the PTMS and environmental mastery in 102 older women who experienced community relocation (Smider et al., 1996).

Principal components factor analysis revealed three factors, with the first two reflecting internal and external control factors and the third reflecting another level of external factor. The four negatively worded items loaded together to form the first factor and three positively worded items loaded together to constitute the second factor, with the remaining two positively worded items loading together to constitute the third factor. Several researchers have reported a two-factor solution with

other scales, with positive and negative items loading separately (Carmines & Zeller, 1979; DiStefenao & Motl, 2006; Zauszniewski, Bekhet, & Bonham, 2010).

For example, a two factor solution has been reported for the Rosenberg Self-Esteem scale, reflecting positive and negative dimensions (Carmines & Zeller, 1979; DiStefenao & Motl, 2006). Similarly, Zauszniewski and colleagues reported a two- factor solution for the Children's Resourcefulness Scale where positively worded items loaded together on one factor (problem solving) and negatively worded items loaded together on a second factor (delay of gratification) (Zauszniewski, Bekhet, & Bonham, 2010). In this study, the internal and two external control factors together explained 64.04% of the variance of the scale score.

In the parent study, the researchers tried to access older adults who were recently relocated. Unfortunately, gatekeeping practices of some facility administrators, who block access to potential participants, have been identified as a problem in the parent study (Bekhet et al., 2008) and the researchers suggested, in the parent study, that the health care policy systems should be aware of this problem and facilitate researchers' access to this population. We ended up recruiting everyone who had been relocated and controlled for "time since relocation" statistically rather than by design (Bekhet et al., 2008). Future studies might consider replicating the study using the PTMS among those who were recently relocated (i.e., within a month) and measuring the reliability and the validity of the scale. Gatekeeping has been recognized as a serious problem in previous research as well (Clarke, 2001).

It should be noted that in this sample of older adults, 77 elderly persons (74%) were living in independent living facility, whereas 27 (26%) were living in assisted living facility (Bekhet et al., 2008). Needless to say that there is a big difference between older adults who relocated to assisted living facilities versus those who relocated to independent living facilities. The parent study showed that assisted living facilities residents were involuntary pushed (at least by circumstances) to move to assisted living facilities, whereas the independent living facilities residents were voluntarily pulled to independent living facilities (Bekhet et al., 2009). The percentage of those who were living in an assisted living facility in this sample of older adults constitutes only 26%; therefore, the PTMS needs to be tested with a larger sample of those who relocated to assisted living facility.

One half of the sample (50%) reported their health as good as measured by a single item on a 4-point Likert-type scale ranging from 1 (poor) to 4 (excellent), in which participants' record their perceptions of their health (Bekhet et al., 2009). Higher scores indicate better health. Therefore, future studies might consider replicating the reliability and the validity of the PTMS with older adults who are physically impaired.

The findings from this analysis of relocated American older adults yield promising evidence that the nine-item PTMS has acceptable reliability and validity and is potentially useful for assessing relocation controllability among older adults who relocate to retirement communities. The study provides evidence that the PTMS consists of two dimensions and supports the construct validity of the PTMS for relocated older adults. Further psychometric testing of the scale may be warranted.

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