

## Abstract

Individuals with certain forms of aphasia may be under considerable stress related to their linguistic skills. The current study explored coping resources, perceived stress, and life experiences in individuals with aphasia. The relation of these factors to salivary cortisol, a physiologic index of stress, was additionally investigated. Results indicate individuals with aphasia have fewer coping resources and greater perceived stress than healthy controls. Salivary cortisol was not related to perceived stress or coping resources, but was related to life experiences during the previous six months. Clinical and theoretical implications are discussed.

## Full Text

### Introduction

Individuals with certain forms of aphasia may be under considerable stress related to their linguistic skills (Code, Hemsley, & Herrmann, 1999; Heeschen, Ryalls, & Hagoort, 1998; Marshall & Watts, 1976; Murray & Ray, 2000; Ryalls, 1984). Stress is generally experienced when an individual is confronted with a situation that is appraised as personally relevant and threatening, and for which adequate coping resources are unavailable (Lazarus, 1985). Such stress elicits a physiological stress response that serves to adapt the organism to the changing demand. Recently, Laures-Gore, Heim, & Hsu (under review) explored a method to study physiologic and perceived stress in individuals with aphasia. Using salivary cortisol as a biologic marker of stress, they found that individuals with aphasia lack cortisol reactivity when confronted with a perceived stressor. Their study, however, did not assess the coping resources available to modulate the physiologic stress response in those with aphasia. Psychological factors such as coping resources, perceived stress, and life experiences are important in the activation of the physiologic stress response, particularly neuroendocrine activity (Kirschbaum, Pirke, & Hellhammer, 1993; Lutgendorf & Costanzo, 2003).

Previously, psychological changes related to stroke and linguistic impairment have been systematically studied in individuals with aphasia (Code, Hemsley, & Herrmann, 1999; Code & Herrmann, 2003; Gainotti, 1997), however, research relating the overall psychosocial perspective of aphasia to physiological stress, perceived stress, coping resources, and life experiences for this population is limited. Since the medical model addressing the physical impairment dominates health-care systems, the psychosocial perspective is often neglected (Code & Herrmann, 2003; Taylor Sarno, 1993). However, because the psychosocial consequences often exceed the communication impairment (Herrmann, Johannsen-Horbach, & Wallesch, 1993), exploration of these factors and changes may provide insight into the rehabilitation process.

The purpose of the current study is to examine coping resources, perceived stress, life experiences, and the basal salivary cortisol levels in individuals with aphasia. The following theoretically and clinically relevant questions will be addressed: 1. Is basal salivary cortisol levels in individuals with aphasia related to coping resources, perceived stress, and life experiences?; 2. Is there a difference in coping resources and perceived stress between individuals with aphasia and healthy controls?

## Method

*Participants.* Fourteen individuals with aphasia (3 females, 11 males) and 14 healthy controls (3 females, 11 males) participated. Mean age was 53.86 years for individuals with aphasia and 54.21 years for the control group. Mean months post onset for the group with aphasia was 26.86 months.

### *Procedures and Measures.*

*Psychosocial.* Assessment of psychosocial parameters in individuals with aphasia involves methodological concerns due to the problems with adaptation of examination procedures to individuals with aphasia and the questionable reliability of proxy evaluations (Epstein, Hall, Tognetti, Son & Conant, 1989; Herrmann, 1997). Although there are instruments designed to be answered by individuals with aphasia about psychosocial adjustment (Code & Muller, 1992), there appears to be no measures specifically designed to assess coping, perceived stress and life events sensitive to the linguistic limitations observed in individuals with aphasia. To collect psychosocial information others have used measures standardized on non-brain injured individuals (e.g., Croteau & LeDorze, 1999), which was the model used in this study. To assess coping skills in the present study the *Coping Resources Inventory for Stress (CRIS)* (Matheny, Curlett, Aycock, Pugh, & Taylor, 1987) was administered. The CRIS is a 280-item true-false inventory measuring 15 coping resources, and is based on transactional models of stress (Cox, 1978; Folkman & Lazarus, 1984; Mason, 1975). The CRIS has high validity and reliability (Curlette, Aycock, Matheny, Pugh, & Taylor, 1992; Matheny, Aycock, Curlette & Junker, 1993). The *Perceived Stress Scale (PSS)* (Cohen, Kamarck, & Mermelstein, 1983) is a 14 Likert-item scale that offers a nonspecific measure of appraised stress with internal consistency reliabilities ranging from .84 to .86. It is an appropriate measure of global stress experience with all age groups (Cohen, Kessler, & Gordon, 1995). The *Life Experiences Survey (LES)* is a standardized 57-item self-report measure in which participants indicate events that they have experienced over the last year in 6 month intervals (Sarason, Johnson, & Siegel, 1978). These events are representative of those frequently experienced by individuals in the general population. Participants rate the desirability and impact of the events on a 7-point scale (Sarason et al., 1978). The investigator provided written and verbal instructions regarding completion of the forms to the participant and his friend/spouse/caregiver. The caregiver read the question aloud and visually presented the items to the participant. Participants provided the answers and the caregivers recorded the response.

*Cortisol.* Following a 30-minute baseline period consisting of relaxation, each participant provided a salivary cortisol sample by chewing on a Salivette (Sarstedt Inc., Rommelsdorf, Germany) for 60 seconds.

## Results

In order to examine differences between the control group and the group with aphasia on the CRIS, PSS, and LES scores at six and 12 months, we first ran an overall MANOVA and then followed up with *F* tests of the significance of differences between means. The main effect of the groups ( $\lambda = .488$ ) was significant ( $p < .01$ ). The control group had significantly greater overall

coping resources ( $M = 80.37$ ) than the group with aphasia ( $M = 54.15$ ) [ $F(1,25) = 19.53, p < .01$ ], and perceived less stress ( $M = 14.75$ ) than the group with aphasia ( $M = 23.92$ ) [ $F(1,25) = 9.73, p < .01$ ]. Pearson's correlation revealed that salivary cortisol was not related to scores of the CRIS, PSS, or LES at 12 months, however, there was a moderate negative correlation between cortisol and LES scores at 6 months ( $r = -.47$ ).

## Discussion

This study examined coping resources, perceived stress, and life experiences in individuals with aphasia. The relation of these measures to basal salivary cortisol levels was also explored. Results indicate that individuals with aphasia have fewer coping resources and greater perceived stress. Interestingly, basal salivary cortisol levels are not associated with perceived stress, but are related to life experiences in the previous six months. The results regarding perceived stress and salivary cortisol are similar to Laures-Gore et al. (under review). Further discussion will focus on the clinical and theoretical implications of these findings.

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