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# **Comparison of Two Online Interventions to Cope with Spinal Cord Injury: A Pilot Study**

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## **Abstract**

Spinal cord injury (SCI) is a disability and life experience that may suddenly, drastically, and forever change a person's life. While psychosocial interventions and support services are typically integrated within the acute rehabilitation process, there is limited research on psychosocial interventions and support services after individuals have been discharged from the hospital and are living in their communities again. To address this void and important need, two interventions were administered through an online website to people who had lived with a spinal cord injury (SCI) for at least one year. Results found that both Enright's (2001) forgiveness intervention and Kennedy and Duff's (2001) coping intervention were effective at reducing depression, anxiety, and anger from pre-test to post-test, and pre-test to follow-up, both separately and in comparison to one another. Findings from this study are discussed, followed by possible limitations.

*Key words:* forgiveness, coping effectively, spinal cord injury, interventions, disability, adjustment to disability

## Learning Objectives

- To enhance understanding of the ways paraplegics' lives may change following disability;
- To improve professionals' understanding of the benefits online forgiveness and coping interventions have to offer in the therapeutic process;
- To educate professionals about the research supporting Kennedy and Duff's (2001) *Coping Effectively Training* (CET) intervention and how it may be used for persons with spinal cord injury;
- To educate professionals about the research supporting Enright's (2001) *Forgiveness is a Choice* (FC) intervention and how it may be used for persons with spinal cord injury; and
- To discuss the potential ways both interventions may affect the coping abilities of persons with spinal cord injury.

# Introduction

Spinal cord injury (SCI) is a disability and life experience that may suddenly, drastically, and forever change a person's life (Stuntzner, 2012). "Spinal cord injury" involves damage to any part of the spinal cord or nerves at the end of the spinal canal (Falvo, 2013). The Americans with Disabilities Act (1990) defines "disability" as an impairment that limits major life activities, such as "caring for oneself, performing manual tasks, walking, seeing, hearing, breathing, learning, and working" (Maki & Tarvydas, 2012, p. 87). Following the onset of a spinal cord injury (SCI), many individuals struggle with the complex challenge of examining how the disability will affect who they are and what their roles are in society (Dunn & Burcaw, 2013; Dunn & Brody, 2008; Williams, Davey, & Klock-Powell, 2003). Specifically, common psychological and social challenges may include learning about, adapting to, and coping with: (a) disability; (b) changes in personal functioning; (c) negative thoughts and feelings as a part of the adaptation process; (d) societal and attitudinal barriers; (e) feelings associated with loss and disempowerment; (f) experiences of social injustice and discrimination; and (g) lack of access to services, housing, or meaningful employment (Marini Glover-Graf, & Millington, 2012; Smart, 2009). Coping with and adjusting to disability is an individualized process, and two people with similar disabilities are capable of having very different coping processes and outcomes (Livneh, 1986; Stuntzner & Hartley, 2014). Some individuals learn to cope with restrictions to major life activities within a relatively short amount of time, while others require more time to adjust to disability.

A spinal cord injury is often associated with medical changes to physical sensations and mobility, muscle movement and control, pressure sores, bowel and bladder regulation, and urinary tract infections (Crewe & Krause, 1987; Elliott, Kurylo, Chen, & Hicken, 2002; Heinemann & Hawkins, 1995; Hawkins & Heinemann, 1988; Trieschmann, 1980). While medical changes often stabilize, it can be much harder to address the impact on major life activities, such as (a) employment, health insurance, and finances (Krause & Anston, 1997; Livneh & Antonak, 1997); (b) social support, family roles, and romantic relationships (Chan, Lee & Liemak, 2000; Crewe, 1999; Heinemann, 1999); (c) sexual identity and functioning, as well as body image (Crewe, 1999; Livneh & Antonak, 1997); (d) self-esteem and personal identity (Crew & Krause, 1987; Tzonichaki & Kleftaras, 2002); and (f) personal feelings, negative emotions, and self-blame (Boekamp, Overholser, & Schubert, 1996; Borderi & Kilbury, 1991; Kennedy & Rogers, 2000; Lane, 1999; Turner & McLean, 1989). Research has found that individuals with SCI who are not able to cope with the impact of medical changes on major life activities experience depression, anxiety, and anger for extended periods of time (see Boekamp et al., 1996; Craig, Hancock, & Dickson, 1994; Lane, 1999; Turner & McLean, 1989), which in turn influences the ways they conduct themselves in their daily lives in regard to self-esteem, life satisfaction, and overall quality of life.

Given the multiple changes that occur following one's disability, and the numerous personal issues that persons with SCI often encounter, consideration and examination of potential interventions is warranted and of value. In particular, there is a need to examine the utility of interventions that can be delivered within a relatively short period of time (i.e., eight to ten weeks) and tailored to the unique but varied needs of individuals with SCI. A primary

intervention used and discussed throughout the literature for persons with SCI is Kennedy and Duff's (2001) *Coping Effectively Training* (CET) intervention. While invaluable, there is a need for additional coping and adjustment-oriented interventions for persons with SCI to reduce negative thoughts, feelings, and behaviors (Stuntzner, 2008). Additionally, very little research exists about the utility of forgiveness as a coping strategy for persons with disabilities; yet, given the multitude of personal changes, disability-related complications and associations, and the negative societal attitudes, barriers, and injustices often experienced (i.e., discrimination, environmental barriers, attitudes of blame for cause of disability), forgiveness is a tool and an approach that appears to have much applicability to the coping and adaptation needs of persons with disabilities (Stuntzner, 2008; Willmering, 1999). In particular, Enright's (2001) *Forgiveness is a Choice* (FC) intervention, a model with strong empirical and theoretical support, may be a possible intervention to further support persons with SCI during the adjustment to living with a disability.

## **Enright's Forgiveness is a Choice (FC)**

Enright's (2001) *Forgiveness is a Choice* (FC) intervention for persons with SCI aims to reduce negative thoughts and emotions such as anger, depression, and anxiety following a spinal cord injury (Coyle & Enright, 1997; Freedman & Enright, 1996; Hebl & Enright, 1993; Lee & Enright, 2014; Lin, 2001; Subkoviak et al., 1995; Waltman et al., 2009). Developed by Enright, Freedman, and Rique (1998), the intervention is an extension of a forgiveness model first developed by Enright and the Human Development Study Group (1991). Today, Enright's (2001) *Forgiveness is a Choice* (FC) is a self-study intervention based on the notion that forgiveness is a skill that can be taught and enhanced regardless of a person's starting point; it is from this "teaching process" that people can begin to forgive themselves, others, or a higher entity (Al-Mabuk, 1990; Freedman, 1995; Stuntzner, 2008). The intervention has been empirically tested with a number of different populations including: (a) adult incest survivors (Freedman & Enright, 1996); (b) elderly women (Hebl & Enright, 1993); (c) men affected by a partner's decision to have an abortion (Coyle & Enright, 1997); (d) college students reporting hurt experienced from their parents (Al-Mabuk, Enright, & Cardis, 1995); (e) persons with substance abuse issues (Lin, 2001); (f) adult children of alcoholics (Osterndorf, Enright, Holter, & Klatt, 2011); (g) persons with coronary artery disease (Waltman et al., 2009); and (h) women with fibromyalgia who were abused in childhood (Lee & Enright, 2014).

As a collective, findings from these studies demonstrate that the forgiveness process model is essential in helping people reduce negative thoughts and emotions such as anger, depression, and anxiety (Coyle & Enright, 1997; Freedman & Enright, 1996; Hebl & Enright, 1993; Lee & Enright, 2014; Lin, 2001; Subkoviak et al., 1995; Waltman et al., 2009). It has also been instrumental in improving other personal aspects and positive attributes such as hope, self-esteem, forgiveness, and personal healing (see Enright & Coyle, 1998; Freedman & Enright, 1996; Hebl & Enright, 1993; Lee & Enright, 2014; Waltman et al., 2009).

Enright's (2001) forgiveness intervention consists of four phases: *Uncovering Phase*, *Decision Phase*, *Work Phase*, and *Outcome Deepening Phase*. Within each of the phases, 20 individual units are outlined and explored to teach people about forgiveness steps and processes:

- The *Uncovering Phase* consists of eight units (i.e., Units 1-8) that address a person's emotional and mental pain. It is through this recognition and acknowledgment process that the offended person sees how he or she has been deeply hurt and the ways this is interrupting one's life and overall well-being.
- The *Decision Phase* consists of three units (i.e., Units 9-11) devoted to helping the person come to a decision and a commitment to forgive. Through these steps, the person learns that his or her way of dealing with the pain and the offense is not helpful. The steps aid in making the decision to try and forgive the offending person.
- The *Work Phase* has four units (i.e., Units 12-15). It is in this phase that the person tries to confront the pain felt and the hurt experienced. In this phase, the perception of the offending party can change from negative to neutral or positive, and the person can create a sense of empathy for the offender, even learning to accept or absorb the pain.
- The *Deeping Phase* is comprised of five units (i.e., Units 16 to 20) and was developed to assist the person in experiencing a fuller, more in-depth understanding of forgiveness. It is during this time that the person may learn to find meaning and purpose in his or her pain, recognize that no one is without fault and that everyone needs forgiveness at one time or another, and experience a sense of healing and personal freedom (for a full review see Baskin & Enright, 2004; Enright et al., 1998).

Although Enright's (2001) forgiveness model had not been applied to persons with SCI prior to the present project, a qualitative study by Willmering (1999) found that persons with SCI reported forgiveness as an important component of the adjustment to disability process. To evaluate the effectiveness of the forgiveness intervention among individuals with SCI, it was compared to the Kennedy and Duff's (2001) *Coping Effectively Training* (CET), the primary psychosocial intervention provided to persons with SCI.

## **Kennedy and Duff's Coping Effectively Training (CET)**

Kennedy and Duff's (2001) *Coping Effectively Training* (CET) is an intervention designed to teach persons with spinal cord injuries skills they can use to assess and manage potentially stressful situations. The CET intervention consists of a series of modules with individual units that teach people specific coping skills, similar in structure to Enright's (2001) *Forgiveness is a Choice* intervention. Specifically, the intervention consists of seven modules: (a) identifying stress and coping strategies; (b) assessing and managing stress and difficulties; (c) learning effective problem-solving; (d) engaging in constructive coping skills; (e) identifying and reducing negative thoughts and feelings (i.e., understanding the relationship); (f) reviewing and reassessing current coping abilities; and (g) developing social support and support networks. CET has typically been delivered in a group setting among persons with SCI who are in an acute rehabilitation or inpatient rehabilitation setting (see Duchnick et al., 2009; Kennedy et al., 2003).

Empirical support for CET is strong and of value for persons with SCI. King and Kennedy (1999) used CET among persons with SCI. This study was composed of two groups with 19 participants in each one. Findings from this study demonstrated that CET helped reduce depression and anxiety in the CET group compared to the control group following the intervention and concluding a 6-week follow-up period. Kennedy and colleagues (2003)

conducted a later study using CET among persons with SCI (N=45 intervention participants vs. N = 40 matching participants). Results from this study showed similar results to the first study by King and Kennedy (1999); CET was effective in reducing anxiety and depression at post-test and follow-up concluding the intervention compared to the control group.

## **Present Study**

The purpose of the present study was to compare Enright's (2001) *Forgiveness is a Choice* (FC) intervention to Kennedy and Duff's (2001) *Coping Effectively Training* (CET) intervention in the reduction of negative emotions such as depression, anxiety, and anger. To date, Enright's (2001) *Forgiveness is a Choice* (FC) intervention has been effective in reducing negative emotions in multiple contexts and among diverse groups of people, but it has not been utilized and examined among persons with SCI. In contrast, Kennedy and Duff's (2001) CET intervention has been studied previously for its use and application among persons with SCI and has demonstrated promising results in helping people reduce depression and anxiety. To better understand the potential value and usefulness of Enright's (2001) FC intervention among persons with spinal cord injury, the intent of the present was to compare the effectiveness to the well-established Kennedy and Duff's (2001) CET intervention. Examining the utility of each intervention separately and in comparison to one another, the research questions were: (1) will there be a difference between the two interventions in reducing anger, depression, and/or anxiety from pre-test to post-test; and (2) will there be a difference in the long-term effects from pre-test to follow-up?

## **Methods**

The study used online and self-study intervention delivery methods through the use of a website constructed so that selected participants could be included nationwide and transmit secure information to the researcher. Participants selected were randomly assigned to one of two intervention groups. The experimental group was based on Enright's (2001) *Forgiveness is a Choice* self-study intervention, while the control group used Kennedy and Duff's (2001) *Coping Effectively with Spinal Cord Injury* intervention. Assignments and progress on the interventions were monitored through the use of a secure website: [www.forgiveness-coping.com](http://www.forgiveness-coping.com). Participants were assessed at pre-test, post-test, and a six-week follow-up to determine changes in depression, anxiety, and anger.

## **Participants**

Participants were recruited nationwide from a number of different agencies, websites, and disability-related organizations. Informational fliers and research recruitment materials were sent to independent living centers, vocational rehabilitation divisions, Model Spinal Cord Injury Centers, Paralyzed Veterans of America, SCI support groups and organizations, rehabilitation professionals (e.g., counselors and educators), rehabilitation hospitals and centers, and online web announcements (e.g., [www.carecure.org](http://www.carecure.org), [www.newmobility.org](http://www.newmobility.org)). People interested were asked to contact the researcher through phone or email.

Initially, 60 inquiries were made by people interested in the study. To be considered eligible, potential participants had to meet three essential criteria: (a) to have lived with an SCI for at least one year; (b) to be 18 years of age or older; and (c) to report no problems or issues with excessive drinking or substance abuse. In addition, potential participants were asked to complete demographic information and a psychological screening form to solicit (a) information pertaining to the changes in how people viewed themselves following their injuries; (b) perceptions relating to the cause of their disabilities; (c) thoughts on whether their injuries were or were not “unfair” or “unjust”; and (d) reports on personal experiences with negative feelings (i.e., depression, anxiety, anger, etc.). Such information was considered of value to the researcher because it provided a background of experiences, perceptions, and feelings that helped strengthen a person’s ability to benefit from this study.

Ultimately, 16 individuals were considered eligible for the study. Participants consisted of nine men and seven women, all of whom were randomly assigned to either the FC group (N=9) or the CET group (N=7). In addition to completing the intervention, 11 participants finished the study through follow-up (N=6, forgiveness group; N=5, CET group). Demographic information showed that participant age range was from 37 to 54 years (M=46.0, SD=5.1). Additionally, demographic information collected pertaining to participants’ levels of employment and/or disability benefits, education, marital status, ethnicity, level of injury, time since injury, perception or cause of injury, and manner in which the SCI changed their lives. Having such information was of value because it helped the researcher understand people’s perceptions of their injuries and how their lives had changed following the disability (see Table 1).

## Measures

Three instruments were used to measure potential changes in depression, anxiety, and anger for both intervention groups (i.e., Beck Depression Inventory, Beck, Steer, & Brown, 1996; Spielberger’s State-Trait Anxiety Inventory, Spielberger, 1983; State-Trait Anger Expression Inventory, Spielberger, 1999). Each was delivered to participants prior to the start of the study at the pre-test phase, at the conclusion of the targeted intervention (i.e., post-test), and then again eight weeks following the conclusion of the intervention at follow-up.

**Beck Depression Inventory – II.** The Beck Depression Inventory – II (BDI – II; Beck, Steer, & Brown, 1996) is a 21-item self-report instrument. Scoring on each item ranges from zero to three with higher scores indicating more severe symptoms (Beck et al., 1996; Beck, 2004). Overall scores range from 0 to 63 and cut-off scores are provided to determine minimum, mild, moderate, and severe depression. Beck and colleagues also provide empirical support for this instrument’s reliability and validity as this instrument is well-known for its assessment of depression and depressive symptoms. Chronbach’s Alpha was .912 in the present study.

**State-Trait Anxiety Scale.** The Spielberger State-Trait Anxiety Scale (STAI, Spielberger, 1983) was used to measure change in participant’s state and trait anxiety (Subkoviak et al., 1995). The STAI is a 40-item self-report inventory and has two scales that measure state-anxiety (i.e., how someone feels right now) and trait-anxiety (i.e., how someone typically feels). Each scale consists of 20 items and can be rated from one to four. Participant scores can range from a low of “20” to a high of “80” (Coyle & Enright, 1997; Subkoviak et al., 1995). Higher scores are



indicative of more anxiety than lower scores. Additional information about the instrument's reliability and validity is provided in the manual (Spielberger, 1983). Chronbach's Alpha was .955 for state anxiety and .929 for trait anxiety in the present study.

**State-Trait Anger Expression Inventory.** The State-Trait Anger Expression Inventory –II (STAXI – II; Spielberger, 1999) is a 57-item instrument used to measure changes in state and trait anger. This instrument assesses the intensity at which a person experiences anger as well as the probability that he also experiences it as a trait (Spielberger, 1999). Higher scores on trait anger are indicative of a person who gets angry more frequently and to higher degree than a person with a low score (Spielberger, 1999). The STAXI is comprised of six scales and five subscales, and an Anger Expression Index. The information acquired from this instrument was used to determine the amount of anger a person experiences at the moment (e.g., State Anger) and the frequency in which a person experiences anger (e.g., Trait Anger). Norming information, reliability, and validity estimates are provided throughout the manual. Chronbach's Alpha was .958 for state anger and .900 for trait anger in the present study.

## Procedures

After being randomly assigned to one of the two intervention groups, participants were directed to the study's website to review general information regarding the study and resources on forgiveness. Participants were given an ID code and password to log into the website. The website allowed them secure access to view the weekly written assignments they were to complete, upload their intervention assignments, and communicate with the researcher should they have problems or questions. Participants were able to only view their own work, and not that of others, so that all information was secure and private. In addition, the participants in the forgiveness group received the book, *Forgiveness is a Choice: A Step-by-Step Process for Resolving Anger and Restoring Hope*, by Enright (2001), while the CET group received the manual, *Coping Effectively with Spinal Cord Injury* by Kennedy and Duff (2001). Both groups received weekly writing assignments. At the conclusion, participants were sent a follow-up questionnaire to provide the researcher with additional information about their experiences during the intervention.

## Interventions

Both interventions were administered as self-study approaches and online through the website. Each of the trainings was divided into eight weeks with specific reading and writing assignments that were to be completed and to help make the work more manageable. A brief overview of each intervention is provided below.

**Forgiveness Training.** Participants in the forgiveness group were assigned chapters to read from the selected book and were asked to write and answer questions on forgiveness as it relates to living with an SCI. Content they were to address was altered for purposes of making the questions more meaningful to the experience of disability and SCI.

- *Week one* provided participants with an overview of forgiveness, information about the benefits of forgiving, clarification on what forgiveness is and is not, a discussion on the reason to forgive, and an understanding of the relationship between harboring negative feelings and forgiveness.
- *Week two* was about preparing participants for the forgiveness process. Such preparation meant that they were educated about forgiveness being “difficult” and hard work, yet beneficial. Forgiveness is a process that sometimes unveils hurts that are challenging to admit and address (Enright, 2001).
- *Week three* focused on addressing one’s anger and the discovery of held and/or buried negative thoughts and feelings. Throughout this process, it was explained that people sometimes suppress or ignore what is taking place within themselves.
- *Week four* presented participants with the opportunity to explore their anger more in depth and the ways it affects them. For example, does the person compare his or her life to that of the offending person? Does the person experience additional consequences related to one’s health or problems with one’s interpersonal relationships (Enright, 2001)?
- *Week five* focused on material and exercises pertaining to the decision to forgive in an effort to help participants explore and evaluate whether they were ready to proceed further with forgiveness.
- *Week six* was about reviewing present thoughts and feelings related to forgiveness, and those participants were trying to forgive. Information presented encouraged the promotion of compassion and more positive thoughts, feelings, and behaviors toward the offending parties. This week also gave them time to reflect on their progress made in learning to forgive.
- *Week seven* took participants through the final phase of forgiveness and covered information to help them discover how they may have changed for the better and how they now experience less emotional and mental pain than at the start.
- *Week eight* provided participants with the opportunity to explore more information about forgiveness, perhaps at a deeper level. Giving them this extra week was important because it was felt that they may need a little more time to absorb the information and exercises they had been asked to complete during the previous weeks.

**Coping Effectively Training.** Participants in the CET group completed the intervention over the course of eight weeks. Similar to the forgiveness group, they were sent the CET manual for reference and had specific questions and/or exercises to complete related to the topic each week. The questions were created to help them apply the content to their specific situation and to help them be more personal and meaningful.

- *Week one* provided participants with an overview of the training and helped explain how SCI creates many changes and potential stressors within one’s life. Questions were provided to help participants think about their goals and potential issues they would like to address or change when proceeding forward.
- *Week two* addressed the concept of stress and how it is a normal part of living with a SCI. However, if stress is not attended to and addressed, it can interfere with positive coping (Kennedy & Duff, 2001).

- *Week three* focused on helping participants identify and evaluate their own sources of stress, exploring those that can be changed, and applying skills that can be used to help them cope in a more positive fashion.
- *Week four* was about problem-solving and the use of exercises and applications to help participants practice it.
- *Week five* covered information about the connection between one's thoughts, feelings, and behaviors. Content and exercises were intended to help participants recognize what they do well and where change may be warranted.
- *Week six* encouraged participants to consider and address negative cognitions. Participants were educated on the influence their negative thoughts can have on the ability to be rational and to cope as well as they would like to.
- *Week seven* provided participants with an opportunity to review many of the concepts previously presented as well as address problems they continue to have with non-adaptive coping strategies. This week also focused on helping participants identify new strategies they may use in dealing with a difficult person or situation that has not yet been resolved.
- *Week eight* addressed social support and strategies people may use to build or maintain it.

## Statistical Analysis

Statistical data was analyzed using sample t-tests to measure the mean change scores of each intervention group for the two questions examined. Group means were calculated for question one from pre-test to post-test; thus, change scores in depression, anxiety, and anger were examined separately for both interventions. Question one used two-tailed independent sample t-tests to determine if the change in depression, anxiety, and anger was comparable between the two interventions from pre-test to post-test. Question two was analyzed using a paired sample t-test to examine long-term change at follow-up for either the forgiveness or the coping intervention. Results of the power analysis indicated a range from mild to strong, which suggests varied strength in the measures from pre-test to post-test and pre-test to follow-up.

## Results

### Pre-test to Post-test

Change scores were derived from the difference occurring from pre-test to post-test. Intervention change scores used a  $p$  value of  $p < .05$ . The critical value used to determine significance within the forgiveness group was -1.860 or 1.860 for  $p < .05$ , while that used for the coping group was -1.943 or 1.943 for  $p < .05$ . The degrees of freedom were 8 and 6 for the forgiveness and the coping group.

**Forgiveness Intervention.** From pre-test to post-test, participants in the forgiveness group demonstrated a statistically significant decrease in depression, trait anxiety, and trait anger, but there were not significant changes in state anxiety or state anger. Change in depression scores indicated a 10.11 point reduction with  $t(8) = 2.348$ ,  $p < .05$ . Overall change scores within the forgiveness group decreased from 23.00 (i.e., moderate depression) to 12.88 (i.e., minimal depression). Trait anxiety decreased by 9.67 points. Group means decreased from 46.44 to

36.77, thus reaching statistical significance of  $t(8) = 3.867, p < .05$ . Trait anger scores revealed a 3.22 point decrease from pre-test to post-test, thus reaching statistical significance  $t(8) = 2.636, p < .05$ . Trait anger group mean scores decreased from 20.22 to 17.00. At post-test, trait anger group scores were within the average range of people over the age of 30 sampled for norming purposes reported by Spielberger (1999). There were not significant changes in state anxiety scores with  $t(8) = 1.377, p > .05$  or in state anger scores with  $t(8) = 1.714, p > .05$ . However, there were group mean reductions in both state anxiety and state anger. In both instances, the post-test mean scores were close to the average scores given in the instruments' norming sample and possibly suggesting that state anxiety and state anger was not elevated at the conclusion of the intervention (see Table 2)

**Coping Intervention.** Participants in the coping group showed a statistically significant decrease in depression and state anxiety from pre-test to post-test, but there were not significant changes in trait anxiety, state anger, or trait anger. Group mean depression scores decreased by 7.28 points, from 16.85 (i.e., mild depression) to 9.57 (i.e., minimal depression) and reached statistical significance of  $t(6) = 3.565, p < .05$ . Mean change scores from pre-test to post-test indicated at 9.86 point reduction in state anxiety. State anxiety decreased from 44.00 to 34.14, thus achieving statistical significance  $t(6) = 2.283$ . Trait anxiety was  $t(6) = 1.602, p > .05$  thus indicating no significant change; however, group mean scores decreased some at post-test. Change scores in state and trait anger did not statistically decrease; however, both scores slightly decreased at post-test and were slightly below or close to the average score(s) of the sample. State anger was  $t(6) = 1.658, p > .05$ , and trait anger was  $t(6) = 1.309, p > .05$  (see Table 2).

**Comparison of Intervention Changes.** To determine change and comparability of the interventions, change scores were obtained by subtracting the pre-test scores from the post-test scores followed by t-tests that were performed on each variable. The critical value for comparison of each of the measured variables was -2.145 or 2.145 for  $p < .05$ , with 14 being the degree of freedom. Comparisons of the two interventions determined there were comparable changes in depression,  $t(14) = .540, p > .540$ ; state and trait anxiety,  $t(14) = -.807, p > .05$  and  $t(14) = -1.577, p > .05$ ; and state and trait anger,  $t(14) = .273, p > .05$ , and  $t(14) = .633, p > .05$ ; although results did not indicate any change reaching statistical significance. More specifically, participants in the forgiveness group reduced their depression scores by 2.83 points more than those in the coping group (-10.11 vs. -7.28). Similarly, they reduced their state and trait anger scores slightly more than the coping group (-3.22 vs -2.00). Participants in the CET group reduced their state anxiety by 4.63 points more than those in the FC group (-9.85 vs. -5.22); participants in the forgiveness group decreased their trait anxiety scores by 5.67 points more than the coping group (-9.67 vs. -4.00).

## Pre-test to Follow-up

Change scores were derived from the difference occurring from pre-test to follow-up. Intervention change scores used a  $p$  value of  $p < .05$ . The critical value used to determine significance within the forgiveness group was -2.015 or 2.015 for  $p < .05$ , while that used for the coping group was -2.132 or 2.132 for  $p < .05$ . The degrees of freedom were 5 and 4 for the forgiveness and the coping group.

**Forgiveness Intervention.** Participants in the forgiveness group demonstrated a statistically significant decrease in trait anxiety and trait anger, long-term at follow-up. Trait anxiety scores decreased by 11.67 points at follow-up, thus achieving statistical significance,  $t(5) = 2.369, p < .05$ . Trait anger scores demonstrated a reduction of 6.33 points and reached statistical significance  $t(5) = 2.801, p < .05$ . Participants did not achieve statistical significance in their change scores of depression, state anxiety, or state anger; however, their scores at follow-up were lower in depression and in state anxiety than at the start of the study. Findings such as these demonstrate that there was a trend of change in these two areas. Depression scores decreased by 13.33 points from pre-test to follow and averaged a score of 7.66 points indicating a change from moderate to minimal depression, but the change was not determined clinically significant  $t(5) = 1.932 > .05$ . State anxiety scores were reduced by 8.50 points at follow-up, but the change was not found to be statistically significant,  $t(5) = 1.862, p > .05$ , yet they had comparable scores to those acquired at post-test. State anger showed a slight increase of 0.16 points from pre-test to follow-up, thus not reaching statistical significance,  $t(5) = -0.117, p > .05$ . It should be noted though that the lack of significant change may be related to the fact that participants' state anger scores were already low at both the pre-test and follow-up; thus, there was minimal room for personal change.

**Coping Intervention.** Participants in the coping group showed a statistically significant decrease in depression, state and trait anxiety, and trait anger from pre-test to follow-up. Depression scores were maintained at follow-up and participants showed an 11 point reduction in scores; thus indicating statistical significance  $t(4) = 3.667, p > .05$ . Additionally, measured change showed clinical significance as scores changed from mild to minimum depression. State and trait anxiety scores were reduced from pre-test to follow-up by 12.80 and 12.60 points, respectively. Both changes indicated statistical significance, state anxiety was  $t(4) = 2.644, p < .05$ , and trait anxiety was  $t(4) = 6.774, p < .05$ . Participants reduced their trait anger scores by 3.20 points and reached statistical significance from pre-test to follow-up,  $t(4) = 3.138, p < .05$ . Significant change was not found in state anger. Change scores at follow-up showed a 1.60 point reduction in state anger, but this change did not achieve statistical significance  $t(4) = 1.725, p > .05$ .

## Discussion

The present study was designed to examine if Enright's (2001) forgiveness process model was an effective intervention to reduce depression, anxiety, and anger among individuals with spinal cord injury (SCI), as compared to the well-established coping intervention. Overall, the results of the study support Enright's (2001) forgiveness intervention as a means to help reduce depression, trait anxiety, and trait anger in the short-term (i.e., pre-test to post-test) as well as long-term (i.e., pre-test to the 6 week follow-up). Ultimately, both interventions were associated with significant changes at post-test and again at follow-up.

Data from this study found that although there were differences in what each intervention changed following the conclusion of the eight-week intervention, both interventions were found to report comparable changes in depression, anxiety, and anger from pre-test to post-test; therefore, the hypothesis was met for participants in the forgiveness group to show comparable decreases in these areas when compared to the control group. However, it should be noted that

the forgiveness group decreased its scores in depression, trait anxiety, and anger slightly more than the coping group, while the coping group reduced its state anxiety slightly more than the forgiveness group. In both instances, it appears that each intervention has value and comparability in assisting persons with SCI in feeling better and in reducing negative emotions. Overall, it is recommended that professionals consider their clinical focus and rationale for choosing one intervention over the other as one may be better-suited for some issues and concerns encountered by persons with SCI compared to another, depending on what the reported clinical issues are at the start.

## **Implications**

Findings from this study provide additional support for the need to give persons with SCI access to psycho-educational interventions long after the onset of SCI. Too often, intervention studies are focused on the adjustment and coping needs of persons with disabilities early on (Craig et al., 1998; Duchnick et al., 2009; Kennedy et al., 2003). While this type of support is warranted and of importance, it is also invaluable to explore and consider interventions, approaches, and strategies that persons with SCI can access and utilize after they are integrated into the community and faced with hurts/offenses, personal issues, and unpleasant experiences. Provision of online interventions or those that can be tailored through the use of technology and distance communication, such as that provided in this study, is one way to help address this need and void.

In addition, the results of the study support the use of online interventions for individuals with SCI. Use of technology, distance communication, Internet, and tele-health devices as a means of treatment are gaining momentum in the helping professions (i.e., counseling, nursing, medical personnel), but consideration of how professionals may use these to deliver psychological and coping interventions is still in its infancy. Technology may be an important way to gain insight into the ways the forgiveness model can be used to assist persons with SCI. Forgiveness is invaluable as a part of the coping and adaptation process; however, without technology, it may be harder for individuals with SCI to access the intervention. Access to the forgiveness intervention may be critical for more than just the adjustment and acceptance of one's disability. Sometimes, the "inside" work is about learning to forgive oneself, others, or God; it may be about learning to address, work through, and let go of the negativity and hurt sometimes associated with others' actions and unkind or unfair treatment.

Even as people adapting to disability face medical changes, they are simultaneously faced with a host of personal and societal barriers. In recent years, attitudes toward individuals with disabilities have improved, but people with disabilities are often treated as inferior to people who do not have disabilities (Longmore & Umansky, 2001). As a result, people with disabilities may encounter attitudinal, employment, learning, medical, societal, and environmental barriers – all of which have the ability to prevent them from participating in life to the fullest extent (Hartley, 2012; Hartley & Tarvydas, 2013; Smart, 2009). Thus, rather than biological impairments, it is learning to develop coping skills that is most critical. In response, Enright's (2001) forgiveness intervention and Kennedy and Duff's (2001) coping intervention can play a key role in helping individuals address common psychological and social barriers associated with

disability. Focused specifically on forgiveness, the present article provides support for the utility of Enright's forgiveness intervention to reduce depression, anxiety, and anger.

## **Limitations**

Two specific limitations in relation to this study should be considered: sample size and lack of studies for cross-reference. Over the course of the study, attrition occurred, and the sample size dropped from 16 to 11 by the time follow-up was achieved. Because the sample size was smaller than desired (i.e., 20 participants), it is more difficult to generalize these findings to a larger population, in all instances. Thus, it would be beneficial to conduct additional research using these two interventions both face-to-face and through the use of technology as presented in this study. Further research should also be considered using a larger sample size and to expand the use of Enright's (2001) forgiveness model among other disability groups. Such research could help professionals better understand the ways this approach could be tailored to meet the coping and adaption needs of persons with disabilities.

The second limitation is the fact that other studies using either of these interventions through a distance communication modality or technology does not exist. While there has been a sampling of internet-based studies using cognitive behavioral therapy programs with other populations or Internet-delivered psychosocial approaches (i.e., childhood anxiety, persons with physical disabilities, substance abuse, persons with schizophrenia and their families), the numbers of studies are not plentiful, nor are there any that have used either of these approaches in such a way (see Haack, Burda-Cohee, Alemi, Harge, & Nemes, 2005; Hopps, Pepin, & Boisvert, 2003; Matano et al., 2007; Rotondi et al., 2005; Spence, Holmes, March, & Lipp, 2006). Therefore, it is recommended that similar studies be conducted, as this would help with cross-validation.

## **Conclusion**

Counseling interventions, which can be used once persons with SCI are back in their communities, are vital to help cope with disability, life changes related to the injury, hurtful experiences that may be encountered following the disability, and with changes that occur within. Additionally, given some of the intricacies that happen and are sometimes associated with a traumatic disability or an SCI, it is important for professionals to consider other alternatives pertaining to the way they deliver services (i.e., tele-health services, encrypted websites). Consideration of other alternatives, such as those conducted in this study (i.e. website to deliver an intervention), may help persons with SCI access therapeutic support and counseling. Two interventions that may be further explored with persons with disabilities were utilized and examined in this study. Both of these show potential and promise in their ability to help persons with SCI reduce negative emotions, but since few studies exist that utilize these approaches with this group of individuals, and/or have been delivered online, additional research and study is encouraged.

Table 1. Manner in Which Spinal Cord Injury Changed Person's Life

Reported Changes	Forgiveness Group (N=9)	Coping Group (N=7)
Outlook on Life	2	4
Everyday Daily Living Activities	4	1
Physical/Sexual Sensation	0	2
Relationship with Others	2	2
Employment Related Conditions	1	1
Level of Independence	5	1
Fatigue/Stamina	1	5
Additional Concerns- Hiring Attendant	0	1
Body Image and Form	2	1
Spinal Injury Related Complications	5	4
Financial Changes	1	2
Perception of Self	4	2
Difficulty with Emotional coping	2	0

Table 2. Changes from Pretest to Posttest: Group Gains

Variable	Experimental Group			Control Group		
	Change Score	SD	T Value	Change Score	SD	T Value
Depression	-10.11	12.91	2.348*	-7.28	5.40	3.565**
Anxiety						
State Anxiety	-5.22	11.37	1.377	-9.86	11.42	2.283*
Trait Anxiety	-9.67	7.50	3.867**	-4.00	6.60	1.602
Anger						
State Anger	-2.00	3.50	1.714	-1.57	16.49	1.658
Trait Anger	-3.22	3.66	2.636*	-2.00	4.04	1.309

Note. \*\*  $p \leq .01$  \* $p \leq .05$



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