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Variation in Response to a Home Intervention to Support Daily Function by Age, Race, Sex, and Education

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Abstract

Background—Functional difficulty is associated with increased frailty and poor life quality, with the oldest old, women, African Americans and less educated at greatest risk of disablement. This study examines whether these at-risk groups benefit differentially from an in-home intervention previously found to effectively reduce functional difficulties.

Methods—319 community-living functionally vulnerable adults 70 years or older were randomized to usual care or an intervention involving occupational and physical therapy home instruction in problem-solving, device use, energy conservation, safety, fall recovery, balance and muscle strengthening instruction. Outcome measures at six and 12 months included difficulty level in ambulation, instrumental (IADLs) and activities of daily living (ADLs), self-efficacy, and fear of falling.

Results—At six-months, for ADLs, individuals ≥80 years (p=.022), women (p=.036), and less educated (p=.028) intervention participants improved compared to their control group counterparts. For mobility, women (p=.048) and the oldest (p=.001) intervention participants improved relative to their counterparts. For self-efficacy, women (p=.036) and less educated (p=.016) intervention participants benefited more. For fear of falling, those less educated improved more (p=.001). A similar pattern was found at 12 months. For IADLs, Whites improved more than non-Whites at 12 months.

Conclusions—Treatment benefits varied by specific participant characteristics, with individuals at greatest disability riskbeing most responsive to the intervention. Both White and non-White participants benefited similarly except in IADL functioning. Future research should control for participant characteristics, identify underlying mechanisms for variation in treatment effects, and tailor treatment to patient characteristics and desired outcomes.

Keywords

Home modification; disability; frailty

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Introduction

Disability resulting from chronic illness or age-related changes is associated with multiple negative consequences including a diminished quality of life, greater dependence, increased difficulties with self-care, fear of falling, greater risk of falls, higher service utilization and costs, nursing home placement and mortality.[1,2] Previous research consistently shows that older adults at risk of disability are older, women,minority group members, particularly African Americans, and individuals with low socio-economic status.[3,4] Although prior intervention studies to address function decline report small positive gains, [5,6,7,8,9,10] the responsiveness to interventions by elders at greatest risk of disablement has not been evaluated. Thus, it is unknown whether treatment outcomes vary by specific demographic characteristics. Given the extensive research documenting different prevalence rates of disability for demographic profiles,[11-14] it is important to examine whether factors such as age, sex, education and race influence responses to interventions. Specifying for whom an intervention works best and in what domains can help refine study designs and identify specific clinical populations who may benefit the most from treatment.[7,8,15,16,17] Furthermore, identifying variations in treatment response or moderators of outcomes leads to a more nuanced understanding of intervention effects and generates specific hypotheses for future testing in randomized trials.

The purpose of this study was to examine whether specific demographic groups benefited more from participating in a six month intervention that was previously found to reduce functional difficulties, and fear of falling and enhance self-efficacy in the overall sample.[18,19] We evaluated whether older versus younger, non-White versus White, women versus men, and individuals with low versus high education were more likely to benefit from the intervention.

Methods

Study Sample and Procedures

All study procedures including CONSORT flow chart, recruitment, and randomization were reported elsewhere.[18,19] Briefly, participants were recruited between 2000 and 2003 from social services and media announcements. Study participants were 70 years or older, cognitively intact (Mini Mental State Examination [MMSE] score > 23 on a 0 to 30 scale), [20] English speaking, and having functionally difficulties for which they were not receiving home care services.

IRB approved informed consent was obtained and a baseline home interview conducted. Participants were then randomized to intervention or no-treatment control, and re-interviewed at six (main study endpoint) and 12 months by trained interviewers masked to group assignment. Of the 319 participants (n=159 control, n=160 experimental) enrolled, 300 (94%) were available at six months and 285 (89%) at 12 months. Of 34 participants lost to 12 month follow-up, 14 died, one was hospitalized, four were dissatisfied with the study, five entered nursing homes, eight were unable to be located, and two had significant deteriorating health. There were no large or statistically significant differences between intervention and control group participants on demographic and outcome variables at baseline.[17]

Intervention Group—The intervention addressed functional decline by providing strategies to compensate for disparities between a person's ability and environmental demands. Participants received five occupational therapy (OT) contacts (four 90-minute home visits and one 20-minute telephone contact) involving education, problem-solving, home modification and energy conservation training; and one physical therapy (PT) contact (90 minutes) involving balance and muscle strength training and safe fall and fall recovery techniques. Home modifications (grab bars, rails, seating adaptations, transfer devices) were provided when needed free of charge through grant funds. Over the subsequent six months, participants

received three brief telephone calls from OTs to reinforce strategy use and help generalize use to new performance difficulties. A final OT visit at 10 months obtained intervention closure.

Control group participants did not receive any intervention contact and at 12 months received home safety materials.

Outcomes

Functional Difficulty—Study participants were interviewed at home using a standard self-report measure of difficulties in 17 areas (Cronbach α=.70 for this sample) including six instrumental (IADLs; light housework, shopping, preparing meals, managing money, telephone use, and taking medications),[22] six activities of daily living (ADLs; dressing above waist, dressing below waist, grooming, bathing/ showering, toileting, and feeding), and six mobility/transferring (getting in/out of car, walking indoors, walking one block, climbing one flight of stairs, moving in/out of chair, and moving in/out of bed). For each item, participants rated difficulty level in the past month from 1 ("no difficulty") to 5 ("unable to do due to health problems"), with higher scores indicating greater difficulty.[21] Three indices were created by calculating mean difficulty across respective items.

Self-efficacy—Self-efficacy refers to an assessment of one's ability to perform an activity and achieve a desired outcome.[23] Participants rated self-efficacy or confidence managing difficulties performing 17 areas (IADLs, ADLs, and mobility), from 1 ("Not at all confident") to 5 ("Very confident"). The Self-efficacy Index represented mean perceived confidence, with higher scores indicating greater confidence (Cronbach α=.92 for this sample).

Fear of Falling—Fear of falling was assessed using Tinetti et al.'s (1990) 10-item Falls Efficacy Scale and three items from Powell and Myers' (1995) Activities-specific Balance Confidence Scale (confidence in ability to walk up or down stairs, bend over and pick up a slipper from floor and get into or out of a car without falling).[24,25] On 10-point scales participants rated their level of confidence in performing these 13 self-care tasks without falling.. Items were reverse coded to reflect a positive valence, with higher scores indicating greater perceived confidence or falls efficacy. Scores were averaged across the 13 items (Cronbach α=.93 for this sample).

Statistical Analysis

Chi-square and Wilcoxon rank-sum tests were used to compare participants by gender, race, age and education on each outcome measure at baseline. Means, standard deviations and ranges for each outcome measure were computed.

To examine moderator effects at six and 12 months, analyses of covariance (ANCOVA) were conducted for each of the five main outcomes (ADL, IADL, and Mobility difficulties, self-efficacy, and fear of falling). For each analysis, we introduced an interaction term between group assignment and one of the four demographic characteristics (age, gender, race, and education level). To examine interaction effects for treatment by age, we split the sample into two groups to compare the oldest old (≥ 80) to the young old (<80) for several reasons. The gerontological literature consistently shows significant age group differences along health and functional parameters, although the specific age cutoff varies between 80 and 85 years. Since 80 reflected the mean age for our sample, we used this age to divide our sample into younger versus older.[13,26,27] To examine interaction effects for education, we split the sample into three groups: less than high school education, completion of high school, and education beyond high school. For race analyses, we examined Whites versus non-Whites.

The distribution of residuals was somewhat skewed for ADL difficulty but neither a log nor square root transformation improved the distribution; thus, we report the non-transformed distribution.

For each ANCOVA, the outcome measure was the six or 12-month score. Covariates for all outcome measures reflected design variables (race, living arrangement), baseline value of the outcome measure, and other baseline factors shown in previous research to be associated with functional difficulty (age, financial difficulty, social support, depressive symptoms).[28] In each analysis, an interaction term (treatment assignment by specific demographic characteristic) was entered as described above.

SPSS version 14.0 was used with significance level set at .05. All analyses were two-sided and followed an intention to treat model such that all subjects providing data were included in the analyses regardless of participation level.

Results

Sample Characteristics

Participants had a mean age of 79, were primarily female (82%), lived alone (62%) and had a high school or greater education. The majority were white (53%), and 46% were African American. Participants reported an average of seven health conditions, “some” to “a lot of difficulty” with mobility (Mean=2.5, SD=.8), ADLs (Mean=1.8, SD=.6), and IADLs (Mean=2.0, SD=.6) with 70% rating their health as fair to poor.

There were no meaningful or statistically significant differences in demographic characteristics between treatment groups at baseline. Additionally, there were no meaningful or statistically significant differences between men and women, Whites and non-Whites, those with low, medium or high education, or younger and older adults on baseline outcome measures except in one area; African American elders reported slightly greater functional difficulties than Whites. Thus, with this exception, these demographically defined groups enrolled in the study with similar average need levels.

Activities of Daily Living Difficulties

At six-months, we found that sex (p=.036), age (p =.022), and education (p=.028), but not race moderated treatment outcomes (Table 1), with women, the oldest old (>80 years) and those with less education (< high school education) reporting lower levels of ADL difficulties and thus benefiting from the intervention more so than their counterparts. We also entered all three interactions into one model to evaluate whether they remained independent contributors (not shown on table) and found that two interactions, treatment-by-age (p=.041) and treatment-by-sex (p=.035) retained their significance. By contrast, treatment-by-education remained large in magnitude but was no longer statistically significant (p=.061).

At 12 months, only the treatment-by-age interaction remained statistically significant. Although the magnitude of effect for those with less education was similar to that at six-months, it was not statistically significant. For sex, there were no differential benefits at 12-months.

Mobility Difficulties

At six-months, we found statistically significant interaction effects for treatment by sex (p=.048) and by age (p=.001), but not by education or race (Table 1). Women in the intervention group showed a statistically significant decrease in mobility difficulties compared to men. To evaluate whether interaction effects for women and 80+ year olds were independent of each

other, we entered these two interactions into one model. We found that they both retained statistical significance (treatment-by-sex, p=.043; treatment-by-age, p=.000).

At 12-months, the treatment-by-age interaction remained statistically significant (p=.007), whereas the treatment-by-sex interaction was not statistically significant and treatment-by-education interaction obtained statistical significance (p=.009).

Instrumental Activities of Living Difficulties

At six-months, estimates of interaction effects of intervention by sex, age, race and education for IADL difficulty were not statistically significant (Table 1). At 12 months, treatment-by-race reached statistical significance (p=.028), with Whites reporting less IADL difficulty than non-Whites.

Self-efficacy

At six-months, we found a statistically significant interaction effect for treatment-by-sex only, with women demonstrating greater self-efficacy than men (p=.036). At 12-months, treatment-by-age (p=.030) and education (p=.016) reached statistical significance with older and less educated participants reporting greater self-efficacy than their counterparts.

Fear of Falling

The only interaction that reached statistical significance was treatment-by-education at six months. Less educated intervention participants reported reduced fear of falling than individuals with high school or greater education.

Discussion

This study shows variations in response to a-home intervention by demographic characteristics. Women, individuals 80 years or older, and those with less education appeared to benefit more so than their counterparts at six months in specific functional domains, with similar patterns found at 12 months. Although previous research has consistently shown differences in function for demographic profiles, this study extends knowledge by showing that differences apply as well to treatment responses. Furthermore, we found that the groups at greatest risk for functional impairment are the ones that benefited the most.

The question remains as to why variations in response to the intervention occur. At study entry, all groups started the trial at similar levels of need for each of the five outcome variables except in one area. African American elders reported slightly greater functional difficulties than Whites.[33] Also, when each statistically significant interaction was entered simultaneously into one model for ADL and one model for mobility difficulty, each interaction retained its importance as a predictor, although one, treatment-by-education for ADL difficulties, was no longer statistically significant (p = 0.061). Thus, the observed differences do not reflect greater need and, since the interactions are independent contributorsno underlying common explanatory factor can account for the variations in the observed treatment responses.

The differences found between men and women are consistent with intervention studies for other clinical populations.[30] For example, our research on a home program for dementia caregivers using problem solving and environmental strategies, showed that women improved more than men in skill acquisition and subjective wellbeing.[31] It may be that women are more responsive to this type of intervention because it matches their approach to solving health care problems through help seeking and use of different strategies. Additionally, previous research shows that men tend to underreport their disability, suggesting that a positive change as a consequence of the intervention may not be detected.[14] Future research should consider why

men benefit in some areas and not others and what factors account for these treatment differences.

As to age, the findings suggest that older age groups can learn new ways of managing ADL and mobility-related tasks and that this benefit persists over time. These findings are noteworthy in that functional difficulties in these areas are associated with negative sequelae including depression, reduced quality of life, risk for relocation, increased health care resource utilization, and frailty.[32] At 12 months, the older group also reported greater confidence managing functional difficulties suggesting that self-efficacy improved with time. One explanation may be that the older group had more exposure to managing chronic functional limitations on their own and, consequently, were more accepting of and inclined to use prescribed compensatory strategies, resulting in functional improvements. If this is the case, interventions should be designed differently for individuals with recent onset of functional decline or those with less experience with such difficulties. A question for future research is whether readiness to use prescribed strategies mediates intervention outcomes for different age groups. Yet an alternate explanation is that the older group had less access to information and concrete strategies for managing functional difficulties.

Consistent with other intervention studies with different clinical populations, individuals with lower education did better in ADL and mobility-related difficulties and two areas of self-efficacy, managing functional consequences and falls efficacy. [31] One explanation may be that older adults with low education may have fewer resources and less access to health care or other resources such as assistive devices, and knowledge of specific compensatory strategies to address functional concerns.[12,13]

We did not find that race moderated treatment effects except for IADL difficulties at 12 months, with Whites appearing to perform slightly better in this area than non-Whites, the majority of whom were African American. Thus, the intervention appeared to work similarly for both groups at both time points. One reason may be the focus of the intervention on personal goal identification and strategies tailored to the individual's environmental context and preferences such that the approach resonates with diverse cultural values.

Although the small effect sizes for treatment outcomes may call into question the clinical significance, they are consistent with previous functional interventions.[8] Moreover, recent research shows that older people perform self-care at close to their maximum capacity. Thus, even small health declines contribute to disablement such that any reduction in performance difficulties may be clinically meaningful.[35] Furthermore, we found that intervention participants had a survivorship benefit which supports the clinical significance of the small changes we found in difficulty levels.[19]

In summary, we found that demographic characteristics affect treatment response and should be accounted for in future research and clinical service. The good news is that those most vulnerable to functional decline appear to benefit the most. Nevertheless, treatment responses were not uniform across outcomes, making the picture complex. The challenge for future research will be to match interventions with specific participant characteristics and test adjustments to interventions to address needs of groups less likely to benefit, such as men or African Americans with IADL difficulties. Of equal importance is to examine treatment characteristics (dose, intensity) and other factors such as self-efficacy as potential mediators to explain the underlying mechanisms for how and why treatment benefits are achieved for certain groups and not for others. Finally, these findings suggest the importance of future intervention studies to include demographic characteristics as stratification variables to formally test variations in treatment response and evaluate the generalizability of these findings.

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References

1. Gill TM, Kurland B. The burden and patterns of disability in activities of daily living among community-living older persons. J Gerontol: Medical Sciences 2003;58A:M70–M75.
2. Hortobagyi T, Mizelle C, Beam S, DeVita P. Old adults perform activities of daily living near their maximal capabilities. J Gerontol: Medical Sciences 2003;58A:M453–M460.
3. Kelley-Moore JA, Ferraro KM. The Black/White disability gap: Persistent inequality in later life? J Gerontol: Social Sciences 2001;59B:S34–S43.
4. Koster A, Pennix BWJH, Bosma H, Kempen GIJM, Harris T, Newman AB, Rooks RN, Rubin SM, Simonsick EM, van Eijk JTM, Kritchevsky SB. Is there a biomedical explanation for socioeconomic differences in incident mobility limitation? J Gerontol:Medical Sciences 2005;60A:1022–1027.
5. Covinsky KE, Hilton J, Lindquist K, Dudley RA. Development and validation of an index to predict activity of daily living dependence in community-dwelling elders. Medical Care 2006;44:149–157. [PubMed: 16434914]
6. Gill TM, Baker DI, Gottschalk M, Peduzzi PN, Allore HB, Byers A. A program to prevent functional decline in physically frail, elderly persons who live at home. N Engl J Med 2002;347:1068–1074. [PubMed: 12362007]
7. van Haastregt JC, Diederiks JP, van Rossum E, de Witte LP, Crebolder HF. Effects of preventive home visits to elderly people living in the community: a systematic review. BMJ 2000;320:754–758. [PubMed: 10720360]
8. Stuck AE, Egger M, Hammer A, Minder CE, Beck JC. Home visits to prevent nursing home admission and functional decline in elderly people: systematic review and meta-regression analysis. JAMA 2002;287:1022–1028. [PubMed: 11866651]
9. Elkan R, Kendrick D, Dewey M, et al. Effectiveness of home based support for older people: systematic review and meta-analysis. BMJ 2001;323:719–724. [PubMed: 11576978]
10. Ferrucci L, Guralnik JM, Studenski S, Fried LP, Cutler GB Jr, Walston JD, for the Interventions on Frailty Working Group. Designing randomized, controlled trials aimed at preventing or delaying functional decline and disability in frail, older persons: a consensus report. J Am Geriatr Soc 2004;52:625–634. [PubMed: 15066083]
11. Murtagh KN, Hubert HB. Gender differences in physical disability among an elderly cohort. AJPH 2004;94:1406–1411.
12. Pressley JC. A multivariate model of functional decline in the elderly: The differential influence of income versus education. Annals of the New York Academy of Sciences 1999;896:386–389. [PubMed: 10681930]
13. Satariano, WA. Epidemiology of aging: An ecological approach. Jones and Bartlett Publishers; 2005.
14. Merrill SS, Seeman TE, Kasl SV, Berkman LF. Gender differences in the comparison of self-reported disability and performance measures. J Gerontol:Medical Sciences 1997;52A:M19–M26.
15. Kraemer HC, Wilson GT, Fairburn CG, Agras WS. Mediators and moderators of treatment effects in randomized clinical trials. Arch Gen Psychiatry 2002;59:877–883. [PubMed: 12365874]
16. Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. J Personality and Social Psych 1986;51:1173–1182.
17. Gitlin, LN.; Corcoran, M.; Martindale-Adams, J.; Malone, C.; Stevens, A.; Winter, L. Identifying mechanisms of action: Why and how does intervention work?. In: Schulz, editor. Handbook on dementia caregiving: Evidence-based interventions for family caregivers. Springer Publishing Company; New York: 2000. p. 225-248.

18. Gitlin LN, Winter L, Dennis M, Corcoran M, Schinfeld S, Hauck W. A randomized trial of a multicomponent home intervention to reduce functional difficulties in older adults. J Am Geriatr Soc 2006;54:809–816. [PubMed: 16696748]
19. Gitlin LN, Hauck WW, Winter L, Dennis M, Schulz R. Effect of an in-home occupational and physical therapy intervention on reducing mortality in functionally vulnerable elders: Preliminary findings. J Am Geriatr Soc 2006;54:950–955. [PubMed: 16776791]
20. Folstein MF, Folstein SE, McHugh PR. Mini-mental state: a practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res 1975;12:189–198. [PubMed: 1202204]
21. Ettinger WH Jr, Burns R, Messier SP, et al. A randomized trial comparing aerobic exercise and resistance exercise with a health education program in older adults with knee osteoarthritis: the Fitness Arthritis and Seniors Trial (FAST). JAMA 1997;227:25–31. [PubMed: 8980206]
22. Lawton MP, Brody E. Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist 1969;9:179–186. [PubMed: 5349366]
23. Bandura, A. Self-efficacy: The exercise of control. WH Freeman; New York, NY: 1997.
24. Tinetti ME, Richman D, Powell L. Falls efficacy as a measure of fear of falling. J Gerontol 1990;45:P239–P243. [PubMed: 2229948]
25. Powell LE, Myers AM. The Activities-specific Balance Confidence (ABC) Scale. J *Gerontol A Biol Sci Med Sci.* 1995;50:M28–M34. [PubMed: 7814786]
26. Xavier FM, Ferraz MP, Trentini CM, Freitas NK, Moriguchi EH. Bereavement-related cognitive impairment in an oldest-old community-dwelling Brazilian sample. J Clin Exp Neuropyschol 2002;24:294–301.
27. Hickman SE, Howieson DB, Dame A, Sexton G, Kaye J. Longitudinal analysis of the effects of the aging process on neuropsychological test performance in the healthy young-old and oldest-old. Developmental Neuropsychology 2000;17:323–337. [PubMed: 11056847]
28. Radloff LS. The CES-D Scale: a self-report depression scale for research in the general population. Appl Psychol Meas 1997;1:385–401.
29. Gitlin LN, Belle SH, Burgio L, Czaja S, Mahoney D, Gallagher-Thompson D, et al. Effect of multicomponent interventions on caregiver burden and depression: The REACH multi-site initiative at six months follow-up. Psych & Aging 2003;18:361–374.
30. Pinquart M, Sorensen S. Helping caregivers of persons with dementia: Which interventions work and how arge are their effects? Int Psychogeriatr 2006;18:577–595. [PubMed: 16686964]
31. Gitlin LN, Winter L, Corcoran M, Dennis M, Schinfeld S, Hauck W. Effects of the Home Environmental Skill-building Program on the caregiver-care recipient dyad: Six-month outcomes from the Philadelphia REACH initiative. The Gerontologist 2003;43:532–546. [PubMed: 12937332]
32. Gill TM, Kurland B. The burden and patterns of disability in activities of daily living among community-living older persons. J Gerontol A Biol Sci Med Sci 2003;58:M70–M75.
33. Gitlin LN, Hauck WW, Dennis M, Schulz R. Depressive symptoms in African American and White older adults with functional difficulty: The role of control strategies. JAGS. in press
34. The Commonwealth Fund. Facts on Medicare's home health benefit and recent policy changes. Jun1998 [Accessed July 14, 2006]. Available at: http://www.cmwf.org/publications/publications_show.htm?doc_id=221594
35. Hortobagyi T, Mizelle C, Beam S, DeVita P. Old adults perform activities of daily living near their maximal capabilities. J Gerontol A Biol Sci Med Sci 2003;58:M453–M460. [PubMed: 12730256]

Table 1

Interaction Effects for Treatment by Demographic Charateristics at Six and 12 Months

		Interaction				Interaction		
Dependent Variable	**Adjusted Treatment Effect at Six Months**	**Estimate**	**95% CI**	**p**	**Adjusted Treatment Effect at Twelve Months**	**Estimate**	**95% CI**	**p**
A. ADL Difficulty*								
Gender		-.32	-.62, -.02	**.036**		-.04	-.35, .27	.814
Male	.13				-.06			
Female	-.19‡				-.10			
Age		-.28	-.53, -.04	**.022**		-.31	-.55, -.06	**.014**
< 80 yrs	-.02				.02			
>= 80 yrs	-.30‡				-.29§			
Race		-.08	-.32, .15	.485		.05	-.19, .29	.689
White	-.09				-.12			
Non-white	-.17				-.07			
Education				**.028**				.079
< HS	-.36‡	.31	.03, .60		-.30§	.29	.01, .58	
HS	.01	-,06	-.34, .22		-.00	-.00	-.28, .28	
> HS	-.05				-.00			
B. Mobility Difficulty*								
Gender		-.39	-.77, .00	**.048**		-.32	-.72, .09	.125
Male	.21				.12			
Female	-.18‡				-.20			
Age		-.56	-.86, -.25	**.001**		-.44	-.76, -.12	**.007**
< 80 yrs	.12				.03			
>= 80 yrs	-.44‡				-.41‖			
Race		.18	-.13, .48	.252		.05	-.26, .36	.745
White	-.19				-.17			
Non-white	-.01				-.12			
Education				.583				**.009**
< HS	-.21	.19	-.17, .56		-.51‖	.50	.12, .87	

		Interaction				Interaction		
Dependent Variable	**Adjusted Treatment Effect at Six Months**	**Estimate**	**95% CI**	**p**	**Adjusted Treatment Effect at Twelve Months**	**Estimate**	**95% CI**	**p**
HS	-.11	.09	-.27, .46		.04	-.06	-.43, .31	
> HS	-.02				-.01			
C. IADL Difficulty*								
Gender		-.13	-.50, .23	.473		.06	-.34, .45	.777
Male	-.04				-.17			
Female	-.17				-.11			
Age		-.16	-.45, 13	.279		-.17	-.48, .14	.285
< 80 yrs	-.08				-.06			
>= 80 yrs	-.25				-.22			
Race		.20	-.09, .48	.171		.33	.04, .63	**.028**
White	-.24				-.28§			
Non-white	-.05				.06			
Education				.994				.363
< HS	-.16	.02	-.33, .36		-.16	-.06	-.43, .30	
HS	-.15	.01	-.33, .36		.04	-.25	-.61, .11	
> HS	-.14				-.22			
D. Self-efficacy*								
Gender		.36	.02, .69	**.036**		.29	-.10, .67	.142
Male	-.14				-.17			
Female	.21‡				.12			
Age		.19	-.08, .46	.172		.33	.03, .64	**.030**
< 80 yrs	.08				-.06			
>= 80 yrs	.27				.27‡			
Race		-.20	-.46, .06	.132		-.07	-.36, .22	.627
White	.24				.10			
Non-white	.05				.03			
Education				.122				**.016**
< HS	.33	-.23	-.54, .09		.38§	-.38	-.73, -.03	
HS	.03	.10	-.21, .41		-.14	.14	-.21, .48	

		Interaction				Interaction		
Dependent Variable	**Adjusted Treatment Effect at Six Months**	**Estimate**	**95% CI**	**p**	**Adjusted Treatment Effect at Twelve Months**	**Estimate**	**95% CI**	**p**
> HS	.10				-.00			
E. Fear of Falling*								
Gender		.58	-.35, 1.52	.221		.69	-.44, 1.81	.228
Male	.14				-.08			
Female	.72				.61			
Age		.09	-.68, .85	.826		.79	-.09, 1.67	.076
< 80 yrs	.57				.21			
>= 80 yrs	.65				1.00§			
Race		.20	-.54, .93	.599		-.07	-.92, .78	.866
White	.52				.53			
Non-white	.71				.46			
Education				**.001**				.158
< HS	1.59‡	-1.25	-2.12, -.38		1.08	-.69	-1.72, .33	
HS	-.03	.38	-.49, 1.24		.06	.34	-.68, 1.35	
> HS	.34				.39			

*Adjusted for baseline value, age, race, living arrangement, economic well-being, social support and depressive symptoms.

†$p < .05$

‡$p < .01$

§$p < .001$