JVIB

September 2004 • Volume 98 • Number 9

Exploring Functional Disability in Older Adults with Low Vision

Linda A. Travis, Kathrin Boerner, Joann P. Reinhardt, and Amy Horowitz

Abstract: This article reports on a study that explored the prevalence and predictors of functional disability that are due to visual problems as opposed to functional disability that is due to other health problems. It also discusses the implications for psychosocial and rehabilitative interventions that target different types of disability.

The authors thank Jennifer A. Katz, visiting assistant professor of psychology at SUNY College at Geneseo, Geneseo, New York, for assistance in the statistical analyses portion of this project.

Age-related visual impairment has been consistently identified as an independent predictor of significant functional impairment for older adults living in the community (Verbrugge & Patrick, 1995). In both cross-sectional (Keller, Morton, Thomas, & Potter, 1999) and longitudinal studies (Wahl, Schilling, Oswald, &

Heyl, 1999; Wallhagen, Strawbridge, Shema, Kurata, & Kaplan, 2001), older adults with visual impairments have been found to have greater functional disability, both in basic activities of daily living (ADLs) and in instrumental activities of daily living (IADLs), than have older adults without visual impairments. Given that over 26% of those aged 75 and older report visual problems (The Lighthouse, 1995) and that there are no conventional "cures" for many diseases or conditions that lead to the progressive loss of vision, investigators must further explore functional disability. Specifically, it would be useful to identify those ADLs and IADLs tasks for which difficulties are more likely to be due to visual problems than to other health problems and to examine if there are different predictors of functional disability that is due to visual problems than for functional disability that is due to other health problems. Such research may yield information that is crucial for designing rehabilitative and psychosocial interventions to maximize the functioning of older adults with low vision, a goal with substantial public health implications and one that is pertinent to the various disciplines that are involved in vision rehabilitation.

A promising approach to exploring functional disability in older adults is to identify factors that may hasten the pathway between a physical impairment (a dysfunction in a bodily system or organ) and a subsequent functional disability (difficulty in performing ADLs or IADLs). The disablement model

(Verbrugge & Jette, 1994) proposes that health and psychosocial status may be risk factors that accelerate the pathway between impairment and disability. These risk factors include depression (Lebowitz et al., 1997; Penninx et al., 1998), a poor quality of social support (Steffens, Hays, & Krishnan, 1999; Unger, McAvay, Bruce, Berkman, & Seeman, 1999), and poor self-rated health (Idler & Kasl, 1995). Although health and psychosocial factors were examined in a study of depression among older adults (Horowitz, Reinhardt, Boerner, & Travis, 2003), no study has investigated a model that includes depression, social support, self-rated health, and visual factors and their differential prediction of vision-related disability or general functional disability. Identifying psychosocial factors that are associated with functional disability is a key area in the assessment and course of vision rehabilitation services for older adults (Kemp, 2000; Watson, 2001) and merits further investigation.

Prior studies of older adults' vision-related disability have found relationships between depression and both vision-related disability and general functional disability (Brody et al., 2001) and relationships between visual acuity and vision-specific but not general functional disability (Brody et al., 2001; Casten, Rovner, & Edmonds, 2002). Although these two studies have contributed to the emerging study of vision-related and general functional disability, they have had three limitations. First, they examined depression but not social support or self-rated health,

two potentially important factors just noted. Second, their sole use of an objective measure of visual acuity, Snellen ratings, may not have captured important nuances in the participants' subjective experience of visual function and overall adaptation to vision loss. Indeed, adaptation to vision loss may be a critical predictor of vision-related disability. Finally, neither study operationalized functional disability with the standard measures used in gerontological research, such as the ability to peform ADLs and IADLs. The use of standard measures would identify specific ADLs and IADLs in older adults that are more likely or less likely to be linked with vision-related or other health-related disability. This knowledge could then guide decisions about relevant goals, services, and outcome measures for rehabilitation programs that serve older adults (Babcock, Goodrich, Head, & Boyless, 2000; Horowitz & Stuen, 2000; Kemp, 2000).

In summary, more research is needed to specify further the types and predictors of functional disability in older adults who are visually impaired. Bruce (2001) recommended such specificity of measurement in investigating functional disability in older adults.

This study of visually impaired older adults who were seeking vision rehabilitation services had two purposes. First, the descriptive portion of the study revealed the prevalence of difficulties for each ADL and IADL task and then examined the degree to which the participants reported that difficulties for each ADL

and IADL task were due to visual problems. Second, the study investigated if there are distinct or shared predictors of functional disability that is due to visual problems and functional disability that is due to other health problems.

Methods

Sample

The 155 participants aged 65 and older had been newly referred to a vision rehabilitation agency serving the greater New York area. The participants ranged in age from 65 to 92 years, with an average of 78.3 years (*SD* = 7.0). More than half (53.5%) were female; 80% were white; 38.1% were married; 55.5% lived with others, rather than alone; and 52.9% had at least a high school diploma. The participants reported, on average, three concurrent health conditions, the most common being arthritis, high blood pressure, circulation problems, heart problems, and diabetes.

Interviews were conducted in the participants' homes before the receipt of any rehabilitation service and took approximately 60–90 minutes to complete. The participants were given $20 at the completion of the interviews in appreciation of their time.

Measures

Self-rated health was rated on a 5-point scale: (1) very

poor, (2) poor, (3) fair, (4) good, or (5) excellent; the mean score was 3.3 (*SD* = 1.1). The Functional Vision Status Questionnaire (Horowitz, 1998; Horowitz, Teresi, & Cassels, 1991), a 15-item index, was used to examine the subjective severity of impairment. Items assess whether (1) or not (0) difficulty is experienced in specific functional areas (such as reading newspaper print, seeing price labels, and recognizing faces across a room). Potential scores range from 0 to 15, with higher scores indicating more difficulty. The mean score was 10.4 (*SD* = 3.3), with a Cronbach's alpha of 0.81.

The widely used 20-item Center for Epidemiological Studies Depression Scale (Radloff, 1977) was used to assess the frequency of the participants' depressive symptoms (such as feelings of worthlessness and psychomotor retardation) on a 4-point scale, ranging from less than one day (0) to 5–7 days during the past week (3). The Cronbach's alpha was 0.91. Potential scores range from 0 to 60, with higher scores indicating a higher frequency and/or severity of depressive symptoms. The mean score was 14.5 (*SD* = 12.4).

The quality of emotional support was measured with the 12-item Emotional Bondedness Scale (Snow & Crapo, 1982). The participants were asked to identify their closest relative and indicate if each of the statements (for example, "This person sometimes makes me feel discouraged" and "This person thinks

highly of what I know and can do") was always true (1), somewhat true (2), or not at all true (3). Potential scores range from 12 to 36. Items with a positive direction are reverse scored, so that higher scores indicate a better quality of attachment. The mean score was 30.6 (*SD* = 4.7), with a Cronbach's alpha of 0.84.

The 24-item Adaptation to Vision Loss Scale (Horowitz & Reinhardt, 1998) was used to assess the participants' adaptation to age-related vision loss. Items ask if the participants agree (0) or disagree (1) with statements about visual impairment, including those that address a realistic acceptance of vision loss, openness toward continuing relationships with family members and friends, and the pursuit of rehabilitation services (such as "Losing one's sight means losing one's self" and "There are worse things that can happen to me than losing vision"). Positively worded items are reverse scored. Potential scores range from 0 to 24, with higher scores indicating better adaptation. The mean score was 17.4 (*SD* = 4.8), alpha = 0.85.

Outcome variables

The OARS Multidimensional Functional Assessment Questionnaire (Center for the Study of Aging and Human Development, 1975) was used to assess the participants' disability in carrying out ADLs and IADLs. The original measure included seven ADLs items and seven IADLs items (see Table 1). Four additional questions were added to the IADLs items on

the basis of discussions with vision rehabilitation professionals. These four questions specifically addressed functional tasks that may be affected by vision loss (the ability to travel farther than walking distance and to identify coins and bills, one's clothing, and food on one's plate). Items are assessed on a 3-point rating scale (0 = does task with no difficulty, 1 = does task with difficulty, or 2 = cannot do task without help). Scores for ADLs and IADLs were summed to create a total functional disability score for each participant. Potential scores range from 0 to 36, with higher scores indicating more functional disability. The average total functional disability score was 9.7 (*SD* = 7.0), with a Cronbach's alpha of 0.89.

The next step was to determine if the reported functional disability was due to visual problems or to other health problems. If the participants responded that they had difficulty or could not do the task without help, they were then asked, "Is this [difficulty] primarily because of your vision problem, another health problem, or a combination of vision and other health problems?" For this study, the responses were summed to create two dependent variables: (1) the number of tasks that were difficult primarily because of visual problems (referred to as "vision-related disability") and (2) the number of tasks that were difficult primarily because of other health problems (referred to as "other health-related disability"). The category of disability that was due to a combination of visual and health problems was excluded from all the

analyses so that distinctions among vision-related disability and other health-related disability could be clearly examined to guide the development of future rehabilitation interventions for the two types of disability. Potential scores for each disability category could range from 0 to 18, with higher scores indicating a greater number of activities affected by functional disability (see Box 1 for a concise overview of all definitions related to functional disability in this study).

Data analysis

For the descriptive portion of the study, the distribution of responses to each functional task was recorded. Then, the number and percentage of participants with vision-related disability and other health-related disability for each functional task were calculated. Bivariate and hierarchical multiple regression analyses were conducted to examine the distinct and shared influences of health, functional vision loss, and psychosocial factors on the two types of functional disability: vision-related disability and other health-related disability. The first regression model focused on vision-related disability, and the second focused on other health-related disability. Each independent variable was selected for its relevance to the conceptual model. All variables that were included in bivariate analyses were retained for the regression analyses.

Results

The distribution of responses for each functional disability task is presented in Table 1. Among the tasks that were designated as difficult because of vision loss, the participants were much more likely to report difficulty with IADLs tasks than with ADLs tasks, with the exception of the ADLs tasks of taking care of one's appearance and feeding oneself.

The number of ADLs and IADLs tasks reported by each participant as being due to vision-related disability ranged from 0 to 15, with a mean of 5.3 (*SD* = 3.8). Scores for functional disability tasks that were due to other health-related disability ranged from 0 to 14, with a mean of 0.9 (*SD* = 2.07). Table 2 presents the number and percentage of participants who had difficulty with each task that was due to visual problems or to other health problems.

Vision-related disability was reported as causing the most difficulty for the ADLs tasks of taking care of one's appearance and feeding oneself and across *all* IADLs tasks. Of the participants who reported difficulty with an IADL, 50%–98% identified visual problems as the primary problem associated with their IADLs disability.

Bivariate correlations of predictor variables with the two dependent variables—the number of ADLs tasks associated with vision-related disability and the

number of functional disability tasks associated with other health-related disability—are presented in Table 3.

The results indicated that there is a significant positive relationship between depressive symptoms and the number of functional tasks associated with both vision-related disability and other health-related disability. Thus, the participants who reported higher levels of depressive symptoms were more likely to report a greater number of functional difficulties that were due to vision-related disability and a greater number of functional difficulties that were due to other health problems. In addition, greater functional vision loss and poorer adaptation to vision loss were significantly related to a greater number of functional difficulties that were due to vision-related disability but not to other health-related disability. In contrast, poor self-rated health and a poor quality of relationships were significantly related to a greater number of functional difficulties that were due to other health-related disability but not to vision-related disability. Age was related to neither type of functional disability.

To examine the independent relationships of age, self-rated health, functional vision, depressive symptoms, quality of relationships, and adaptation to vision loss with the number of functional difficulties that were due to vision-related disability versus those that were due to other health-related disability, we conducted two multiple regression analyses. Table 4 and Table 5

display the regression coefficients from the final step of each analysis.

In the first analysis, functional difficulties that were due to vision-related disability were examined with the predictor variables of age, health, and psychosocial variables. Age, health, and functional vision loss were entered in Step 1, and depressive symptoms, emotional bondedness, and adaptation to vision loss were entered in Step 2. The results demonstrated that the block of age, health, and vision variables significantly accounted for 34% of the variance in the number of functional difficulties that were due to vision-related disability. In Step 2, the psychosocial variables added another 7% to the total explained variance. Thus, this model accounted for a total of 41% of the variance in functional difficulties that were due to vision-related disability. In the final step, two individual variables accounted for a statistically unique variance in the outcome. The participants who reported greater functional vision loss and a poor adaptation to vision loss had higher levels of vision-related disability.

In the second analysis, functional difficulties that were due to other health-related disability were examined with the same set of predictor variables that were entered in the same steps as in the first analysis. The results demonstrated that the block of age, health, and vision variables significantly accounted for 22% of the variance in the number of functional difficulties that were due to other health-related disability. In Step 2,

the psychosocial-variables block was only marginally significant but added another 4% to the total explained variance. This model accounted for a total of 26% of the variance in functional difficulties that were due to other health-related disability. In the final step, two individual variables accounted for a statistically unique variance in the outcome. The participants who reported a poor quality of self-rated health and a poor quality of relationships had higher levels of other health-related disability.

Discussion

Two key areas of findings indicate critical distinctions among types and predictors of functional disability. Beginning with the descriptive results, we found that IADL difficulties were much more prevalent than ADL difficulties. When the participants reported difficulty, the vast majority identified visual problems, rather than other health problems, as the cause of difficulty in all the IADL tasks and two ADL tasks. The IADL tasks that were most often linked with visual problems were picking out and identifying clothing, locating and identifying food, handling and identifying money, using a telephone, writing checks, and taking medications. In contrast, the ADLs tasks, except taking care of one's appearance and feeding oneself, were overwhelmingly linked with other health problems, rather than vision. Our findings highlight the importance of asking older adults about the source of their functional disabilities, a method that is

increasingly being used to investigate geriatric disability (Valderrama-Gama, Damián, Ruigómez, & Martín-Moreno, 2002). Furthermore, we found that greater functional vision loss and a poor adaptation to vision loss were independent predictors of vision-related disability, while a poor quality of self-rated health and a poor quality of relationships were independent predictors of other health-related disability. Overall, our findings provide specification and clarification regarding the complexities of functional disability in older adults with visual impairments and offer directions to consider when providing and designing varied interventions for older adults in vision rehabilitation settings.

These findings emphasize the need for psychosocial and rehabilitative interventions to address the two types of functional disability. Given that a poor adaptation to vision loss predicted vision-related disability, rehabilitation interventions need to continue to improve older adults' adaptation to vision loss, a focus that is prevalent throughout the field of vision rehabilitation (Kemp, 2000) and that was empirically demonstrated in one study (Horowitz, Leonard, & Reinhardt, 2000). Successful adaptation to visual impairment may have a direct or indirect bearing on the perception of the pervasiveness, severity, and meaning of functional disabilities. Interdisciplinary teams that include mental health professionals may be essential in bolstering psychosocial adaptation skills to improve older adults' coping with visual impairment

and in preventing depression and unnecessary functional decline. Moreover, given our findings that a greater loss of functional vision predicted vision-related disability and the progressive loss of vision that many older adults face, the psychosocial dimension of vision rehabilitation needs to address adaptation as a dynamic and ongoing process. Although vision rehabilitation services may be targeting adaptation processes with older adults, there is a paucity of outcome research on existing vision rehabilitation services (Horowitz & Stuen, 2000). The proposed mechanisms of change for rehabilitation interventions, such as adaptation to vision loss, have not yet been empirically linked with outcomes, such as decreases in functional disability, and further research is imperative in this area.

For other health-related disability, the presence of ADLs difficulties, rather than IADLs difficulties, and the absence of vision-related predictors suggest that providers of rehabilitation services must carefully attend to issues of medical comorbidity and encourage realistic goal setting that is related to changes in functioning. For some older adults who are visually impaired, other non-vision-related rehabilitation services (such as physical therapy) may be indicated. Alternatively, vision rehabilitation services may need to be offered in conjunction with other rehabilitation services. For example, visual impairment is known to be a risk factor for imbalance, falls, and hip fracture (Crews, 2000); effective intervention and rehabilitation

efforts in these areas may necessitate the simultaneous delivery of multiple types of geriatric rehabilitation. Finally, given that poor self-rated health and a poor quality of relationships predicted other health-related disability in our study, a family-focused psychosocial intervention (Fisher & Weihs, 2000) is recommended to target the relational context for managing multiple illnesses and to discuss the common themes of autonomy and dependence that challenge the families of older adults who are adjusting to older adults' abilities and disabilities. Family involvement in vision rehabilitation efforts for older adults has also been recommended by others (Kemp, 2000; Horowitz & Stuen, 2000; Watson, 2001).

Depression did not explain the variance over and beyond other predictors for vision-related or other health-related disability in our study. Nonetheless, given the well-established reciprocal relationship between depression and functional disability (Bruce, 2001; Lebowitz et al., 1997) and the high rate of depression and disability associated with visual impairment (Brody et al., 2001; Casten et al., 2002), research is needed to specify how depression is associated with vision and health predictors of functional disability in visually impaired older adults.

Our results must be considered in the context of limitations, especially the cross-sectional design of our study and a sample that was predominantly white. The study was also based on older adults who sought help

from a vision rehabilitation agency. Thus, our results may not generalize to older adults with visual impairments who do not seek help from a vision rehabilitation agency or to younger adults with visual impairments who do seek help from a vision rehabilitation agency. In addition, we acknowledge that our study would have been strengthened by the inclusion of service providers' evaluations of older adults' functional abilities and disabilities. Nonetheless, obtaining self-report data is a widely used and valid approach to the research areas of functional disability, psychosocial status, and visual impairment in older adults. We hope that future investigations will also include other perspectives, such as those of service providers, as well as the use of examiner-rated measures.

With these limitations acknowledged, however, we highlight that our naturalistic study design allowed us to investigate those older adults who had identified that they wanted help from a visual rehabilitation agency for difficulties related to their vision loss. This is an important and ever-growing group of older adults who merit investigation on many fronts, including questions of how to improve the delivery and focus of services in a vision rehabilitation agency. We note here that our study is, to our knowledge, the first such study of older adults with the goal of understanding distinct and shared predictors of vision-related and other health-related disability. Our results highlight critical distinctions among predictors of vision-related and

other health-related disability and underscore the importance of eliciting older adults' views about the source of ADLs and IADLs difficulties. Overall, our findings emphasize the need for future research on rehabilitative and psychosocial interventions that target the two types of functional disability among older adults.

References

Babcock, J. L., Goodrich, G. L., Head, D. N., & Boyless, J. A. (2000). Developing geriatric training outcome assessments in vision rehabilitation. *Journal of Visual Impairment & Blindness, 96,* 307–321.

Brody, B. L., Gamst, A. C., Williams, R. A., Smith, A. R., Lau, P. W., Dolnak, D., Rapaport, M. H., Kaplan, R. M., & Brown, S. I. (2001). Depression, visual acuity, comorbidity, and disability associated with age-related macular degeneration. *Ophthalmology, 108* , 1893–1901.

Bruce, M. L. (2001). Depression and disability in late life. *American Journal of Geriatric Psychiatry, 9* , 102–112.

Casten, R. J., Rovner, B. W., & Edmonds, S. E. (2002). The impact of depression in older adults with age-related macular degeneration. *Journal of Visual Impairment & Blindness, 96,* 399–406.

Center for the Study of Aging and Human Development, Duke University. (1975). *Multidimensional functional assessment: The OARS methodology* (1st ed.). Durham, NC: Author.

Crews, J. E. (2000). Aging and vision loss: A conceptual framework for policy and practice. In J. E. Crews & F. J. Whittington (Eds.), *Vision loss in an aging society: A multidisciplinary perspective* (pp. 21–53). New York: AFB Press.

Fisher, L., & Weihs, K. L. (2000). Can addressing family relationships improve outcomes in chronic disease? Report of the National Working Group on Family-Based Interventions in Chronic Disease. *Journal of Family Practice, 49,* 561–566.

Horowitz, A. (1998). Validation of a functional vision screening questionnaire for older people. In *Vision '96: Proceedings of the International Low Vision Conference* (pp. 492–494). Madrid: ONCE.

Horowitz, A., Leonard, R., & Reinhardt, J. P. (2000). Measuring psychosocial and functional outcomes of a group model of vision rehabilitation services for older adults. *Journal of Visual Impairment & Blindness, 94* , 328–337.

Horowitz, A., & Reinhardt, J. P. (1998). Development of the Adaptation to Age-related Vision Loss Scale. *Journal of Visual Impairment &*

Blindness, 92, 30–41.

Horowitz, A., Reinhardt, J. P., Boerner, K., & Travis, L. A. (2003). The influence of health, social support quality and rehabilitation on depression among disabled elders. *Aging and Mental Health, 7,* 342–350.

Horowitz, A., & Stuen, C. (2000). Directions for research in aging and vision rehabilitation. In J. E. Crews & F. J. Whittington (Eds.), *Vision loss in an aging society: A multidisciplinary perspective* (pp. 227–255). New York: AFB Press.

Horowitz, A., Teresi, J. E., & Cassels, I. A. (1991). Development of a vision screening questionnaire for older people. *Journal of Gerontological Social Work, 17* , 37–56.

Idler, E. L., & Kasl, S. V. (1995). Self ratings of health: Do they also predict change in functional ability? *Journal of Gerontology: Social Sciences, 50B* , S344–S353.

Keller, B. K., Morton, J. L., Thomas, V. S., & Potter, J. F. (1999). The effect of visual and hearing impairments on functional status . *Journal of the American Geriatrics Society, 47,* 1319–1325.

Kemp, B. J. (2000). Psychosocial considerations in a rehabilitation model for aging and vision services. In

J. E. Crews & F. J. Whittington (Eds.), *Vision loss in an aging society: A multidisciplinary perspective* (pp. 133–153). New York: AFB Press.

Lebowitz, B. D., Pearson, J. L., Schneider, L. S., Reynolds, C. F., III, Alexopoulos, G. S., Bruce, M. L., Cornwell, Y., Katz, I. R., Meyers, B. S., Morrison, M. F., Mossey, J, Niederehe, G., & Parmelee, P. (1997). Diagnosis and treatment of depression in late life. Consensus statement update. *Journal of the American Medical Association, 278,* 1186–1190.

The Lighthouse. (1995). *The Lighthouse national survey on vision loss: The experience, attitudes and knowledge of middle-aged and older Americans.* New York: Author.

Penninx, B. W., Guralnick, J. M., Ferrucci, L., Simonsick, E. M., Deeg, D. J., & Wallace, R. B. (1998). Depressive symptoms and physical decline in community-dwelling older persons. *Journal of the American Medical Association, 279,* 1720–1726.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385–401.

Snow, R., & Crapo, L. (1982). Emotional bondedness, subjective well-being, and health in elderly medical patients. *Journal of Gerontology, 37,*

609–615.

Steffens, D. C., Hays, J. C., & Krishnan, R. R. (1999). Disability in geriatric depression. *American Journal of Geriatric Psychiatry, 7* , 34–40.

Unger, J. B., McAvay, G., Bruce, M. L., Berkman, L., & Seeman, T. (1999). Variation in the impact of social network characteristics on physical functioning in elderly persons: MacArthur Studies of Successful Aging. *Journal of Gerontology: Social Sciences, 54,* S245–S251.

Valderrama-Gama, E., Damián, J., Ruigómez, A., & Martín-Moreno, J. M. (2002). Chronic disease, functional status and self-ascribed causes of disabilities among noninstitutionalized older people in Spain. *Journal of Gerontology: Medical Sciences, 57A,* M716–M721.

Verbrugge, L. M., & Jette, A. M. (1994). The disablement process. *Social Science and Medicine, 38,* 1–14.

Verbrugge, L. M., & Patrick, D. L. (1995). Seven chronic conditions: Their impact on U.S. adults' activity levels and use of medical services. *American Journal of Public Health, 85,* 173–182.

Wahl, H. W., Schilling, O., Oswald, F., & Heyl, V. (1999). Psychosocial consequences of age-related

visual impairment: Comparison with mobility-impaired older adults and long-term outcome. *Journal of Gerontology, Psychological Sciences, 54,* P304–P316.

Wallhagen, M. I., Strawbridge, W. J., Shema, S. J., Kurata, J., & Kaplan, G. A. (2001). Comparative impact of hearing and vision impairment on subsequent functioning. *Journal of the American Geriatrics Society, 49,* 1086–1092.

Watson, G. R. (2001). Low vision in the geriatric population: Rehabilitation and management. *Journal of the American Geriatrics Society, 49,* 317–330.

Linda A. Travis, Psy.D., *psychologist, Senior Outreach Program, Department of Psychiatry and Behavioral Health, Unity Health System, 46 Prince Street, Rochester, NY 14607; e-mail:* <*ltravis@rochester.rr.com*>. ***Kathrin Boerner,Ph.D.,*** *research associate, Arlene R. Gordon Research Institute, Lighthouse International, 111 East 59th Street, New York, NY 10022.* ***Joann P. Reinhardt, Ph. D.,*** *vice president for psychosocial research, Arlene R. Gordon Research Institute, Lighthouse International, 111 East 59th Street, New York, NY 10022.* ***Amy Horowitz, D.S.W.,*** *senior vice president for research, Arlene R. Gordon Research Institute, Lighthouse International, 111 East 59th Street, New York, NY 10022.*

Previous Article | Next Article | Table of Contents

Search JVIB | JVIB Policies | Contact JVIB | Subscriptions | JVIB Home

If you would like to give us feedback, please contact us at jvib@afb.net.

www.afb.org | Change Colors and Text Size | Contact Us | Site Map |

Site Search Go

About AFB | Press Room | Bookstore | Donate | Policy Statement

---

Please direct your comments and suggestions to afbinfo@afb.net