

Communication difficulties and other stroke sequelae may cause individuals with aphasia (IWA) greater psychological and physiological stress than the general population. Indeed, Laures-Gore, Hamilton, and Matheny (2007) found that IWA have greater perceived stress when compared to healthy controls. Increased levels of psychological stress are associated with negative health outcomes, including poor immune system function and increased risk for disease (Selye, 1955; McEwen, 1998). Individuals can reduce the damaging impact of stress by using coping resources, or environmental and personal factors used to lessen the effects of stress (Wheaton, 1983). Unfortunately, Laures-Gore et al. (2007) found that IWA report fewer overall perceived coping resources than healthy individuals. However, it is not known which coping resources IWA perceive to be diminished or unavailable. With the goal of reducing stress and its negative health effects in this population, the current study seeks to identify specific coping resources that may be perceived to be unavailable or reduced in IWA.

Typical coping resources are confidence, social support, finances, stress monitoring, tension control, and acceptance (Curllette, Aycock, Matheny, et al., 1992). A review of the literature suggests that these coping resources may be affected in IWA. For instance, IWA have been shown to have low self-confidence and mastery, which is the confidence in controlling their environment (Cruice et al., 2003; Parr, 1994). Social support provides both instrumental and emotional support for stressed individuals (Carver, Scheier, & Weintraub, 1989), however, aphasia impairs communication, the primary way to sustain social relationships (Hilari & Northcott, 2006; Parr et al., 1997). Unfortunately, IWA feel dissatisfied with the quality and quantity of their social interactions (Vander Gaag, 2005), report feelings of isolation (Parr et al., 1997), and tend to have smaller social networks than healthy peers (Hilari & Northcott, 2006; Cruice, Worall, & Hickson, 2006). Additionally, loss of income may reduce an individual's

perceived financial freedom (Curlette et al., 1992). IWA return to work following stroke at consistently low rates (Hofgren et al., 2007; Vilkki et al., 2004), often working fewer hours or in low level positions (Hinckley, 2002; Caporali & Basso, 2003; Cruice et al., 2006). Furthermore, additional costs for medical treatment and aphasia therapy following stroke may increase perceived financial strain. Stress monitoring skills are used as a coping resource when individuals recognize high stress levels and environments that cause stress (Curlette et al., 1992). No known research has examined perceived stress monitoring skills in individuals with brain damage. However, Laures-Gore, Heim, and Hsu (2007) measured cortisol reactivity and perceived stress to a linguistic stressor in IWA. They found that while IWA perceived more stress than healthy individuals, they did not show the significant cortisol response present in the healthy group. This finding may indicate that IWA are less able to monitor their own stress levels. Another coping resource, tension control, is the perceived ability to reduce tension build-up caused by stress (Curlette et al., 1992). Research suggests that aggression, a symptom of the inability to control tension, is common after stroke (Stone, Townend, & Kwan et al., 2004; Thomas, 2007). However, the literature is not clear as to whether the presence of aphasia is related to aggression following stroke (Angelelli et al., 2004; Kim, Choi, & Kwon et al., 2002). Carver et al. (1989) describe acceptance as an adaptive means of coping with stress, especially in situations when the stressor is long-term in nature. Unfortunately, IWA fall well below the range of healthy older individuals in the self-acceptance scale of the *Ryff Psychological Well-Being Scale*, which ranges normally from 89.00 to 93.75 (*SD* between 13.76 and 19.75; Ryff, 1989); IWA have scored between 9 to 20 (Cruice, Warwall & Hickson et al., 2006).

Further examination of these coping resources is warranted to determine how to improve coping abilities and reduce stress in IWA. The present study examines confidence, social

support, finances, stress monitoring, tension control, and acceptance in IWA compared to healthy individuals and individuals with right brain damage (RBD).

## Methods

*Participants.* Thirty-two IWA (16 men, 16 women), 12 individuals with RBD (9 men, 3 women), and 14 healthy controls (11 men, 3 women) participated in the study. Mean age was 55.4 years for IWA, 59.4 years for individuals with RBD, and 54.2 years for healthy controls. Months post onset was 10.8 for IWA and 2.3 for individuals with RBD.

*Procedures and Measure.* Participants underwent cognitive and language testing and completed several questionnaires related to stress, including the *Coping Resources for Stress Inventory (CRIS)* to assess the perceived availability of coping resources (Matheny, Curlette, Aycock, et al., 1987). The *CRIS* is a 280-item true-false inventory. The following six primary scales reflecting perceived coping resources will be used in the present study: confidence, social support, financial freedom, stress monitoring, tension control, and acceptance. Questionnaires were completed in the home while a caregiver, spouse, or friend read the questions along with the participant. Both control groups followed the same procedure.

## Results

Multivariate analyses of variances (MANOVAs) of between group differences were performed to determine differences in perceived coping resources between IWA, individuals with RBD, and healthy comparisons. No significant differences were found for the confidence, social support, or financial freedom scales. However, there were significant differences between groups in the stress monitoring ( $F = 4.40$ ;  $p < .05$ ), tension control ( $F = 5.67$ ;  $p < .05$ ), and acceptance ( $F = 8.32$ ;  $p < .01$ ) scales. For the stress monitoring scale, IWA (mean = 58.7,  $SD = 25.0$ ), showed fewer perceived resources than either comparison group (RBD mean = 75.8,  $SD =$

23.4; healthy mean = 78.9,  $SD = 21.6$ ). A one-way ANOVA revealed a difference between IWA (47.8,  $SD = 21.1$ ) and healthy controls (68.9,  $SD = 15.6$ ;  $F = 11.3$ ;  $p < .01$ ) in tension control, though there was no significant difference in scores between IWA and individuals with RBD in this scale. There was also a difference between IWA (57.3,  $SD = 19.8$ ) and healthy controls (80.7,  $SD = 16.2$ ) in acceptance ( $F = 15.1$ ;  $p < .001$ ), however not between IWA and individuals with RBD. A one-way ANOVA did show a significant difference in perceived confidence resources between IWA (69.8,  $SD = 26.2$ ) and healthy comparisons (85.7,  $SD = 14.5$ ;  $F = 4.49$ ;  $p = .04$ ). Individuals with RBD (53.8,  $SD = 22.7$ ) did not differ significantly from the healthy controls on any scale but acceptance ( $F = 12.5$ ;  $p < .01$ ).

### Discussion

This study examined the perceived coping resources of individuals with left hemisphere stroke and aphasia in comparison with both healthy individuals and those with right hemisphere stroke. Results indicated that IWA, individuals with RBD, and healthy adults have similar perceived social support and financial freedom resources. However, IWA showed fewer perceived confidence, stress monitoring, tension control, and acceptance resources when compared to healthy peers. IWA were found to have diminished perceived stress monitoring resources compared to individuals with RBD, but the two groups had similar levels of perceived tension control and acceptance. Although IWA and individuals with RBD did not significantly differ from each other in most of the scales, IWA differed from healthy adults more so than did individuals with RBD in confidence, stress monitoring, and tension control. The clinical implications of these findings for stress reduction in IWA will be discussed.

## References

- Angelelli, P., Paulucci, S., Bivona, W., Piccardi, L., Ciurli, P., & Cantagallo, A. et al. (2004). Development of neuropsychiatric symptoms in poststroke patients: A cross-sectional study. *Acta Psychiatrica Scandinavica*, *110*, 55-63.
- Caporali, A., & Basso, A. (2003). A survey of long-term outcome of aphasia and of chances of gainful employment. *Aphasiology*, *17*(9), 815-834.
- Carver, C., Scheier, M., & Weintraub, J. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*(2), 267-283.
- Cohen, F., & Lazarus, R. (1979). Coping with the stresses of illness. *Health Psychology: A Handbook* (pp. 217-254). San Francisco: Jossey-Bass Publishers.
- Cruice, M., Worall, L., & Hickson, L. (2006). Quantifying aphasic people's social lives in the context of non-aphasic peers. *Aphasiology*, *20*(12), 1210-1225.
- Cruice, M., Worrall, L., Hickson, L., & Murison, R. (2003). Finding a focus for quality of life with aphasia: Social and emotional health, and psychological well-being. *Aphasiology*, *17*(4), 333-353.
- Curlette, W., Aycock, D., Matheny, K., Pugh, J., & Taylor, H. (1992). *Coping Resources Inventory for Stress* manual. Fayetteville, GA: Health Prisms.
- Feibel, J., Hardy, P., Campbell, R., Goldstein, M., & Joynt, R. (1977). Prognostic value of the stress response following stroke. *Journal of the American Medical Association*, *238*, 1374-1376.
- Fung, L., Lui, M., Chau, J. (2006). Relationship between self-esteem and the occurrence of depression following a stroke. *Journal of Clinical Nursing*, *15*(4), 505-506.

- Hilari, K., & Northcott, S. (2006). Social support in people with chronic aphasia. *Aphasiology*, *20*(1), 17-36.
- Hinckley, J. (2002). Vocational and social outcomes of adults with chronic aphasia. *Journal of Communication Disorders*, *35*, 543-560.
- Hofgren, C., Bjorkdahl, A., Esbjornsson, E., & Stibraut-Sunnerhagen, K. (2007). Recovery after stroke: Cognition, ADL, function and return to work. *Acta Neurologica Scandinavica*, *115*, 73-80.
- Ironson, G., Balbin, E., Stieren, E., Detz, K., Fletcher, M., & Schneiderman, N. et al. (2008). Perceived stress and norepinephrine predict the effectiveness of response to protease inhibitors in HIV. *International Journal of Behavioral Medicine*, *15*, 221-226.
- Karadag, F., Ozcan, H., Eskin, M., Karul, A., Ceylan, E., & Tufek, Y., et al. (2008). Psychological distress in chronic obstructive pulmonary disease patients. *Stress and Health*, *24*, 115-122.
- Kiecolt-Glaser, J., Marucha, P., Malarkey, W., Mercado, A., & Glasser, R. (1995). Slowing of wound healing by psychological stress. *The Lancet*, *346*, 194-1196.
- Kim, J., Choi, S., Kwon, S., Seo, Y. (2002). Inability to control anger or aggression after stroke. *Neurology*, *58*, 1106-1108.
- Laures-Gore, J., Hamilton, A., & Matheny, K. (2007). Coping resources, perceived stress, and recent life experiences in individuals with aphasia. *Journal of Medical Speech-Language Pathology*, *15* (4), 423-431.
- Laures-Gore, J., Heim, C., Hsu, Y. (2007). Assessing cortisol reactivity to a linguistic task as a marker of stress in individuals with left hemisphere stroke and aphasia. *Journal of Speech, Language, and Hearing Research*, *50*, 493-507.

- Lazarus, R. (1985). The psychology of stress and coping. *Issues in Mental Health*, 7, 399–418.
- Wheaton, B. (1997). The nature of chronic stress. *Coping with Chronic Stress* (pp. 43-74). New York: Plenum Press.
- Malhotra, S., & Mahta, V. (2008). Role of stressful life events in induction or exacerbation of psoriasis and chronic urticaria. *Indian Journal of Dermatology, Venereology, and Leprology*, 74(6), 594-599.
- Matheny, K., Aycock, D., Curlette, W., & Junker, G. (1993). Coping resources inventory for stress: Measure of perceived resourcefulness. *Journal of Clinical Psychology*, 49, 815-830.
- Matheny, K., Curlette, W., Aycock, D., Pugh, J., & Taylor, H. (1987). *The Coping Resources Inventory for Stress (CRIS)*. Atlanta: GA: Health Prisms, Inc.
- Matheny, K., Curlette, W., Aysan, F., Herrington, A., Gfroerer, C., & Thompson, D. et al. (2002). Coping resources, perceived stress, and life satisfaction among Turkish and American university students. *International Journal of Stress Management*, 9(2), 81-97.
- McEwen, B. (1998). Protective and damaging effects of stress mediators. *The New England Journal of Medicine*, 338, 171-179.
- Parr, S. (1994). Coping with aphasia: Conversations with 20 aphasic people. *Aphasiology*, 8(5), 457-466.
- Parr, S., Byng, S., & Gilpin, S. (1997). *Talking About Aphasia: Living with loss of language after stroke*. Philadelphia: Open University Press.
- Rokach, A. (2001). Strategies of coping with loneliness throughout the lifespan. *Current Psychology*, 20(1), 3-18.

- Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081.
- Sarkar, S., & Mukhopadhyay, B. (2008). Perceived psychosocial stress and cardiovascular risk: Observations among the Bhutias of Sikkim, India. *Stress and Health*, 24, 23-34.
- Selye, H. (1955). Stress and disease. *Science*, 122 (3171), 625-632.
- Stone J., Townend E., Sharpe M., Kwan J., Haga K., Dennis, M. (2004) Personality change after stroke: some preliminary observations *Journal of Neurology, Neurosurgery and Psychiatry*, 75, 1708-1713.
- Thomas, P. (2007). Stroke and personality change. *The Behavioral and Cognitive Neurology of Stroke*, 529-538.
- Vander Gaag, A. (2005) Therapy and support services for people with long-term stroke and aphasia and their relatives: A six-month follow-up study. *Clinical Rehabilitation*, 19, 372-380.
- Vickery, C., Sepehri, A., & Evans, C. (2008). Self-esteem in an acute stroke rehabilitation sample: A control group comparison. *Clinical Rehabilitation*, 22, 179-187.
- Vilkki, J., Juvela, S., Siironen, J., Ilconen, T., Varis, J., & Porras, M. (2004). Relationship of local infarctions to cognitive and psychological impairments after aneurismal subarachnoid hemorrhage. *Neurosurgery*, 55(4), 790-802.
- Von Korff, M., Alonso, J., Ormel, J., Angermeyer, M., Bruffaerts, R., Fleiz, C. et al. (2009). Childhood psychosocial stressors and adult onset arthritis: Broad spectrum risk factors and allostatic load. *International Association for the Study of Pain*, 143, 76-83.
- Wheaton, B. (1983). Stress, personal coping resources, and psychiatric symptoms: An investigation of interactive models. *Journal of Health and Social Behavior*, 24, 208-229.



Zautra, A., Hoffman, J., & Reich, J. (1997). The role of two kinds of efficacy beliefs in maintaining the well-being of chronically stressed older adults. *Coping with Chronic Stress* (pp. 269-292). New York: Plenum Press.