Coping During Inpatient Stroke Rehabilitation: An Exploratory Study

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The emotional impact of surviving a stroke has not received the same attention as physical aspects. This is particularly true regarding how stroke survivors cope during inpatient rehabilitation. This study examined the coping strategies used by stroke survivors undergoing inpatient rehabilitation and the relationships between demographic or clinical variables and coping behaviors. This case series examined 16 acute stroke survivors via standardized assessments and a medical records review completed during the first week of inpatient rehabilitation.

Stroke survivors used combinations of multiple coping strategies. All stroke survivors used a higher number and frequency of adaptive rather than maladaptive strategies. Women used a higher number of adaptive strategies. Stroke survivors with depression used maladaptive coping strategies more frequently, whereas those presenting with a greater number and severity of comorbidities used adaptive coping strategies more frequently. Stroke survivors with higher levels of coping self-efficacy used the strategies of active coping and positive reframing more frequently.

Based on these results, it is recommended direct-care providers place greater emphasis on objectifying the emotional consequences of stroke. Further research is recommended regarding understanding the relationship between coping and outcomes.


Introduction

In the past decade there has been an increased emphasis on research related to stroke rehabilitation and our understanding of the stroke rehabilitation process continues to improve. Despite this progress, the focus of research remains on physical capabilities after stroke. Sisson (1998) states that:

The assessment of mental status is important in planning a patient’s rehabilitation goals and in determining a patient’s readiness for rehabilitation. Rehabilitation for patients with stroke has focused primarily on physical abilities and performing activities of daily living, whereas dealing with the mental changes associated with stroke has received little attention. Nonetheless, these mental changes affect the person’s functional level. (p. 202)

In a study by van Veenendaal, Grinspun, and Adriaanse (1996) of perceived educational needs of stroke survivors and their family members, stroke survivors identified information related to coping after a stroke as a major gap in the information that they received during the rehabilitation process. Published studies identifying specific coping strategies and their effectiveness are sparse, particularly with the neurological population (Bronstein, 1991; Burton, 2000).

This study focused on gaining insight into the psychological experience of stroke survivors undergoing inpatient rehabilitation. The purpose of this study was to examine the coping behaviors of stroke survivors who were undergoing inpatient stroke rehabilitation. The research questions addressed in this study included: (1) Which coping strategies and/or patterns of coping strategies are used by stroke survivors undergoing inpatient rehabilitation and how frequently are they used? (2) What are the relationships between the number and frequency of use of coping...
strategies reported by stroke survivors undergoing inpatient rehabilitation and demographic or clinical variables?

Literature Review

Consequences of Stroke

There are 4.6 million stroke survivors in the United States. Among long-term stroke survivors, 48% have hemiparesis, 22% cannot walk, 24% to 53% report complete or partial dependence in activities of daily living (ADL), 12 to 18% are aphasic, and 32% are clinically depressed (National Stroke Association, 2004).

The psychological consequences of a stroke are quite substantial (Falk-Kessler, 2004). As stated above, the incidence of depression in this population is 32% based on the statistics collected by the National Stroke Association. In other studies, depression has been reported as higher than 60% after stroke (Hackett, Yapa, Parag, & Anderson, 2005). The highest levels of reported incidence are from acute and rehabilitation hospitals whereas the lowest are from samples of community dwelling stroke survivors (Fraley, 1998). Other psychological manifestations that have been documented in the stroke survivor population include: anxiety, agoraphobia, substance abuse, sleep disorders, mania, aprosody (difficulty in expressing or recognizing emotion), behavioral problems (e.g., sexual inappropriateness, verbal outbursts, aggressiveness), lability (alteration between pathologic laughing and crying), and personality changes (e.g., apathy, irritability, social withdrawal) (Fraley).

Stroke survivors who present with emotional disturbances such as depression have significantly greater functional impairments (Sinyor et al., 1986), therefore requiring increased assistance with self-care and mobility. In addition, they report lower levels of social participation, decreased participation in social and occupational roles, and feelings of having a lower social status (Eslinger, Parkinson, & Shamay, 2002). It has also been demonstrated that stroke survivors who receive high levels of emotional and social support show significant and progressive improvement in functional status (Tsouna-Hadjis, Vemmos, Zakopoulos, & Stamatalopoulos, 2000).

Mackenzie and Chang (2002) studied 215 stroke survivors over a 3-month period. Several measures were used including measures of quality of life, functional ability, and social support. They concluded that both psychosocial and physical factors are important in predicting quality of life during stroke rehabilitation. They further concluded that determining such predictors at an early stage in the rehabilitation process would help to guide clinical decisions throughout the rehabilitation process.

Coping During Hospitalization for Stroke

Despite the publication of several studies examining the coping strategies used by stroke survivors who are living in the community (Boynton-De Sepulveda & Chang, 1994; Rochette & Desrosiers, 2002; Sisson, 1998; Smout, Koudstaal, Ribbers, Janssen, & Passchier, 2001), there is a clear gap in the literature related to coping behaviors of stroke survivors. This is particularly true regarding documentation of the coping process during the inpatient phase. One exception is a study (Sinyor et al., 1986) that examined the relationships among depression, coping strategies, and rehabilitation outcomes. Sixty-four patients undergoing rehabilitation were examined. The authors found that 47% of the sample were depressed as measured by four depression inventories. Depressed patients demonstrated lower levels of function at both admission and discharge. Coping strategies employed by the depressed patients as measured by a checklist with five factors (worry, suppression, behavioral action, rational cognition, and denial) reflected lower levels of participation in the process of stroke rehabilitation as compared to those who were not depressed.

Close and Procter (1999) also examined the coping strategies used by hospitalized stroke survivors. The researchers carried out interviews with nine stroke survivors and eight informal caregivers. They found that the patients coped with their illness by being proactive, building supportive relationships, and seeking out knowledge from those around them in order to counteract the stress and feelings of uncertainty related to having a stroke. In other words, their subjects were using active problem-focused strategies to modify or eliminate their sources of stress through their own behavior. The authors recommended that supportive relationships initiated by patients and carers should not only be recognized, but nurtured.

Finset and Andresson (2000) compared the coping strategies used by individuals living with various neurological diagnoses including stroke who were undergoing inpatient rehabilitation. Seventy patients filled in a coping questionnaire (COPE) and were evaluated with respect to apathy and depression. A comparison sample of 71 students also filled in the COPE. The patient group’s coping strategies were similar to the student comparison group, but patients tended to display less differentiated coping styles. A factor analysis indicated two dimensions of coping in the patient sample: approach oriented and avoidance oriented coping. Lack of active approach oriented coping was associated with apathy, whereas avoidance coping was associated with depression in the patient group.

Only one (Finset & Anderson, 2000) of the above studies used a standardized coping inventory. The studies
did not describe the subjects in terms of severity of stroke and other clinical or demographic variables such as the existence of comorbidities were not considered. Of the three studies, two (Finset & Anderson; Sinyor et al., 1986) used a sample of subjects undergoing inpatient rehabilitation. Further investigation of the coping process that occurs post-stroke during the acute phase is clearly warranted. It is particularly necessary to examine further the coping behaviors of stroke survivors undergoing inpatient rehabilitation as in the present study. During the rehabilitation phase, stroke survivors may, for the first time, begin to understand the magnitude and impact of their stroke as they begin to reintegrate into a daily routine. For many stroke survivors, formal rehabilitation may be limited to services provided during the inpatient phase. Further research is needed to gain insight into the stroke recovery process, particularly the emotional aftermath of stroke. Understanding how stroke survivors cope with the rehabilitation process is a first step. Insight gained may ultimately be used to improve the quality of services that we deliver to stroke survivors.

Methodology

The design of this exploratory research was a case series using quantitative analytic strategies. The study was conducted at a large urban teaching hospital on the hospital's inpatient rehabilitation unit. The unit is a general acute rehabilitation unit that provides services to clients with various disabilities (e.g., neurologic, orthopedic, musculoskeletal, cardiac).

Subjects

All patients admitted to the inpatient rehabilitation unit for stroke rehabilitation over the 6-month data collection period were invited by the investigator to participate in this study. Exclusion criteria included patients who had received stroke rehabilitation in the past and scoring below a 6 (modified independence) on any of the communication and cognition items on the Functional Independence Measure (Keith, Granger, Hamilton, & Sherwin, 1987).

Measurement Instruments

Brief COPE. The COPE (Carver, Scheier, & Weintraub, 1989) is a 60-item measure that yields 15 factors that reflect active versus avoidant coping strategies. The authors of the COPE inventory developed an abbreviated version of the instrument, the Brief COPE. This version was created based on the authors' experiences with patient samples becoming impatient with the length of the full instrument because of the time burden and the redundancy of the questions (Carver, 1997). The Brief COPE that was used as the coping inventory in this study included 28 questions measuring 14 coping strategies (i.e., 2 questions per strategy). The 14 strategies have been categorized as either presumably adaptive or presumably maladaptive (Meyer, 2001). The instrument includes 6 presumably maladaptive strategies (denial, behavioral disengagement, substance use, venting, self-blame, and self-distraction) and 8 presumably adaptive strategies (active coping, seeking emotional support, seeking instrumental support, positive reframing, planning, humor, acceptance, and religion). Each item is scored on a 1 (I haven't been doing this at all) to 4 (I've been doing this a lot) scale. The Brief COPE yields data related to how often each of the 14 coping strategies are used and the total number of coping strategies used. The possible range of scores for each strategy was 2 (not used) to 8 (most frequently used). The factor structure of the Brief COPE is consistent with the analyses of the full version of the COPE (Carver, 1997). Internal consistency coefficients are generally acceptable. Alpha coefficients for all of the items exceeded .60 except for venting (.50), denial (.54), and acceptance (.57), which are still considered to be acceptable.

Orpington Prognostic Scale. The Orpington Prognostic Scale (OPS) is a clinically derived score that incorporates measures of motor deficits, proprioception, balance, and cognition (Kalra, Dale, & Crome, 1994). The scores range from 1.6 to 6.8. Scores less than 3.2 are categorized as minor strokes, scores of 3.2 to 5.2 as moderate strokes, and scores greater than 5.2 as a severe stroke (Kalra & Crome, 1993). The Spearman's rank correlation between the Orpington Prognostic Scale and the National Institute of Health Stroke Scale has been reported to be 0.83 ($p = 0.0001$) (Lai, Duncan, & Keighley, 1998). In terms of predictive validity, the Orpington Prognostic Scale is a strong predictor of ADL performance as measured by the Barthel ADL Index ($p < 0.001$).

Center for Epidemiological Studies Depression Scale. The Center for Epidemiological Studies Depression Scale (CES-D) is a 20-item self-report used to detect major or clinical depression in adolescents and adults. The CES-D has 4 separate factors: depressive affect, somatic symptoms, positive affect, and interpersonal relations. The questions cover most of the areas included in the diagnostic criteria for depression (Radloff, 1977). It has been used in urban and rural populations and in cross-cultural studies of depression. High internal consistency has been reported with Cronbach's alpha coefficients ranging from .85 to .90 across studies. Test–retest reliability ranging from 2 weeks to 1 year has been reported to be between 0.57 and .7 (Radloff, 1977; Weissman, Sholomskas, Pottinger, Prusoff, & Locke, 1977), whereas interrater reliability has been reported as .76 ($p < .001$) (Shinar et al., 1986). In addition, it has been
shown to correlate significantly with the DSM-III diagnoses of depression during in-hospital stroke care (Parikh, Eden, Price, & Robinson, 1988). Using a cut score of 16, the CES-D has been found to have a specificity of 90%, a sensitivity of 86%, and a positive predictive value of 80% for the stroke population (Parikh et al., 1988).

**Charlson Comorbidity Index.** The Charlson Comorbidity Index (CCI) is an objective measurement to classify comorbid conditions. Assigning weighted scores, the comorbidity index score is determined by summing the weighted totals of all conditions (Charlson, Pompei, Ales, & Mackenzie, 1987). The score can then be collapsed into a 4-point ordinal scale. The CCI has acceptable interrater reliability (.74) and test–retest reliability (.86). It has been shown to predict mortality, disability, length of stay, and readmission (Groot, Beckerman, Lankhorst, & Bouter, 2003).

**Neuroimaging data.** The results of neuroimaging data were collected from the medical record. Magnetic resonance imaging (MRI) and/or computerized axial tomography (CT) are used during an acute stroke work-up to determine the location of the lesion (Bartels, 2004). The sensitivity and overall accuracy of MRI for acute stroke have been reported to be 96% and 99%, respectively, whereas the sensitivity and accuracy of CT has been reported to be 89% and 98% (Bartels, 2004).

**Self-efficacy.** Multiple methods have been used to measure self-efficacy depending on the specific behavior that is being analyzed. Scales have been developed to measure overall self-efficacy such as Schwarzer and Jerusalem’s (1995) General Self-Efficacy Scale. This 10-item scale uses a 4-point response scale: 1 = not at all true, 2 = hardly true, 3 = moderately true, and 4 = exactly true. The scale was developed to assess a general sense of perceived self-efficacy with the ability to predict coping with daily hassles as well as adaptation after experiencing all kinds of stressful life events. Currently there are no published scales that measure coping self-efficacy related to stroke rehabilitation. Therefore, the following question was developed and was used in the study to measure coping self-efficacy related to stroke recovery: “I am confident that I can use my coping abilities to help me recover from my stroke.” Subjects responded by using the 4-point scale from the General Self-Efficacy Scale. Data regarding reliability and validity were not obtained.

**Data Collection Strategies**

The study was conducted at a large urban teaching hospital on the hospital’s inpatient rehabilitation unit. The unit is a general acute rehabilitation unit that provides services to clients with various disabilities (e.g., neurologic, orthopedic, musculoskeletal, cardiac). Prior to initiating the study, the hospital’s Institutional Review Board reviewed and approved the study.

Potential participants were identified via the daily census. The medical record was then screened to determine if the subject was eligible for the study.

After being identified, the primary investigator explained the study procedures and risks, obtained informed consent, and obtained signed authorization consistent with the Health Insurance Portability and Accountability Act (HIPAA). In addition, the participants were asked to reconfirm whether or not they have participated in stroke rehabilitation in the past.

Within 2 days of admission to the rehabilitation unit, the medical record review was completed. The following information was collected: age, gender, ethnicity, location of brain lesion (as per the MRI or CT scan), and comorbidities. The interview and examination took place after therapy hours (4:00 p.m.) in one session within a 3-day window of time (on days 5–7) after admission. The investigator administered the measurement instruments in the following order: the Brief COPE, CES-D, and the OPS. Following administration of the standardized measures, participants were asked to rate their level of coping self-efficacy.

**Data Analysis**

In order to provide a comprehensive profile of the stroke survivors, descriptive statistics were generated for demographic data, the CES-D, CCI, OPS, self-efficacy scores, and the neuroimaging data using Statistical Package for the Social Sciences (SPSS) software version 12.

For the purposes of this study, the data were reduced by dichotomizing the responses into two categories. Coping strategies reported as “most frequently used” included strategies scored between 5–8, whereas coping strategies “less frequently used” included strategies scored between 2–4. In addition, the 14 coping strategies were collapsed into two scales: adaptive and maladaptive (Meyer, 2001).

The responses reported by each case on the situational version of the Brief COPE were analyzed for patterns related to the number and frequency of strategies used. Both the adaptive and maladaptive scales were examined for patterns as were the individual strategies reported by the stroke survivors. The patterns of coping for each case were then analyzed to detect overall trends in the data. Participants were also analyzed to detect patterns of coping in relationship to selected demographic and clinical variables (e.g., depressed and nondepressed stroke survivors, male and female, stroke survivors with mild and moderate strokes, etc.) (Yin, 2003).

Further analyses consisted of examining the aggregate data for similarities and differences. More specifically, mean
Coping scores were calculated for different patient related variables, analyzed, and compared using t tests. Pearson correlations between the stroke survivors’ coping scores and selected clinical variables were calculated and examined.

Results

Overall, 16 stroke survivors were recruited to participate in the study. See Table 1 for a summary of demographic data and information regarding clinical profiles.

Number of coping strategies used. The stroke survivors used combinations of 8 to 13 strategies out of 14 possible coping strategies. This included combinations of 6 to 8 of the 8 possible adaptive coping strategies and 2 to 5 of the 6 possible maladaptive strategies. All of the 16 stroke survivors used a higher number of adaptive rather than maladaptive strategies. The range of coping strategies used by women was 9–13, while the range of coping strategies for men was 8–11. Overall, the women used a higher number of coping strategies compared to men ($\bar{X}_{women} = 10.88$ and $\bar{X}_{men} = 9.75$, respectively). Among women, this pattern of increased use in the number of strategies was similar when examining adaptive ($\bar{X}_{ad} = 7.38$ and $\bar{X}_{mal} = 6.38$) and maladaptive ($\bar{X}_{ad} = 3.50$ and $\bar{X}_{mal} = 3.38$) coping strategies separately. These means were found to be nonsignificant with the exception of total number of adaptive strategies, $t(14) = -3.121$, $p < .008$, indicating that women used significantly more adaptive strategies than men.

When examining the data for patterns related to the number of coping strategies based on depression, stroke severity, ethnicity, lesion site, age, comorbidities, and self-efficacy no patterns were found. Pearson correlations, used to ascertain the strength of the relationships among the number/severity of comorbidities, self-efficacy, and the number of coping strategies used, were nonsignificant.

Frequency of coping strategies used. It was found that those presenting with depression used coping strategies at a higher frequency than those without depression. This pattern was true for overall frequency of use ($M = 69.38$ and $M = 60.88$, respectively), frequency of use of adaptive strategies ($M = 44.88$ and $M = 44.25$), and maladaptive strategies ($M = 24.50$ and $M = 16.63$). However, these means were statistically comparable with the exception of frequency of use of maladaptive strategies, $t(14) = 3.887$, $p < .002$. That is, stroke survivors presenting with depression used maladaptive coping strategies more frequently than those stroke survivors who were not depressed.

It was found that the number or severity of existing comorbidities (CCI) was positively correlated with overall frequency of use of coping strategies ($r = .687$, $p < .003$) and with frequency of use of adaptive strategies ($r = .602$, $p < .01$).

No particular patterns related to frequency of use of coping strategies were found when comparing those with various lesion sites and when comparing the three represented ethnic groups. Similarly, no patterns or associations

Table 1. Summary of Clinical and Demographic Variables ($N = 16$)

<table>
<thead>
<tr>
<th>Case No.</th>
<th>Gender</th>
<th>Age</th>
<th>Ethnic</th>
<th>Site of Brain Lesion</th>
<th>Orpington Prognostic Scale</th>
<th>Center for Epidemiological Studies Depression Scale</th>
<th>Charlson Comorbidity Scale</th>
<th>Coping Self-Efficacy</th>
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<tbody>
<tr>
<td>1</td>
<td>Female</td>
<td>72</td>
<td>H</td>
<td>Left</td>
<td>1</td>
<td>17*</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Female</td>
<td>66</td>
<td>H</td>
<td>Cerebellum</td>
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<td>19*</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Female</td>
<td>63</td>
<td>C</td>
<td>Right</td>
<td>2</td>
<td>17*</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Male</td>
<td>73</td>
<td>A</td>
<td>Right</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Male</td>
<td>62</td>
<td>C</td>
<td>Right</td>
<td>2</td>
<td>24*</td>
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<td>3</td>
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<tr>
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<td>3</td>
</tr>
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<td>Left</td>
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<td>3</td>
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<tr>
<td>Mean</td>
<td></td>
<td>61</td>
<td>-</td>
<td>-</td>
<td>1.5</td>
<td>14.75</td>
<td>.94</td>
<td>3.31</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>+/- 11</td>
<td>-</td>
<td>-</td>
<td>+/- .516</td>
<td>+/- .787</td>
<td>+/- .772</td>
<td>+/- .602</td>
</tr>
<tr>
<td>Actual Range</td>
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<td>-</td>
<td>-</td>
<td>1–2</td>
<td>4–31</td>
<td>0–2</td>
<td>2–4</td>
<td></td>
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<td>-</td>
<td>-</td>
<td>1–3</td>
<td>0–60</td>
<td>0–3</td>
<td>1–4</td>
<td></td>
</tr>
</tbody>
</table>

Note. * = Above cut-score for depression. A = African-American; C = Caucasian; H = Hispanic.
related to frequency of use were found when considering the variables age, stroke severity, and self-efficacy.

**Specific coping strategies used.** The participants reported using 13 of the 14 strategies included on the Brief COPE at various frequencies. The six most frequently used strategies in this case series were classified as being presumably adaptive coping strategies, whereas five out of the six least frequently used strategies were classified as presumably maladaptive. See Figure 1.

When data were further analyzed for frequency of use patterns between the individual strategies, significant positive correlations were found between the coping strategy of humor and the strategies of denial \( r = 0.734, p < 0.001 \) and behavioral disengagement \( r = 0.573, p < 0.05 \). In addition, significant positive correlations were found between the strategy of seeking emotional support and the strategies of acceptance \( r = 0.739, p < 0.001 \) and planning \( r = 0.579, p < 0.019 \). The strategy of active coping was significantly and positively correlated with the strategy of positive reframing \( r = 0.571, p < 0.05 \), whereas the coping strategy of planning was significantly and positively correlated with the coping strategy of acceptance \( r = 0.709, p < 0.002 \).

When the data were examined based on clinical presentation and demographics related to usage of individual strategies, patterns were similar when comparing men to women, minor/mild to moderate strokes, and lesion sites. Stroke survivors with depression used the strategies denial and self-blame more frequently than those who were not depressed, \( t(14) = 2.178, p < 0.047 \) and \( t(14) = 4.107, p < 0.001 \), respectively.

Overall, comorbidities, depression, and coping self-efficacy variables were associated with specific patterns of coping strategies used. Depression was positively correlated with frequency of use of the coping strategies venting \( r = 0.624, p < 0.01 \), self-blame \( r = 0.531, p < 0.05 \), and denial \( r = 0.517, p < 0.05 \). The number/severity of comorbidities was positively correlated with frequency of use of the coping strategies planning \( r = 0.529, p < 0.05 \), acceptance \( r = 0.520, p < 0.05 \), and active coping \( r = 0.519, p < 0.05 \). Finally self-efficacy was positively correlated with frequency of use of the coping strategies active coping \( r = 0.640, p < 0.01 \) and positive reframing \( r = 0.597, p < 0.05 \).

**Discussion**

Overall, all of the 14 strategies analyzed were used by multiple stroke survivors at various frequencies with the exception of substance use. A variety of strategies are necessary to deal with the various aspects of a stressful situation including the need to solve problems, alter the source of stress, and/or manage emotional distress (Carver et al., 1989). As supported by this case series, the use of multiple strategies seems to be particularly necessary when coping with the stress of an acute illness (Jakubowska-Winecka, 2001).

The current analyses showed that all 16 stroke survivors used a higher number and higher frequency of presumably adaptive strategies compared to presumably maladaptive strategies. Finset and Andersson (2000) found that their subjects living with brain injuries (including strokes) most frequently used the adaptive coping strategies of acceptance, positive reinterpretation, active coping, and planning as measured by the COPE. Least frequently used in their study were the maladaptive strategies of denial and behavioral disengagement. These findings are similar to the present study in terms of frequency of reported strategy use. Rochette and Desrosiers (2002) found that community dwelling stroke survivors also favor the use of adaptive coping strategies such as problem solving to cope with their stroke, whereas the use of presumably maladaptive strategies such as escape-avoidance were the least commonly used. They also found that stroke survivors living in the community used coping strategies focused on seeking social

![Figure 1. Mean use of individual strategies. The possible range is from 2–8. Solid bars indicate presumably adaptive strategies whereas white bars represent presumably maladaptive strategies.](image-url)

*Note.* Substance use was not reported by any of the participants. \( N = 16 \).
support less commonly. This finding is in contrast to this study that found seeking emotional and instrumental support to be frequently used strategies during inpatient stroke rehabilitation. This inconsistency may reflect the impact of an acute stroke versus the chronic stroke situation. This study examined stroke survivors during the first week of their stroke rehabilitation process. It is during this week that stroke survivors are beginning to first understand the impact of their stroke as they attempt to engage in (ADL) and mobility tasks. The need for increased levels of emotional support and the need to seek information and advice (instrumental support) appear to be more important during early stroke recovery as compared to later stage recovery. In addition, social supports may be more readily available in the acute phases of illness.

Differences in the use of coping strategies based on demographic data in this study showed women tended to use a greater number and frequency of coping strategies than men. This was particularly true in terms of the greater total number of adaptive strategies used by women. The role of gender differences, as related to coping strategies, in any given situation, remains controversial in the existing literature. More specifically, there is conflicting evidence for a gender difference related to coping in studies using a clinical population. Rochette and Desrosiers (2002) documented a gender difference similar to that observed in the present study in their sample of community dwelling stroke survivors. Namely, they found that women used more coping strategies than men and specifically used the coping strategy “magical thinking” more often than men. A study by Taylor et al. (2000) concluded that women are more likely to seek social support (particularly emotional support) and seek out information and advice compared to men. The authors termed this style of coping “tend and befriend.” This is in contrast to the “fight or flight” coping response that Taylor et al. documented as more frequently used by men. The “tend and befriend” coping style is consistent with what has been defined as adaptive strategies in this study (e.g., seeking emotional support and seeking instrumental support) and may account for the increased use of adaptive strategies by women documented in it.

The stroke survivors presenting with depression in this case series were observed to use a greater number and frequency of all coping strategies compared to those stroke survivors not depressed. This pattern was particularly evident when analyzing the frequency of maladaptive strategies used. Meyer (2001) also found that maladaptive coping scores on the Brief COPE correlated concurrently with depressive symptoms in a sample of subjects living with mental illness. Finset and Andersson (2000) found that measures of depression were correlated with presumably maladaptive strategies such as mental and behavioral disengagement and denial in a sample of brain-injured patients.

The stroke survivors presenting with depression in the current study used the strategies of self-blame and denial more frequently compared to those who were not depressed. In addition, higher depression scores were correlated with higher frequency of use of the strategy venting. Although there is evidence that an association exists between depression and an increased use of maladaptive coping strategies, it is not clear if one precedes the other. In other words, it cannot be concluded if the use of maladaptive strategies (e.g., blaming yourself for having a stroke) leads to depressive symptoms or if the presence of depression leads to the use of these strategies. It is probably a combination of both processes.

For instance, a longitudinal study by Arnett, Higginson, Voss, Randolph, and Grandey (2002) found that subjects living with cognitive dysfunction as a result of multiple sclerosis were more likely to become depressed if they used high levels of avoidant coping and/or low levels of active coping. Similarly, King, Shade-Zeldow, Carlson, Feldman, and Philip (2002) found that use of avoidant coping was a predictor of increased depression in a sample of stroke survivors. In contrast, Finset and Andersson (2000) found that brain injured subjects who were depressed frequently used disengagement strategies and focusing/venting on emotions, particularly negative emotions, as coping strategies. They hypothesized that such behaviors should be considered cognitive concomitants of a depressed affect rather than a different phenomenon that happens to be statistically related to depression. Occupational therapists and others who provide services to the stroke survivor population need to be cognizant of this association. Stroke survivors using maladaptive coping strategies should be monitored and/or screened for depression and those who present with depression should be monitored for the use of maladaptive coping strategies.

The number and severity of comorbidities were positively correlated with the overall frequency of coping strategy use and the frequency of use of adaptive strategies in this case series. Specifically, stroke survivors with a greater number and severity of comorbidities prior to their stroke used the presumably adaptive coping strategies of active coping, planning, and acceptance more frequently than stroke survivors with fewer or no comorbidities. The participants most commonly presented with hypertension, coronary artery disease, and diabetes. Living with long-term illnesses is considered a source of chronic stress. Lazarus (1999) defines chronic stress as “arising from harmful or threatening, but stable, conditions of life . . .” (p. 144). Lazarus further explains that those living with chronic
diseases must learn to live with and manage their stress rather than resolve it. He states “The point is that coping may not be capable of terminating the stress, but the person can often manage it, which includes tolerating or accepting the stress and distress” (p. 147). Although it is not clear how coping with chronic stress (such as living with chronic illness) and coping with acute stress (such as a new stroke and subsequent rehabilitation) differs, it may be inferred from this study results that those previously living with the stress of chronic disease may be better prepared to cope with a new illness such as a stroke. In other words, stroke survivors living with chronic disease prior to their stroke may have access to previously used patterns of adaptive coping strategies. From a clinical perspective, stroke survivors without a significant past medical history should be monitored closely in terms of how they are coping with the rehabilitation process. Those stroke survivors presenting without comorbidities may require increased support from the stroke rehabilitation team in terms of available resources, information, advice, and emotional support.

The stroke survivors in the current study that had higher levels of coping self-efficacy used the presumably adaptive strategies of active coping and positive reframing more frequently than those stroke survivors with lower coping self-efficacy. This finding is consistent with a study of survivors of spinal cord injury undergoing inpatient rehabilitation. Lou, Dai, and Catazaro (1997) concluded that coping scores at admission as measured by the Jalowiec Coping Scale had a positive relationship with self-efficacy scores (i.e., those spinal cord injury survivors using more coping strategies had higher self-efficacy).

It has been theorized that confidence in attaining eventual success promotes a more complete engagement in efforts to succeed (Bandura, 1977). Active coping has been defined as “the process of taking action to try to remove or circumvent the stressor or to ameliorate its effects. Active coping includes initiating direct action, increasing one’s own efforts, and trying to execute a coping attempt in a step-wise fashion” (Carver et al., 1989, p. 269). The frequent use of the strategy of active coping is indicative of attempts to control stress, regain control of a situation, and attempts to succeed at the task at hand (recovery from stroke in this example). Positive reframing has been hypothesized to support active coping attempts (Carver et al.). Reframing a stressful transaction in positive terms may intrinsically lead a person to continue and/or resume active coping efforts.

Efficacy beliefs have been found to provide a link between psychosocial factors and health outcomes in acute and chronic illnesses. Improved self-efficacy for specific behaviors has also been hypothesized to lead to improved psychological adaptation in stroke survivors such as higher quality of life and less symptom distress (Robinson-Smith & Pizzi, 2003). It has also been hypothesized that improving self-efficacy may lead to a decreased incidence of depression in stroke survivors (Robinson-Smith & Pizzi). High coping self-efficacy has specifically been related to improvements in adjustment to stressful events (Benight & Harper, 2002). The findings from the present study and the published literature support the notion that (coping) self-efficacy is a potent variable that has the potential to influence health outcomes in a variety of populations, including stroke survivors. Direct-care providers should not only measure or monitor self-efficacy in the stroke survivor population, but can use self-efficacy theory to guide interventions focused on improved outcomes.

Patterns of use between the individual coping strategies were also identified across the stroke survivors. Stroke survivors who frequently used humor to cope with their stroke also used the strategies denial and behavioral disengagement more frequently. The association among these three strategies can be explained as an attempt to distance one’s self from the situation at hand. This has been termed avoidant coping in the literature (Finset & Andersson, 2000; Lazarus & Folkman, 1984). Avoidant strategies have also been described as defensive strategies. Direct-care providers should be aware of this association. Overuse of humor as a coping strategy may be more obvious than the use of a strategy such as denial. Consistent use of humor to deal with the stress of the initial stroke rehabilitation process may be interpreted as a “red flag” for the use of other maladaptive coping strategies. These individuals may require specific interventions related to emotional support, encouragement, staff or peer encouragement, and/or formalized emotional support.

The study was delimited to stroke survivors undergoing inpatient stroke rehabilitation admitted over a 6-month period to a single urban-based teaching hospital and who had the cognitive capacity and the ability to communicate during the data collection session. In addition, it was delimited to those undergoing stroke rehabilitation for the first time and to those who were willing to participate on days 5–7 of the rehabilitation process.

In terms of limitations, only three ethnic or racial groups were represented (Caucasian, African-American, and Hispanic). In terms of stroke severity, only subjects with minor or mild and moderate strokes participated in this study. Because the data were collected on an acute rehabilitation unit, the opportunity to recruit those with severe strokes may have been limited. This study did not address variables such as level of anxiety, problem-solving ability, the ability to think abstractly, fear, perceived severity of the stressor, or outcomes. In addition, moderator variables such
as intelligence, level of education, social supports, and socioeconomic status were not considered. The number of variables analyzed was delimited in order to decrease the burden on the respondents as well as to increase the feasibility of completing the study. Finally in terms of measurement, self-efficacy was not assessed by a standardized instrument.

This study was exploratory in nature and case-series methodology was chosen. The small number of participants increased the likelihood of committing a Type II error during the data analyses phase. The stroke survivors included in this study do not represent a “sample” and the goal of the study was not to generalize findings to a population or universe. This study did not attempt to establish causality nor was there any attempt to control behavioral events. This study was designed to provide an initial description of the coping behaviors of stroke survivors undergoing acute rehabilitation.

Conclusions

This case series has provided insight into a selected number of psychological processes of acute stroke survivors undergoing the first week of their inpatient rehabilitation; specifically it has provided insight into the coping behaviors of this population and the relationship between coping and other variables such as depression. The literature regarding the emotional aspects of stroke rehabilitation is sparse compared to the literature focused on physical manifestations and/or functional deficits after stroke (Fraley, 1998). This is particularly true regarding coping after a stroke. Because the primary focus of the stroke rehabilitation process continues to be on the physical aspects of function these data have implications with respect to the assessment process and clinical management of acute stroke survivors.

Based on current national stroke statistics (National Stroke Association, 2004), it is clear that there is potential for improvement in the process of stroke rehabilitation. Although a focus on the physical aspects of stroke rehabilitation remains critical, this does not appear to be enough. Because of the gaps in the literature related to stroke and coping, occupational therapists and other direct-care providers have had little to guide them in terms of understanding the psychological manifestations of a stroke. This lack of understanding may explain the reason this aspect of caring for stroke survivors has not received the same level of attention as the more “visible” aspects of stroke disabilities. This case series is a first step toward gaining further understanding and increasing knowledge related to some of the early-phase psychological processes of coping with acute stroke. ▲

References


