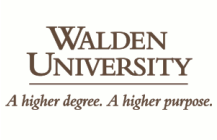

2019

The Effects of Expressive Writing on Emotional Intelligence in College Undergraduates

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This is to certify that the doctoral dissertation by

Elizabeth Harrington Walker

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2019

Abstract

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MEd., Georgia College, 1995

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

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Abstract

Attending college is often so stressful that as many as 40% of students leave without earning a degree. Many students desert during their first and second years of study. Emotional intelligence has been associated with effective coping skills, student achievement, and psychological well-being. The act of expressing emotions through writing has been shown to engage many capabilities associated with emotional intelligence. Few studies have examined the effects of expressive writing on emotional intelligence. The theory of emotion regulation provided theoretical framework. The purpose of this quantitative experimental study was to examine the effects of expressive writing on emotional intelligence and perceived stress. A sample of 58 first and second year of college students participated in the study. Data were analyzed using paired t-test. Differences in emotional intelligence and perceived stress scores were not significant after 4 weeks of expressive writing sessions. However, at one-month follow-up, emotional intelligence scores were significantly higher for those who engaged in expressive writing. Given that emotional intelligence increased after an extended period of time, expressive writing could be easily implemented by students to improve coping skills and achieve academic goals.

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Dedication

This dissertation is dedicated to my parents. Long ago, my mother instilled in me the love of learning and a passion for education. It is to her that I owe a debt of gratitude, love, and appreciation. I only wish she had lived to witness this day.

Acknowledgments

This dissertation would not have been possible without the influence, patience, and guidance of many teachers, professors, colleagues, family, and friends. They have been an inspiration and guiding light throughout my educational, professional, and personal journeys. I would first like to express my gratitude for my dissertation committee, Dr. Jessica Tischner and Dr. Gwynne Dawdy. Their patience, encouragement, and feedback was invaluable for me to achieve this goal. I hope that the final product is the quality of which they can be proud.

Next, I would like to thank my colleagues at Middle Georgia State University for their cooperation, encouragement, and friendship. I would like to especially thank Dr. David Biek, Peter Gareis, Dr. Renat Khatmullin, Paige Crump, Dr. Trish Linder, Dr. Tracie Provost, and Dr. Andrew Reeves. Their guidance, advice, and help was invaluable and I am extremely grateful.

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Finally, a very special thank-you to my husband, David. He has allowed me to pursue this crazy journey and provided the love, support, and foundation from which I fly. Without him, nothing is possible.

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Chapter 1: Introduction to the Study

Stress and anxiety associated with attending college has long been a focus of research (Andrews & Wilding, 2010; Morrison & O'Connor, 2005; Shields, 2001). Some studies have indicated that up to 56% of first year college students fail to complete their studies (Lau, 2003; Tinto, 2006). Porter (1990) found that 40% of college students leave without a degree. Sosa, Barientos, Castro, and Garcia (2010) determined a link between stress and desertion from college.

Emotional intelligence (EI) is used to describe abilities which help identify and regulate emotions in oneself and others (Goleman, 1995). EI has been associated with higher self-esteem and positive mood (Schutte, Malouff, Simunek, McKenley, & Hollander, 2002); more effective coping (Austin, Saklofske, & Mastoras, 2010); physical and psychological well-being and employability (Nelis, Koutsou, Quoidback, Hansenne, Weytens, Dupuis, & Mikolajczak, 2011); greater academic performance (Brackett, Rivers, & Salovey, 2011); and student success in college (Sparkman, Maulding, & Roberts, 2012). Goleman (1995) suggests that emotional intelligence is more important than intelligence quotients (IQ) in determining success in life. Some researchers claim that, unlike IQ, EI can be taught (Goleman, 1995). Some researchers have implemented training sessions to increase EI with some posit Emotional intelligence (EI) is used to describe abilities which help identify and regulate emotions in oneself and others (Goleman, 1995). EI has been associated with higher self-esteem and positive mood (Schutte, Malouff, Simunek, McKenley, & Hollander, 2002); more effective coping (Austin, Saklofske, & Mastoras, 2010); physical and psychological well-being and

employability (Nelis, Koutsou, Quoidback, Hansenne, Weytens, Dupuis, & Mikolajczak, 2011); greater academic performance (Brackett, Rivers, & Salovey, 2011); and student success in college (Sparkman, Maulding, & Roberts, 2012). Goleman (1995) suggests that emotional intelligence is more important than intelligence quotients (IQ) in determining success in life. Some researchers claim that, unlike IQ, EI can be taught (Goleman, 1995). Some researchers have implemented training sessions to increase EI with some positive results. Ruiz, Saguero, and Cabello (2012) found increased scores in EI, as well as lower levels of anxiety and depression among adolescents who participated in an EI training program. The program, which consisted of instruction for one hour per week for ten weeks, involved identifying, expressing, and regulating emotions (Ruiz, Saguero, & Cabello, 2012). Nelis et al (2012) also found that EI was increased through an 18-hour intervention focusing on identifying and regulating emotions. Koutsou, Nelis, Gregroire, and Mikolajczak (2011) increased EI scores by implementing an intervention which required participants to explore self-awareness by identifying specific emotional experiences in writing.

Previous research has indicated that expressive writing has contributed to both physical and psychological benefits (Pennebaker, 1997). Only a few studies have examined the effects of expressive writing on EI scores. Wing, Schutte, and Byrne (2006) and Kirk, Schutte, and Hine (2011) found that twenty minute expressive writing sessions, over three consecutive days, increased EI scores for Australian students and workers. Writing is inexpensive, easily implemented and maintained, and an efficient method for individuals to identify, express, and evaluate his or her emotions regarding specific

events which are stressful and counterproductive to daily functioning (Kirk et al, 2011; Pennebaker, 1997; Wing et al, 2006). Expressive writing could easily be utilized by student populations to increase higher levels of EI in order to promote more effective coping with stress, which has been identified as a major deterrent to attainment of academic goals (Lau, 2003; Porter, 1990; Tinto, 2003).

The following chapter includes a review of research literature which reviews the importance of EI to psychological well-being and success, specific elements of expressive writing as it relates to EI, and the use of expressive writing to improve EI levels. The problem statement establishes an association between the variables of interest and reveals a deficiency in the literature concerning the examination of variables in American subjects. The study examined the effects of routine expressive writing on EI scores. Additionally, the study examined the effects of expressive writing on stress levels of college undergraduates. Explanations of theoretical and conceptual frameworks, variables to be measured by the study, and assumptions which support the objectives of the study are also explained. Information relating to the scope, limitations, delimitations, and significance of the study provides important perspectives about how expressive writing relates to EI scores and perceived stress of undergraduate students.

Background

Edison Media Research (2009) conducted a poll which revealed 85% of 2,200 college students from 40 colleges and universities reported feeling overwhelmed by upsetting emotions on a daily basis. Sixty-percent of students answering the poll reported that they found it difficult to complete their work on more than one occasion; 86.8%

stated that they felt overwhelmed by academic and personal requirements; 51.3% stated that they felt overwhelmed by anxiety; and 21.6% stated that they felt hopeless within the previous 12-month period (Edison Media Research, 2009). The inability to handle stress was determined to be a contributing factor to dropping out of college (Zhang & RiCharde, 1998). Other studies on college populations have also found that stress negatively impacts academic performance, coping skills, and emotional well-being (Holinka, 2015; Murff, 2006; Shields, 2001). Tinto (1987) determined that as many as 75% of students who drop out of college, do so during their first two years in which skills necessary for transitioning from high school to college are especially important.

Problem Statement

Emotional intelligence has been linked to abilities which promote more effective coping of stress, abilities which help regulate emotions and behavior, student persistence, and overall academic success (Austin, Saklofske, & Mastoras, 2010; Downey, Johnston, Hansen, Birney, & Stough, 2010; Downey, Mountstephen, Lloyd, Hansen, & Stough, 2008; Erozkan, 2013; Potegeiter & Coetzee, 2013, Sparkman, Maulding, & Roberts, 2012; Ugoji, 2012). A number of studies have emphasized that EI can be enhanced and improved through strategies which emphasize emotional awareness, regulation, and cognitive reappraisal (Koutsou et al, 2011; Slaski & Cartwright, 2003).

Expressive writing has been implemented as a therapeutic and educational tool to promote the identification and expression of emotions (Pennebaker, 1990). Other studies have found that written expression also promotes insight into stressful events by promoting the cognitive processing of events which leads to the consideration of various

alternative behaviors and less rumination of stressful thoughts (Boals, 2012; Hoyt & Yeater, 2011).

Research studies which examine the direct effects of expressive writing on EI are scant and focus primarily on Australian populations (Kirk et al, 2011; Wing et al, 2006). The use of expressive writing as a method to promote EI in an effort to increase student retention is also gravely lacking. This study examined the effects of expressive writing on EI scores in an American population of college undergraduates to build upon the insufficient research in this area, as well as demonstrating ways to enhance abilities which could promote student retention and academic achievement.

Purpose of the Study

The quantitative study, which is founded on an experimental design, explored the effects of expressive writing on EI scores and perceived stress within a sample of college undergraduate students in middle Georgia. The dependent variables of EI and perceived stress were measured prior to the implementation of the independent variable of expressive writing. Perceived stress levels and EI scores were also be measured post intervention and one month later. The purpose of this study was to apply the theory of emotion regulation in examination of the effects of expressive writing on EI and perceived stress scores.

Research Questions and Hypotheses

As a means to examine the variables in the study, the following research questions and hypotheses are identified:

RQ1: Does routine expressive writing significantly increase emotional intelligence scores among college undergraduates?

HA1: Routine expressive writing significantly increases emotional intelligence scores among college undergraduates when compared to controls.

HO1: Routine expressive writing does not significantly increase emotional intelligence scores among college undergraduates when compared to controls.

RQ2: Does routine expressive writing significantly decrease perceived stress levels among college undergraduates?

HA2: Routine expressive writing significantly decreases perceived stress levels among college undergraduates when compared to controls.

HO2: Routine expressive writing does not significantly decrease perceived stress levels among college undergraduates when compared to controls.

Theoretical Framework for the Study

The framework of the study involved the idea that the inability to regulate emotions is linked to ineffective coping skills and even psychopathology (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gratz, 2007; Hoffman, Sawyer, Fang, & Asnaani, 2012). Emotion regulation, a specific component of EI, is regarded as a fundamental prerequisite of good mental health and adaptive behavioral strategies (Gross, 1998; 1999; 2002; Gross & Munoz, 1995; Thompson, 1994). The processes involved in expressive writing (self-expression, summarization, organization, and comprehension of different viewpoints of events) engages the abilities of emotion regulation (Boals, 2012; Hoyt & Yeater, 2011;

Pennebaker, 1990). This study implemented the act of expressive writing in order to engage these processes and increase EI scores.

Nature of the Study

The quantitative study utilized an experimental method to explore the effects of expressive writing on EI and perceived stress scores among a sample of college undergraduates at a university in middle Georgia. Data was obtained using pre and post intervention measures from the experimental and control groups. Inferential statistics in the form of both, an independent measures and a repeated measures design, compared the differences in the score means from the two writing groups. Participants from both groups completed the Assessing Emotions Scale (Schutte, Malouff, & Bhullar, 2009) and the Perceived Stress Scale (Wickrama, Ralston, O'Neal, Illich, Harris, Coccia, Young-Clark, & Lemacks, 2013) prior to the writing implementations, immediately upon conclusion of the intervention, and at one month post writing.

Definitions

The following definitions provide clarity in understanding the constructs throughout the study.

Emotional intelligence: Emotional intelligence refers to the abilities involved in the identification and management of emotions in the self and others (Salovey & Mayer, 1990). The definition also expands to refer to the capacity to utilize knowledge of these emotions toward goal achievement (Goleman, 1995; Salovey & Mayer, 1990).

Perceived stress: Perceived stress refers to an individual's perceptions of environmental demands as exceeding one's ability to effectively cope with those

demands.

Emotion regulation: Emotion regulation refers to the ability to evaluate, understand, and modify the expression of one's emotions, as well as their impact on behavior (Thompson, 1994).

Expressive Writing: Expressive writing refers to writing about stressful experiences in order to identify details of and emotions related to experiences encountered by an individual (Pennebaker, 1990).

Assumptions

One assumption is that participants responded to the measurement questions in a forthright manner. The anonymity of the study was intended to encourage honesty when responding to measurement items. Another assumption is that participants followed the directions specified in the writing protocols of each group. Those in the experimental group expressed their emotions and provided details of their experiences. Those in the control group wrote non-emotional descriptions of the previous day.

Scope and Delimitations

Stress experienced by college students, as well as their inability to appropriately handle such stress, is a major concern for researchers (Andrews & Wilding, 2010; Morrison & O'Connor, 2008). Stress has been lined to student drop-out rates, particularly within the first two years of college (Lau, 2003; Tinto, 2006). There is a growing need for inexpensive and easily utilizable techniques to promote EI and enhance such abilities to effectively cope with stress experienced in college (Shields, 2001).

Limitations

Recruitment of participants for the study was from a single university in middle Georgia on a voluntary basis. The participants were a self-selected group, not necessarily representative of all students at the university. This has negatively impacted the generalizability of findings to the entire population of college undergraduates.

Another limitation of the study is that the writing times were scheduled by the researcher and not by the participants themselves. The timing of the sessions may not have been preferential to many of the participants. Writing sessions were conducted in a classroom setting, also not chosen by the participants themselves. Measurements relied on self-report ratings of the participants. Data represents subjective experiences of the participants which presents a lack of uniformity or consistency of such ratings.

Significance

Stress experience by college students is a growing concern (American College Health Association, 2012). The inability to cope with stress is linked to poorer academic performance, less satisfaction with life, and desertion from college (Edison Media Research, 2009; Lau, 2003; Tinto, 2006).

The benefits of EI have been demonstrated in many studies (Parker, Creque, Barnhart, Harris, Majeski, Wood, Bond, & Hogan, 2004; Parker, Summerfeldt, Hogan, & Majeski, 2004). EI has also been linked to student retention and increased rates of graduation (Parker et al, 2004; Sparkman, Maulding, & Roberts, 2012).

Expressive writing has been implemented as a therapeutic tool to heal from traumatic events (DeSalvo, 1999; Pennebaker, 1990, Progoff, 1997). Two studies

demonstrated promising results for utilizing expressive writing to increase EI (Kirk et al, 2011; Wing et al, 2006). This study added to the body of research into an area which is sorely lacking. Increasing EI abilities will have a significant impact on coping with stress, student retention, and academic success. The utilization of expressive writing as a method to enhance EI could have far reaching implications for educational institutions in promoting achievement.

Summary

As this chapter has demonstrated, college students experience a degree of stress which has negative impacts on their academic performance, persistence in completing their academic programs, and overall life satisfaction. EI has also been determined to have a significant impact on the ability to identify, evaluate, regulate, and utilize emotions in order to achieve academic, as well as personal goals. In very few studies has expressive writing been studied as a means of increasing EI. This study sought to contribute to the body of research which is limited in the field of EI.

The following chapter reviews the existing literature regarding the importance of EI in academic success and appropriate coping skills. The chapter also includes an evaluation of the concept of emotion regulation as it relates to EI and expressive writing as a strategy which contributes to EI. The chapter concludes with an examination of the two studies which implement the use of expressive writing to increase EI scores.

Chapter 2: Literature Review

Introduction

This chapter features a review of the constructs and theories that relate to expressive writing as a means of increasing EI. Research studies suggest that emotional expression through writing has resulted in increases in emotional intelligence (Kirk et al, 2011; Wing et al, 2006). Studies have also indicated that higher levels of EI promoted more appropriate management of stress (Downey et al, 2010; Erozkan, 2013).

The literature review describes topics relevant to the current study, such as the capacities involved in EI; and the theory of emotion regulation by which results from the expressive writing intervention will be explained. Then follows are the components and processes of EW as it relates to emotion regulation and EI.

Literature Search Methods

Information from the research literature was found using the Walden University Library. Search databases included: EBSCO databases (PsycArticles, Academic Search Premier, and Medline) and Google Scholar. Key terms used in searches included: emotional intelligence, emotion regulation, expressive writing, stress, and similar terms, as well as authors like Salovey, Mayer, Pennebaker, Goleman, Lepore, etc. Literature published within the last twenty years covering study concepts was sought.

Literature Review Related to Key Variables

Emotional Intelligence

Mayer and Salovey (1990) define EI as those abilities involved in the identification and modification of emotions. The definition has been expanded to include

the capacity to use knowledge of these emotions to guide choices in thoughts and behaviors toward goal achievement (Goleman, 1995; Mayer & Salovey, 1990).

Emotional intelligence and academic success. Studies demonstrate the benefits of EI in the academic realm. Parker et al (2004) conducted a study which evaluated the correlation of emotional and social competence and high school achievement of students in Alabama. Six hundred sixty-seven students in grades nine through twelve were recruited and volunteered to participate in research examining the relationship between personality and academic success. Each student completed the Bar-On Emotional Quotient Inventory, Youth Version (EQ-i: YV) and granted researchers access to their academic progress (overall grade point average, GPA) for the current school year. The EQ-i: YV is a 60-item, self-report questionnaire which requires responses to statements on a Likert scale (1 – very seldom or not true of me to 4 – very often or very true of me). The EQ-i: YV contains five scales: intrapersonal abilities, interpersonal abilities, management of stress, adaptability, and overall mood. An elevated score on any one of the scales reflects a high degree of social and emotional competency. Three groups of students were identified according to their GPA: Successful (GPA 80% or better); Middle (GPA between 20% and 80%) and Less successful (GPA below 20%). A latent variable path model was used to assess the relationship between academic success and EI. Criteria for goodness of fit (*GFI*) was set at ≥ 0.85; and mean squared residual (*RMS*) ≤ 0.10. A moderate relationship was found between EI and academic success, *GFI* (0.98), *AGFI* (0.97), and *RMS* (0.06). All standards for goodness of fit were met. ANOVAs were conducted with each scale and total scale as dependent variables. A significant effect for

academic group was found on two subscales: intrapersonal [F (2, 643) = 15.35, $p <$ 0.001]; interpersonal [F (2, 643) = 15.08, $p < 0.001$]. Multiple comparisons found that for the variables of interpersonal, adaptability, stress management, as well as for total EI scales, the 80% successful group scores were significantly higher than the middle or less successful groups. The middle group's scores were higher than the low success group's scores. When comparing achievement levels, higher academic achievement was significantly related to EI dimensions. The 80% successful group's levels of interpersonal, adaptability, and stress management skills were higher than the other group's scores (Parker, Creque, et al, 2004). The study participants were predominantly white (81%), therefore results are not generalizable to the population at large. Also, the only measure of academic success utilized in the study was student GPA for the year. However, these results were promising as an indication of association between academic success and EI.

An additional study by Parker, Summerfeldt, et al (2004) found that the EI scores of 372 Canadian college freshmen better predicted their first year academic achievement (GPA) than their GPA in high school. Three hundred seventy-two students, who had graduated from high school within the previous two years, volunteered to participate in the study at a university in Ontario. Results were similar to the study by Parker, Creque, et al (2004). At the beginning of the academic year, students completed the EQ-i: Short form and granted researchers access to their academic records at the university. The following June, EI scores were compared with students' college GPA. Two groups were identified accordingly: successful (80% and above college GPA) and unsuccessful (below

60% college GPA). The groups were similar with respect to their high school GPAs, ages, course load, and general mood. An ANOVA was conducted with EI as the dependent variable, and a significant effect was found. The successful group's EI scores were higher than the unsuccessful group [F (1, 127) = 64.86, $p < 0.001$]. Separate F-tests compared the successful group with the unsuccessful group on the EQ-i: Short form scales. The successful group's scores were significantly higher on intrapersonal ability [F (1,127) = 32.44, $p < 0.001$]. The study indicated that EI scores were more effective indicators of first year GPA than were the students' high school GPAs.

A later study by Parker et al (2006) evaluated the correlation between EI and academic retention. Researchers identified two groups of students from 1,270 students at an Ontario university. The students, who were recent high school graduates, were in their freshman year at the university. The two groups were: students who left school prior to the beginning of their second year matched with students who remained at the university for their sophomore year. Students from these groups were randomly selected so that no differences in high school grade averages, age, or course hours in their freshman year were evident. Subjects responded to questions on the EQ-i: Short form and granted researchers access to their GPAs. Students, who remained in school, scored significantly higher on overall EI scores [F (1,422) = 22.75, $p < 0.001$] than students who withdrew. These students had significantly higher levels of: interpersonal [F (1,422) = 6.39, $p < 0.05$]; adaptability [F (1,422) = 10.52, $p < 0.01$]; and stress management [F (1,422) = 18.67, $p < 0.001$] than students who withdrew. A case study by Sparkman, Maulding, and Roberts (2012) revealed that EI components were significantly related to students who

later graduated in a four-year time frame. Participants were recruited prior to the beginning of fall semester at a southeastern U. S. university. The EQ-i was used to assess EI, and researchers were granted permission to access the university database to obtain students' high school GPAs, college GPAs, program completion, and enrollment status. Multiple linear regressions evaluated existing relationships between cumulative GPA and EI scores of students five years post enrollment or graduation. Discriminate function analysis examined relationships between graduation status, enrollment, student departure, and EI scores five years post enrollment or graduation. A multivariate test evaluated differences between groups on EI scores. Significant differences were found [F (30, 1536) = 2.07, p = 0.001]. Significance was found on EI subscales: Empathy [F (2, 781) = 3.26, p = 0.039]; Flexibility [F (2, 781) = 3.30, p = 0.039]; Social responsibility [F (2, 781) = 9.57, $p < 0.001$]; and Impulse control [F (2,781) = 3.15, p = 0.043]. Discriminate analysis found differences between groups ($\lambda = 0.26$; $\chi^2 = 61.97$, p = 0.0010). Differences existed between the three groups (enrolled, not enrolled, and graduated) in: impulse control, happiness, assertiveness, optimism, self-actualization, problem-solving, empathy, flexibility, interpersonal relationship, and stress tolerance. The group of graduated students was best predicted by the EI subscales. This study emphasized results of previous studies which indicated the importance of EI to academic success.

Emotional intelligence and coping with stress. Other studies involving student populations indicated a significant correlation between EI and appropriate coping with stress (Downey et al, 2010; Erozkan, 2013). Erozkan (2013) evaluated the effects of EI levels and coping skills and discovered a relationship between EI scores and proactive

coping skills. Participants were 691 students enrolled at a university in Turkey. The students completed the EQ-i: Short form and the Inventory of Styles of Coping with Stress (ISCS) which assessed style of coping with stressful conditions. Forty-three expressions were grouped under six factors: turning to religion, emotional-behavioral disengagement, biochemical disengagement, seeking external help, active planning, and acceptance-cognitive restructuring. Items on the inventory required participants to use a scale ranging from 1 (never) to 5 (always). Pearson product moment correlation analysis and structural equation modeling tested relationships among EI and coping skills. Sub-dimensions of coping were positively related to sub-dimensions of EI. A negative relationship was found between emotional-behavioral disengagement and EI. Coping skills were positively correlated to sub-dimensions of EI (inter- and intrapersonal abilities, adaptability, appropriate coping, and overall emotional state). Higher scores on the EI inventory indicated those who would seek outside help, think about options, and change their behavior when in stressful situations (Erozkan, 2013). Study findings found a link between EI and effective coping skills.

Downey et al (2010) studied 145 students from public schools in Melbourne, Australia. EI scores were obtained using the Swinburne University Emotional Intelligence Test. This measure consists of 57 self-report items with four scales: ERE (identification and expression of emotions); UE (identification of feelings in others); EDC (the utilization of emotions in problem-solving); and EMC (capacity to manage and regulate emotions). Responses were given from 1 (seldom) to 5 (very often). Coping methods were rated by the Adolescent Coping Scale (ACS), an 18-item self-report

measure which identified three distinctive styles: problem-solving (with little or no help from others); references to others (use other people as resources); and non-productive coping (no solution but tension reduced). Items were scored by the respondents from 1 (doesn't apply or don't do it) to 5 (used a great deal). Results of the study indicated that subscale ERE significantly predicted 6% of problem-solving coping style and 5.5% of non-productive coping; subscale EMC significantly predicted 11.5 % and 10.5% of the variance associated with problem-solving and non-productive coping respectively. These results support the assertion that higher EI scores may enable the utilization of more effective coping strategies through regulating emotions.

Emotional intelligence and employability. Abilities linked to EI, which include recognizing and managing emotions and regulating behavior, have also been indicated as a significant predictor of employability attributes (Potgeiter & Coetzee, 2013). Potgeiter and Coetzee (2013) studied 304 South African postgraduate students of business management. Participant ages ranged from 26 years to 40 years. The study sought to examine if EI is related to psychosocial employability attributes. EI was assessed using the Assessing Emotions Scale (AES), a 33-item, self-report instrument with the following subscales: identifying emotions, modifying emotions, and using emotions to solve problems. Ratings were indicated by higher numbers being given to items which were more accurate for the respondent. Employability attributes were assessed using the Employability Attributes Scale (EAS), a 49-item measure which assessed the following characteristics: competence, self-efficacy, career resilience, sociability, entrepreneurial orientation, and proactivity. A six-point scale was used with higher numbers indicating

item accuracy for the respondent. Three hundred-four questionnaires were used. A stepwise multiple regression analysis predicted psychosocial employability attributes. The value of adjusted R^2 determined total variance of the EAS explained by AES. *F-test* was used to determine a significance in the regression ($p \leq .05$) between the independent and dependent variables. The regression of EI regarding career management was statistically significant (Fp (1308.44, 49.64) = 26.36; $p \leq .000$), accounting for 25 % of the variance (medium effect). Managing emotions ($\beta = .35$; $p \leq .000$) and utilizing emotions ($\beta = .13$; $p \leq .032$) significantly explained the percentage of variance in career management. The regression of EI on self-efficacy was also significant (Fp (326.95; 12.44) = 26.29; $p \leq .000$), accounting for 25% of the variance (medium effect). Other significant variables of variance in self-efficacy: perception of emotions ($\beta = .24$; $p \leq .001$); managing own emotions ($\beta = .22$; $p \leq .001$); and utilizing emotions ($\beta = .24$; $p \leq .000$). The regression of EI upon career resilience was also significant (Fp (489.53; 12.00) = 4.81; $p \leq .000$) accounting for 35% of the variance (large effect). Managing emotions ($\beta = .43$; $p \leq .000$) and ($\beta = .18$; $p \leq .11$) significantly contributed to explaining the variance of career resilience. The regression of EI upon sociability produced a significant model (Fp (66.31; 26.34) = 25.02; $p \leq .000$), accounting for 24% of the variance (medium effect). Managing emotions ($\beta = .27$; $p \leq .000$) and ($\beta = .17$; $p \leq .024$) also contributed to the explanation of the variance of sociability. The regression of EI upon entrepreneurial orientation was also a significant (Fp (46.21; 19.52) = 23.58; $p \leq .000$), accounted for 23% (medium effect) of the variance. Significance was again found for regression of EI upon proactivity (Fp (63.35; 17.75) = 35.52; $p \leq .000$), accounting

for 31% (large effect) of the variance. Variance for proactivity was explained best by managing own emotions ($\beta = .40$; $p \leq .000$). Managing emotions is an important aspect of EI, and it appeared to be significant in explaining increased levels of confidence as well as proactive behavior in sustaining employment.

Emotion Regulation

Emotion regulation (ER) is a specific ability related to EI, which involves the identification of emotions, as well as the ability to control their intensity, expression, and influence on behavior (Gross & Munoz, 1995; Thompson, 1994). Gratz and Roemer (2004) also suggest that ER involves the willingness and acceptance of negative emotions in order to become more knowledgeable about life. The inability to regulate one's emotions, also referred to as dysregulation, has been linked to poor coping skills and even psychopathology (Aldao et al, 2010; Gratz, 2007; Hoffman et al, 2012).

Gratz (2007) emphasized instruction in ER as part of the treatment for clients who engaged in self-injury. It is suggested that instruction focus on helping clients identify components, antecedents, and behavioral responses associated with their emotions in order to increase acceptance of them. Gratz (2007) implemented a study of Angela, a 26 year-old participating in ER group therapy for individuals with borderline personality disorder and self-injurious behaviors. The group therapy was developed by Gratz and Gunderson (2006) to treat self-injury by determining the purpose of the behaviors and instructing individuals in more effective ways of dealing with emotions. It was developed to promote capacities of emotion regulation, such as awareness, understanding, behavior control, use of effective ER strategies to control responses, and acceptance of negative

emotions as natural to everyday activities. Angela had a history of self-injurious behavior and a high degree of emotion dysregulation. After the therapeutic intervention, Angela was more accepting and knowledgeable of the functions of her emotions; struggled less with her emotions; indicated more satisfaction with life; developed new relationships at work, and greater comfort in the possibility of formulating new relationships. She had begun socializing at least twice per week. By week three of group therapy Angela had stopped engaging in self-injury and reported only one episode for the remainder of the intervention. She also scored within normal range on the Difficulties in Emotion Regulation Scale. At six months post therapy, Angela had only engaged in one episode of self-injurious behavior. This study demonstrates that ER, a component of EI, was developed.

Gross and Munoz (1995) advocated that ER is essential to good mental health functioning. Specific abilities of ER were noted by Mayer and Salovey (1995) as being essential to EI. Attending to, evaluating, and accepting one's emotions are considered critical to effective coping of negative emotions (Gratz, 2007; Mayer & Salovey, 1995).

Expressive Writing

Expressive writing (EW) refers to writing about stressful experiences to declare, not only details of events, but also the emotions related to those experiences (Pennebaker, 1990). The self-awareness necessary for identifying and expressing emotions is an important component of EI (Mayer & Salovey, 1990). Expressive writing has been used in psychotherapy, as well as by laypeople, as a self-help tool for healing from traumatic life events (DeSalvo, 1999; Progoff, 1997). James Pennebaker (1990) has conducted

numerous studies revealing the benefits of EW. Pennebaker's studies focus on the role of inhibition as a stressor (Pennebaker, 1997; Pennebaker, 1990).

Levels of depression were measured using the Severe Depression subscale of the General Health Questionnaire (Goldberg & Hillier, 1979). Intrusive thoughts were measured with the 10-item scale by Lepore (1997); and test anxiety with a measure by Cassady and Johnson (2000). Test anxiety questions given before the exam reflected how the participants ordinarily behaved while taking tests; after completion of the exam, questions reflected their reactions to the specific test.

Participants engaged in writing sessions conducted in a laboratory nine days before their exam. They were given writing instructions in an envelope and taken to a separate room and given half of an hour to write. Subjects in the expressive writing group were instructed to write about their thoughts and emotions regarding an exam; and control subjects were instructed to write about their activities of the previous day. Assignment to the writing groups was randomized, and subjects also granted permission for researchers to obtain their grade averages and SAT/ACT scores from the university. Post exam, participants were to provide their exam scores and rate their satisfaction with those scores. Ratings ranged from -2 (very dissatisfied) to +2 (very satisfied). They were also asked to explain the ways in which their participation in writing exercises affected them, if at all.

Study variables (depression, intrusive thoughts, and test anxiety) were all significant (ps < .001) with rs ranging from .40 to .48. Baseline scores were: 1.51 (SD = 0.81) for the intrusive thoughts scale, and 1.55 (SD = 2.36) for the depression scale. The

means score for anxiety (M =60.12, SD = 14.56) was lower than means for two other undergraduate samples. It was also revealed by the baseline data that expressive writing subjects had more intrusive thoughts (M = 16.83, SD = 1.04) than control group subjects who wrote about a neutral topic (M = 13.29, SD =1.16), t (102) = 2.28, p = .025. Therefore, baseline intrusive thoughts scores were used as a covariate in comparisons of the two groups. No other baseline differences were significant (ps > .150).

Analyses of covariance indicated that expressive writing group exam scores were significantly higher (M = 50th percentile) than those of the control group (M = 41st percentile), p = .024, r = .25. Satisfaction scores for the expressive writing group were also higher than satisfaction scores for the neutral writing group, p = .031, r = .25. ANCOVAs were conducted for post exam depressive symptoms and test anxiety scores. Experimental group participants indicated significantly lower levels of depression (adjusted M = 1.13, SE = 2.05) than the control group (adjusted M = 2.15, SE = 0.32), p = .026, r = .22.

Correlational analyses indicated that the change in depressive symptoms from pre- to post exam, was not significantly related to test performance (r = .04, p = .755), indicating that depressive symptoms were not a mediating variable. ANCOVAs were conducted on all outcome scores and the relationship between treatment and test type was examined. Experimental participants demonstrated significantly greater gains regarding test performance (p = .010) and satisfaction (p = .001), when compared to control participants.

Analyses of word use indicated expressive writing participants who used more positive emotion words had fewer depressive symptoms one week post exam (r = - 0.33, p = 0.40). The study demonstrated that expressive writing improved test performance.

Though Pennebaker (1990) emphasizes that one of the main benefits of EW is the acknowledgement of emotions through disclosure, he also stresses the importance of the use of language through the written word (Pennebaker, 1997). King and Pennebaker (1998) stress that EW allows for the cognitive organization of stressful events in order to find meaning in traumatic experiences. Ullrich and Lutgendorf (2002) extended previous research which suggested that EW is most beneficial to health and well-being; it not only evokes emotional responses, but facilitates cognitive processing. Their study compared results of three groups of students who engaged in a writing intervention. The groups were differentiated by the focus of their writing: EW about emotions related to stress; EW focusing on cognitions as well as emotions; and a neutral writing group (Ullrich & Lutgendorf, 2002). Participants were 122 students (average age 20.05 years). They were randomly assigned to groups: emotional expression (n = 41), cognitions and emotional expression (n = 41), control (n = 34). The groups were similar on all baseline measures.

Positive growth from traumatic experience was measured using the Posttraumatic Growth Inventory (PTGI). The scale consisted of 21 items which assessed perceived benefits resulting from dealing effectively with anxiety-provoking event. Participants were to focus on a traumatic event that continued to be a source of stress for them during both administrations of the scale. Participants completed the scale before and after the

writing intervention to determine if they had experienced positive growth from their stressful experience.

Writing content was evaluated with the Linguistic Inquiry and Word Count (LIWC) (Pennebaker, Booth, & Francis, 2001) analysis software which computes the percentage of negative emotion words, positive emotion words, and use of words reflecting cognitive processing. LIWC scores indicated the influence of the interventions on writing content. These scores were utilized by researchers to distinguish between cognitive processing from written emotional expression among the groups. LIWC scores were also used to evaluate writing samples to determine the effects of self-disclosure. LIWC scores were used because they had been shown to predict positive outcomes in previous studies.

Upon completion of the consent forms and questionnaires, participants were given home writing instructions to be completed in one month and given back to researchers at the conclusion of the school term. Instructions indicated that participants were to write twice per week. The two experimental groups were told to write about the anxiety-provoking circumstance to which they referred in the questionnaire. The emotional expression group, were told to express their innermost emotions and thoughts, as well as efforts to comprehend and cope with them. They were also asked to express how their feelings had changed regarding their experience. The control group was asked to write about traumatic news events in the media over the next month. They were asked to state only factual information about the events. After one month of journaling, participants

turned in their writings and completed questionnaires identical to those before the writing intervention began.

Multivariate analysis of variance (MANOVA) procedures evaluated differences between the first session writings and the second session writings. Group and time were between-subjects factors and within-subjects factors. One-way ANOVAs with post hoc Tukey honestly significant difference tests compared groups on baseline measures of positive growth (PTGI) and amount of writing. Positive growth throughout the study from the expressive writing participants was compared to the control subjects. MANOVAs, with group as the between subjects factors and time as the within subjects factor, were conducted to evaluate group differences for all variables. Strong relationships between variables were analyzed using within group ANOVAs to determine effects over time. Writing content change was examined to determine associations between content and outcomes.

ANOVAs revealed that cognitive processing increased among the experimental groups, F (1, 120) = 28.08, $p < .001$. ANOVAs also indicated that the emotional expression group used more negative words, F (1, 120) = 8.64, $p < .01$. These results indicated the experimental conditions affected writing content as expected. Post hoc within group ANOVAs also revealed that a significant increase in positive growth among both experimental groups was indicated, F (1, 120) = 4.55, $p < .05$. From pre-intervention and post-intervention, positive growth scores for the experimental groups increased from 70.68 (SD = 20.87) to 75.95 (SD = 19.03).

At study completion partial correlations among the two experimental groups revealed that the use of cognitive processing words were linked to higher positive growth scores ($r = .25$, $p < .05$). Repeated measures MANOVAs examined differences in positive growth while controlling for writing content change. When content change was not controlled, a strong relationship between group and time for positive growth was indicated, F (2, 120) = 3.71, $p < .05$. This relationship was also determined to be strong when controlling for difference in negative emotion word use, F (1, 120) = 3.79, $p < .05$, but became non-significant when differences in cognitive processing word use was controlled, F (1, 120) = 2.26, $p < .10$. A significant association was found between positive growth and differences in cognitive processing words ($\beta = .22$, $p < .05$). These results indicated that cognitive processing word use partially mediated increases in positive growth in the cognitions and emotions group. Study findings indicate that writing involves cognitive processing.

Lepore and colleagues (2002) suggest that EW helps facilitate ER processes of attention, habituation, and cognitive restructuring. Attending to emotions and their preceding stimuli is essential to controlling our response to them (Lepore et al, 2002). Through attention, it is possible for one to become habituated to the negative emotional responses which accompany the thoughts of the stressful events (Lepore, 1997). EW allows for the description of the experience as well as their cognitive, physical, and emotional responses to them (Lepore et al, 2002).

Another component of ER which is activated by EW is cognitive restructuring (Lepore et al, 2002). Lepore (1997) proposes that EW enables such examination of events

as to reduce the frequency with which intrusive thoughts affect daily functioning. Lepore and colleagues (2002) suggest that EW allows for the perception of oneself as more capable of handling stress. This increase in self-efficacy is essential to ER (Lepore et al, 2002).

Though EW allows for emotional disclosure, even Pennebaker (1990; 1997) emphasized the importance of cognitive appraisal through writing. Boals (2012) and Hoyt and Yeater (2011) highlighted the importance of ER processes, such as habituation and interpretation. Studies suggest that ER is an essential component of EI (Gross & Munoz, 1995; Thompson, 1994). EW allows for the development of ER processes (Lepore, 1997; Lepore et al, 2002); therefore, it seems logical to presume a connection between EW and EI. Very little research specifically examines the impact of EW on EI (Kirk et al, 2002; Wing et al, 2006).

Wing, Schutte, and Byrne (2006) conducted a study to measure the impact of writing about positive events, with an emphasis on ER, on EI scores and life satisfaction. Study participants were 174 Australian adults recruited from colleges, businesses, and the communities of several towns and cities.

Measures of emotional intelligence were obtained using The Assessing Emotions Scale (AES; Schutte et al, 1998). The measure consisted of 32-items which assessed participants' perception of their own emotion skills. The scale had indicated good internal reliability (.87 to .90) (Schutte et al, 1998). The AES correlated with other measures, as well (Schutte et al, 1998). Internal consistency was indicated by Cronbach's alpha of .88 at pre-test, .88 at post-test, and .89 at follow-up.

Satisfaction with life was assessed with The Satisfaction with Life Scale (Diener et al, 1985). Internal consistency ranged from .82 to .87 in previous studies. Validity was established through positive correlations with negative mood and emotional instability (Parot & Diener, 1993). In this study, good internal consistency was indicated (.84 pre-test, .86 post-test, and .88 at follow-up). A post writing assessment was conducted to measure participant compliance with instructions with questions such as, "On how many days did you complete the full 20 minutes of writing?' and "On how many days did you complete some writing, but less than 20 minutes of writing?"

Researchers established three groups. One group was instructed to write about positive experiences with an emphasis on regulating feelings; another group was given instructions to write about positive experiences with no such emphasis; and a control group who were told to write about a neutral topic. Writing instruction packets were scrambled to ensure that each group contained a random sample of participants. Both experimental groups were instructed to recall a significantly positive experience in their lives. They were told to select one happy or ecstatic moment, imagine themselves at the moment, and write about the experience. Those in the emotional regulation group were informed that they were to reflect on how they could reproduce such emotions again. These instructions were intended to prompt the participants into managing their feelings in order to increase their sense of well-being. Control subjects were instructed to describe their schedule for the remainder of the day. All group subjects were asked to write for three sessions of 20 minutes each on three consecutive days. Settings and time of day for writing sessions were of the participant's choice.

The Satisfaction with Life Scale and the AES were completed before the first day of writing, again after 3 days of writing, and once more at two weeks later. At the completion of the writing sessions, participants were told to describe their compliance with the writing task. Completed questionnaires from the final day of writing and two weeks post writing were returned.

One hundred seventy-five participants returned questionnaires at pre-intervention and post-intervention (98%) from group three. No significant differences were found between groups. Compliance with instructions was evaluated and revealed that 37 participants reported their noncompliance with instructions. The noncompliant subjects were evenly divided throughout the three groups. No differences were found between groups in EI and life satisfaction. The 37 noncompliant subjects were included in the analyses.

A MANOVA was conducted to examine the overall effects of the writing conditions. A significant increase in EI was found in the emotion regulation group at immediate post intervention, t (57) = 2.69, p = 0.01, Cohen's d = .18, but not significant at 2 weeks post intervention. A significant increase in life satisfaction, t (57) = 2.00, p = .05, Cohen's d = .16, was found and persisted at the 2-weeks post intervention, t (54) = 2.54, p = 0.01, Cohen's d = .18. EI scores from the control group decreased significantly, t (53) = 2.73, p =.01, Cohen's d = .16. No significant changes in life satisfaction were found for the control group.

ANCOVAs conducted on group differences immediately after writing and at follow-up revealed that the emotional regulation group's scores were higher on EI than

the control's, F (1, 108) = 9.99, p =.002, partial η^2 = .085 at immediate post-intervention. At two week follow-up this was no longer indicated; however, a trend toward significance was found, F (1, 104) = 3.15, p = .08.

One experimental group's (positive writing) scores were significantly higher than the scores of the control group, F (1, 113) = 4.49, p = .04, partial η^2 = .02. At two-weeks-post intervention the significance was reduced to only a trend, F (1, 103) = 3.16, p = .08. Increased EI scores were linked with higher life satisfaction scores before the intervention, r (174) = .49, p = .001. Scores differences from pre-intervention to post-intervention in EI and life satisfaction were obtained by calculating score differences of the groups from the two measurement times. For the emotional regulation group, increases in EI scores indicated increases in life satisfaction scores from pre- to post-intervention, r (57) = .29, p = .03; also, to two week post-intervention, r (54) = .33, p = .01.

For the experimental group who wrote about positive experiences only, the relationship between differences in EI and life satisfaction before and after writing sessions was not significant. However, the more EI increased from pre-test to follow-up, life satisfaction was also indicated to increase from pre- to two-week post-intervention, r (53) = .30, p = .03. The relationship between pre-intervention EI and post-intervention EI was evaluated to determine if initial levels of EI impacted the effects of the writing interventions. In the emotional regulation group, lower baseline EI was related to a higher score at post-intervention, r (57) = -.43, p = .01, as well as for two-week post-intervention, r (54) = -.46, p = .01. EI scores for the other experimental group, the

positive experiences group, lower pre-test EI scores indicated a larger increase in EI post-intervention, r (61) = -.35, p = .01, and from pre-intervention to two-week follow-up, r (53) = -.35, p = .01. This study suggested that EI was positively impacted by the use of EW.

Another Australian study conducted by Kirk, Schutte, and Hine (2011) investigated the effects of EW on aspects of EI. Participants were 46 adult employees. Emotional self-efficacy, mood, emotional intelligence, and the frequencies of workplace incivility within the previous 2 weeks were assessed pre- and post- intervention.

Participants were randomly assigned to an experimental or control condition. Both groups were told to write for 20 minutes each day for 3 consecutive days. Two weeks post writing measures of self-efficacy, EI, mood, and workplace incivility were assessed. Researchers employed The Emotional Self-Efficacy Scale (Kirk et al, 2008) which measures confidence in emotional processing. Internal consistency was .92 and concurrent relationship with EI abilities was found using a performance test (Kirk et al, 2008). In this study, Cronbach's alpha for pre-intervention was .92 and .82 for post-intervention.

The Assessing Emotions Scale (AES) provided scores for EI. Participants were to rate their emotional skills during the previous 2 weeks at pre-intervention and again, post-intervention. Cronbach's alphas of .76 and .87 at pre- and post-intervention indicated internal consistency.

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to evaluate mood. Internal consistency (.85 to .88) and evidence of

validity was found in previous studies (Watson et al, 1998). Researchers also employed the Uncivil Workplace Behavior Questionnaire (UWBQ; Martin & Hine, 2005). The questionnaire measured the frequency with which participants had been the target of hostile remarks or behavior, social exclusion, gossip, and invasion of privacy. Cronbach's alpha was .92 in the development sample and .75 and .78 for the overall UWBQ at pre- and post-intervention.

Each group was informed to write at the end of 3 consecutive workdays for 20 minute sessions. Participants were informed that their writings were not to be submitted to the researchers at the completion of the study to encourage full emotional disclosure in writing. Compliance with instructions was examined by participant reports of the number of days they had written in their journals for the full 20-minute time period. The group with the experimental treatment was told to reflect on their personal thoughts and emotions from the previous workday or from a particularly important workday in the past. They were told to explore "whether by analyzing your thoughts and feelings you can build confidence in your ability to perceive and manage emotions in yourself and others" (Kirk et al, 2011). They were to write about how they effectively identified and controlled their emotions in the workplace; having received encouragement from others; and in what ways their emotional arousal contributed to the evaluation of events in the workplace. Samples of writings which dealt with emotional self-efficacy were provided as examples. Participants in the control group were told to write on anything other than their workday. Emotional processing was not requested, and sample writings describing daily activities were provided.

There were no group differences regarding demographic information. Thirty-nine subjects (85%) indicated that they had written for at least 20 minutes for three consecutive days. Two participants did not offer this information. Frequency breakdowns revealed no differences in compliance, χ^2 (3) = .027.

Separate ANCOVAs evaluated the effectiveness in improving self-efficacy, EI scores, mood, and instances of workplace incivility. Results indicated that the experimental group had higher levels of EI and positive mood, and significantly fewer incidences of incivility.

An analyses of emotional self-efficacy revealed significant differences in pre- and post-intervention scores for subjects with low, F (1, 42) = 14.98, $p < .001$; and moderate levels of self-efficacy pre-test, F (1, 42) = 7.24, $p = .01$. Similar analyses for victimization indicated that significant score differences for low and moderate scores, F (1, 42) = 7.46, $p < .01$; F (1, 420) = 4.86, $p < .05$. Results indicated that the group that received the treatment condition had significantly higher EI scores, better mood, and lower incidence of workplace incivility than the control group (Kirk et al, 2011).

Summary

Mayer and Salovey (1990) and Goleman (1995) describe EI as the identification and management of emotions for the purposes of goal attainment. Parker, Creque, and colleagues (2004), Parker, Summerfeldt and colleagues (2004), Parker and colleagues (2006), and Sparkman, Maulding, and Roberts (2012) found that EI is related to academic success. Erozkan (2013) and Downey and colleagues (2010) found that EI is also associated with effective skills for coping with stress. James Pennebaker's studies (1990;

1997) have indicated that the inhibition of emotions is a contributor to stress. Research has indicated that awareness and management of emotions, as well as the cognitive reappraisal of stressful events, was positively impacted by EW (King & Pennebaker, 1998; Pennebaker, 1990; Ullrich & Lutgendorf, 2002). Studies have also indicated benefits of EW, such as improved test performance (Frattoroli et al., 2011); cognitive restructuring and increased self-efficacy (Lepore et al, 2002); and reduction in intrusive thoughts (Lepore, 1997). Only two studies (Kirk et al, 2011; Wing et al, 2006) have demonstrated the effects of EI after engaging in EW. These studies have used only Australian populations. The writing interventions implemented were for a duration of three consecutive days. Increases in EI levels as a result of EW also lessened at the two weeks post-intervention (Kirk et al, 2011; Wing et al, 2006).

The current study examined the impact of EW on EI as a possible way to reduce stress and increase academic performance in a U.S. population of undergraduate students during their first two years of college. This has been previously identified in research as an influential time in predicting future student success and retention (Muff, 2006; Porter, 1990). The current study expanded upon the writing intervention proposed by Pennebaker (1990) and included processes central to the ER model of EW (Lepore et al, 2002). The study also employed a suggestion by Pennebaker, Zech, and Rime (2001) that expressive writing may have a greater impact if conducted across a longer time span rather than in brief, consecutive sessions. Therefore, this study examined the effects of EW conducted once per week for four consecutive weeks. Chapter three states the hypotheses of the

study and provides details of the research method and procedures used to examine the hypotheses.

Chapter 3: Research Method

Introduction

In chapter 3, the research methods used to examine the research questions are explained. The research design, participant sample, treatment conditions, and measurement instruments used are described.

The purpose was to determine if routine expressive writing significantly increases emotional intelligence scores among undergraduate students at a university in central Georgia. An additional goal was to evaluate the effects on perceived stress levels of these students. The experimental design was appropriate for this study due to the assignment of participants to either treatment or control groups, and the implementation of a treatment condition. The study measured emotional intelligence and stress levels before treatment was imposed and after; then again at one month follow-up to determine if effects were sustained.

Research Design and Rationale

This quantitative study was of an experimental design which measured the dependent variables of emotional intelligence and stress after the implementation of the independent variable of the expressive writing protocol. This design was appropriate for the study due to the implementation of an experimental treatment (expressive writing protocol) to one group of participants in comparison to the absence of the experimental treatment for the control group. Measurements of the dependent variables (emotional intelligence and perceived stress) were obtained prior to and post intervention to evaluate the impact of the independent variable (expressive writing). Treatment was imposed once

weekly for four consecutive weeks in order for the intervention to appear to be a routine activity. Previous studies have employed expressive writing treatments for brief sessions over a three day period (Kirk et al, 2011; Wing et al, 2006). However, it is consistent with the hypotheses of this study that expressive writing was a regularly maintained activity to produce the most significant effects.

Population and Sample

The target population of this study were first and second year college students. The sample was selected from male and female students from introductory psychology, English, and science courses at Middle Georgia State University, located at the Macon, Cochran, and Dublin, Georgia campuses. Students volunteered their participation in exchange for course assignment grades. Each participant received assignment to either the experimental or control group. Subjects were given numbers to protect anonymity, and the numbers were placed in a box for random selection. Another box contained the letters, “E” and “C,” for experimental and control groups, and were randomly selected after a number was drawn. This was done to ensure that each participant had an equal chance for selection to either group.

Sample and Effect Size

Power was estimated for score means of the two groups. Standard alpha level of .05 was set to decrease the probability of type I error. Power for a one-tailed test for independent means and repeated measures design was set at .80 for large effect. Sample size was determined to be 70 (35 will receive the experimental treatment and 35 will

serve as controls) as obtained from G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007).

Measurement Instruments

Perceived Stress Scale

The Perceived Stress Scale-Revised (PSS-R) has 12-items which assesses an individual's perception of stress (Appendix A). Responses range from never (0) to very often (4); higher scores indicate higher stress levels (Wickrama et al, 2013). It is based on the Perceived Stress Scale (Cohen, Kamark, & Mermelstein, 1983). The PSS was measured against four scales that evaluate life experiences, anxiety, depression, and physical symptoms. Three samples were taken; sample one included 121 males, 204 females, and 2 non-specified male or female college students, average age was 19.1 years. The second sample included 60 males, 53 females, and 1 non-specified male or female college student, mean age was 20.75 years. The third sample included 27 males and 37 females involved in a smoking cessation program. It focuses on factors: psychological competency and psychological vulnerability. Cronbach's alpha coefficients for these scales were .84, .85, and .86 respectively (Cohen et al, 1983).

The test-retest reliability indicated a .85 correlation for 82 college students in a 2-day period of time. The test-retest for 64 participants in the smoking cessation program after a 6-week period of time was .55 correlation (Cohen et al, 1983). Overall, the internal consistency and test-retest reliability is adequate for measuring perceived stress. Developers allow the instrument to be used in research studies (Cohen et al, 1983). The population and development of this test is consistent with the design of the research study

to identify the level of stress experienced among adults. The PSS was administered before and after the writing intervention, as well as at one-month follow-up.

Assessing Emotions Scale

Emotional intelligence was measured with the Assessing Emotions Scale (AES), also referred to as the Emotional Intelligence Scale. The instrument contains 33-questions and was based on Salovey and Mayer's model of emotional intelligence (Schutte et al, 2009; Appendix B). Salovey and Mayer (1990) assert that EI refers to the abilities to identify, express, and moderate emotions for the purpose of problem-solving. Items were rated using a 5 point scale; and total scale scores were calculated by reverse coding items 5, 28, and 33, then summing all items (Schutte et al, 2009). Scores begin at 33 with a maximum of 165, larger scores were indicative of a greater capacity of EI (Schutte et al, 2009).

Internal consistency demonstrated by Schutte et al (1998) and other studies (Ciarrochi et al, 2001; 2002), with Cronbach's alphas ranging from .55 to .90 Test-retest reliability of .78 was reported by Schutte et al (1998). Validity of the scale was indicated by r = .43 with other self-rated scales of emotional intelligence (Brackett & Mayer, 2003). Other evidence of validity has also been demonstrated by scale comparisons to other measures relating to emotional perception and mood improvement (Bastian, Burns, & Nettlebeck, 2005; Schutte et al, 1998); self-esteem (Ciarrochi, Chan, & Caputi, 2000; Schutte et al, 2002); and life satisfaction (Saklofske et al, 2003). The AES was administered before and after the completion of the writing sessions, as well as at one-month follow-up.

Procedure

Study participants gathered once weekly for 30 minutes at designated times in specified academic classrooms on the Cochran and Dublin campuses of Middle Georgia State University (MGSU) for four consecutive weeks. Each classroom contained desks at which each participant engaged in the writing protocol. Each participant completed a questionnaire regarding demographics and a consent form requiring their signature for participation in the study (Appendix C). Each participant was assigned a notebook with lined pages and a number, known only to them, to ensure that they received the same notebook during each writing session.

Experimental Treatment

The experimental treatment consisted of 30 minute writing sessions for one day per week for four consecutive weeks. Instructions were based on the protocol established by King (2001), Pennebaker (1997), and Smyth (1998). The experimental group participants were given instructions verbally and in writing (Appendix D).

The control group participants were also given instructions verbally and in writing (Appendix D). Writing sessions for the control group also consisted of 30 minute sessions for one day per week for four consecutive weeks. Instructions, however, were not directed toward expressive writing but a neutral topic.

Data Collection

Participants for the study were recruited from introductory psychology, English, and science courses at Middle Georgia State University's Macon, Dublin, and Cochran campuses. Participants completed a survey which included an informed consent

(Appendix C) and questionnaires regarding demographics (Appendix E). Participants were required to read and sign a form of consent to participate. In exchange for their full participation (from the receipt of informed consent and the study), participants were administered the PSS-R and the AES before treatment began, the last day of the writing intervention, and one-month post intervention.

Data Analysis

Inferential statistics that were utilized in this study included both an independent measures design and a repeated measures design. An independent measures design was used to compare PSS-R and AES score means from the two writing groups to determine if a significant difference exists. A repeated measures design was also conducted to compare the differences in the PSS-R and AES score means within each sample, pre- and post-writing. This was calculated to determine the significance of the effects of the writing protocols on score means. Data from the study was analyzed using IBM SPSS Statististics Premium Graduate Pack for windows, version 24 (IBM, 2016). Responses to the questionnaires (PSS-R and AES) were scored according to the guidelines provided with the material (Schutte et al, 2009; Wickrama et al, 2013). The analysis also included descriptive statistics for participants that included age, race, gender, major area of study, and number of semesters enrolled.

Statistical Analysis, Research Questions, and Hypotheses

The study examined the following questions and hypotheses:

RQ1: Does routine expressive writing significantly increase emotional intelligence scores among college undergraduates when compared to controls?

H_A1: Routine expressive writing significantly increases EI scores among college undergraduate when compared to controls.

H_01: Routine expressive writing does not significantly increase EI scores among college undergraduates when compared to controls.

RQ2: Does routine expressive writing significantly decrease perceived stress among college undergraduates when compared to controls?

H_A2: Routine expressive writing significantly decreases perceived stress among college undergraduates when compared to controls.

H_02: Routine expressive writing does not significantly decrease perceived stress among college undergraduates when compared to controls.

RQ3: Does routine expressive writing significantly increase EI scores among college undergraduates one month later when compared to controls?

H_A3: Routine expressive writing significantly increases EI scores among college undergraduates one month post intervention when compared to controls.

H_03: Routine expressive writing does not significantly increase EI scores among college undergraduates one month post intervention when compared to controls.

RQ4: Does routine expressive writing significantly decrease perceived stress one month later when compared to controls?

H_A4: Routine expressive writing significantly decreases perceived stress at one-month post intervention when compared to controls.

H_04: Routine expressive writing does not significantly decrease perceived stress at one month post intervention when compared to controls.

Participant Rights and Ethical Considerations

Study participants provided consent after reviewing and agreeing to the expectations, procedures, and risks of taking part in the study. Participation was voluntary and could have been withdrawn at any time. In exchange for full participation, students received class credit in their introductory psychology, English, or science courses. Confidentiality of study subjects, as well as measurement responses were protected by maintaining anonymity of participants. The raw data was stored in a locked safe. Minor physical and psychological risks were possible with study participation. Participants could possibly have experienced anxiety related to the expression of emotions in writing. In compliance with APA Ethics Codes 8.03 and 8.04 (APA, 2010), the campus counseling center information was provided to assist students who were in need of help in coping with upsetting emotions (Appendix C).

Chapter 4: Results

Introduction

Emotion regulation has been identified as essential for good mental health (Gross & Munoz, 1995). Abilities involved in emotion regulation, such as identifying, evaluating, and accepting one's emotions are also identified as being important components of EI (Mayer & Salovey, 1995). Expressive writing involves the disclosure of emotions through writing (Pennebaker, 1997). Studies have previously acknowledged the benefits of EW (Frattaroli et al, 2011; Lepore, 1997; Lepore et al, 2002); however, very few have directly examined the effects of EW on EI.

This quantitative study was an experiment which explored the effects of EW on EI scores within a sample of college undergraduate students in middle Georgia. The study also examined the results of EW on perceived stress. The dependent variables were measured and compared within and between the experimental group and control groups pre-, post-, and one month post intervention of the writing treatment. This chapter will report the findings of the score comparisons. Participant recruitment, demographics, and descriptive statistics present the sample's characteristics. The time frame for data collection, the treatment intervention, and results of statistical analyses provide information about the research question and hypotheses.

Data Collection

Time Frame, Actual Recruitment, and Response Rates

Recruitment of participants for the study began February 22, 2018 on the Macon, Cochran, and Dublin campuses of Middle Georgia State University (MGSU). Fliers

requesting consideration to participate in the study with contact information were posted on each campus and sent via e-mail to instructors of introductory level courses. Instructors of students who chose to participate had agreed to offer students assignment grades in exchange for participation in the study. Based on power analysis, as established in chapter 3, sample size was targeted at 70 participants. Final sample size of 72 was achieved April 6, 2018. Of the 72 participants, 58 completed all phases of the intervention and provided data for analysis; a response rate of 83% of the targeted sample size. Of the 58 who participated, there were no missing values of data collected. However, the number of participants who provided follow-up data one month post-intervention was only 37 (64%) out of the 58 who provided data pre- and post-intervention.

Demographic Characteristics of the Sample

Table 1 displays the descriptive statistics for the 58 students, 18 males (31%) and 40 females (69%), who participated in the study, as well as the age of the participants, $M = 19.79$, $SD = 3.18$. Thirty-six of the participants were African American (62.1%); 18 were Caucasian (31%); 1 was Hispanic (1.7%); 1 was Asian (1.7%); and 2 participants identified themselves as other (3.4%). The distribution of declared major areas of study for participants included 29 nursing/therapy majors (50%); 10 psychology/science majors (17.2%); 7 business majors (12.1%); 3 participants majoring in information technology (5.2%); 2 participants each majoring in criminal justice (3.4%) and education (3.4%); and 5 students who were undecided in their declaration of a major area of study (8.6%). Finally, the number of semesters the participants had been enrolled ranged from 7

students in their first semester (12.1%); 30 students in their second semester (51.7%); 2 students in their third semester (3.4%); 13 students in their fourth semester (22.4%); and 6 students enrolled in their fifth semester (10.3%).

Table 1

Demographics for Overall Sample (N = 58)

Variable	Frequency	Valid Percent
Gender		
Male	18	31 %
Female	40	69 %
Ethnicity		
African American	36	62.1 %
Caucasian, White	18	31 %
Hispanic	1	1.7 %
Asian	1	1.7 %
Other	2	3.4 %
Number of Semesters enrolled		
1	7	12.1 %
2	30	51.7 %
3	2	3.4 %
4	13	22.4 %
5	6	10.3 %
Major		
Nursing/therapy	29	50 %
Psychology/science	10	17.2 %
Business	7	12.1 %

Undecided	5	8.6 %
Information technology	3	5.2 %
Education	2	3.4 %
Criminal justice	2	3.4 %
Age	*M* = 19.79	*SD* = 3.18

External Validity of Sample to the Population of Interest

Descriptive Statistics

Statistical Assumptions Appropriate to the Study

As displayed in Table 2, skewness and kurtosis measures indicated that both the control and experimental group were sufficiently normally distributed for the purposes of conducting a t-test (i.e., skew < |2.0|, and kurtosis <|9.0| ; Schmider, Ziegler, Danay, Beyer, & Buhner, 2010). Additionally, the assumption of homogeneity of variances was tested and satisfied as indicated by Levene's *F* tests: AES scores, F (56) = 1.95, p = .502; PSS scores, F (56) = .46, p = .502.

Table 2

Descriptive Statistics for Groups

		Experimental	Control
AES -	Possible range	120.48 – 129.66	116.89 – 128.11
	Mean	125.07	122.50
	Standard Deviation	11.84	15.01
	Minimum	98	95
	Maximum	149	147
	Skewness	- 0.02	- 0.41
	Kurtosis	- 0.21	- 0.99
PSS -	Possible range	18.68 – 23.61	17.94 – 22.52
	Mean	21.14	20.23

Standard Deviation	6.36	6.13
Minimum	9	6
Maximum	33	32
Skewness	- 0.12	- 0.29
Kurtosis	- 0.92	0.09

Results

Research Questions

The current study employed an independent samples *t* test and a paired samples *t* test to examine the research questions and hypotheses. Results were used to determine whether expressive writing significantly increased emotional intelligence scores and decreased perceived stress among college undergraduates when compared to controls.

Hypothesis 1

$H_0$1: Routine expressive writing did not significantly increase emotional intelligence scores among college undergraduates when compared to controls.

H_A1: Routine expressive writing significantly increased emotional intelligence scores among college undergraduates when compared to controls.

In the first hypothesis an independent samples *t* test indicated (see Table 3) that the difference in AES score means between the expressive writing and control groups was not statistically significant, $t(56) = 1.13$, $p = .262$. Though the expressive writing group AES score mean was numerically greater than the control group mean (M = 127.18, SD = 13.08; M = 122.67, SD = 16.88), the difference was not significant. Therefore, the null hypothesis was accepted.

Table 3

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
tot_postaes	Equal variances assumed	2.875	.096	1.132	56	.262	4.51190	3.98521	-3.47143	12.49524
	Equal variances not assumed			1.142	54.225	.258	4.51190	3.95052	-3.40766	12.43147

To examine pre-intervention and post-intervention AES score mean differences, a paired samples *t* test was conducted for each treatment condition. A comparison of AES score means for the control group from pre-writing (*M* = 122.50, *SD* = 15.01) to post-writing (*M* = 122.67, *SD* = 16.88) revealed a small numerical difference (*M* = - 0.17). The difference was not statistically significant as indicated by a paired samples *t* test, *t* (29) = - 0.08, *p* = .939 (see Table 4). AES score means for the expressive writing group increased from pre-writing to post-writing (*M* = 125.07, *SD* = 11.84; *M* =127.18, *SD* = 13.08). However, paired samples *t* test results indicated no statistically significant difference between pre- and post-writing score means, *t* (27) = - 0.813, *p* = 0.423 (see Table 4). Thus, the null hypothesis was accepted. The difference in emotional intelligence score means for neither the expressive writing group nor the control writing group were statistically significant.

Table 4

Paired Samples Test for AES Mean Differences

	Mean	*SD*	*t*	*df*	*Sig* (2 tailed)
Control group	- 0.17	11.86	- 0.08	29	.939
Experimental group	- 2.11	13.71	- 0.81	27	.423

Hypothesis 2

$H_0$2: Routine expressive writing did not significantly decrease perceived stress among college undergraduates when compared to controls.

H_A2: Routine expressive writing significantly decreased perceived stress among college undergraduates when compared to controls.

For the second hypothesis, an independent samples *t* test examined the effects of expressive writing on perceived stress compared to controls. Results (see Table 5) indicated that the PSS score means between the experimental and control group were not statistically significant, t (56) = .31, p = .761. Therefore, the null hypothesis was accepted.

A paired samples *t* test was conducted to compare pre-intervention and post intervention PSS score means in both the expressive writing and control groups. PSS score means for the control group for measures taken pre- and post-writing (M = 20.23, SD = 6.13; M = 19.07, SD = 4.68) were numerically different. However, results of the paired samples *t* test indicated that this difference was not statistically significant, t (29) = 1.40, p = .172 (see Table 5). PSS score means for the expressive writing group, pre and post writing (M = 21.14, SD = 6.36; M = 19.54, SD =1.30) were also numerically different. However, a paired samples *t* test indicated that the difference was not statistically significant, t (27) = 1.38, p = .180 (see Table 5). Again, the null hypothesis was accepted.

Table 5

Paired Samples Test for PSS Score Mean Differences

	Mean	*SD*	*t*	*df*	*Sig (2-tailed)*
Control group	1.17	4.55	1.40	29	.172

Experimental group	1.61	6.17	1.38	29	.180

Hypothesis 3

H$_0$3: Routine expressive writing did not significantly increase emotional intelligence scores among college undergraduates when compared to controls one month post-intervention.

H$_A$3*:* Routine expressive writing significantly increased emotional intelligence scores among college undergraduates when compared to controls one month post-intervention.

For the third hypothesis, an independent samples *t* test examined the effects of the writing interventions on AES scores one month after the writing sessions were completed. The null hypothesis was accepted, as no statistically significant difference was found in emotional intelligence score means between the expressive writing and the control groups. However, participant retention at follow-up was not maintained. Therefore, group numbers decreased (experimental N =15, control N = 22), having an impact on statistical analysis. The control group follow-up AES score mean (M = 125.32, SD = 17.91) was numerically smaller than the expressive writing group follow-up AES score mean (M = 131.33, SD = 9.82) (see Table 6).

Table 6

Follow-up AES Score Means by Group

Group	*N*	*Mean*	*SD*
Expressive Writing	15	131.33	9.82
Control	22	125.32	17.91

An independent samples *t* test was performed to examine this numerical difference. Results indicated that the difference between the score means of the expressive writing group and the control group was not statistically significant, t (33) = -1.31, p = .198, (see Table 7). The assumption of homogeneity of variance was violated as indicated by Levene's Test for Equality of Variances, F = 4.73, p = .036. Therefore, the null hypothesis was accepted.

Table 7

Independent Samples Test for Follow-up AES Score Means

		Levene's Test for Equality of Variances		*t*-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	*Sig.*	*t*	*df*	Sig. (2-tailed)	*Mean* Difference	*Std. Error* Difference	Lower	Upper
FU-AES	Equal variances assumed	4.73	.036	-1.18	35	.245	-6.01	5.09	-16.34	4.31
	Equal variances not assumed			-1.31	33.76	.198	-6.01	4.58	-15.33	3.30

A paired samples *t* test was conducted to compare score mean differences between pre- and post-intervention AES score means and follow-up AES score means within each group. Score means from data collected at pre-intervention, post-intervention, and one-month post intervention surveys are displayed in Table 8 for each group.

Table 8

Comparison of all AES Score Means by Group

	N	Pre- Intervention	Post-intervention	Follow-up
Expressive Writing	15	*M* = 125.07 *SD* = 11.84	*M* = 127.18 *SD* = 13.08	*M* = 131.33 *SD* = 9.82
Control Group	22	*M* = 122.50 *SD* = 15.01	*M* = 122.67 *SD* = 16.88	*M*=125.3 *SD* = 17.91

A comparison of AES score means from post-intervention responses and follow-up responses were numerically different for both the expressive writing and the control groups. However, results of the paired samples *t* test indicated that the differences in post- and pre-intervention AES means was not statistically significant, $t(14) = -0.24$, $p = .811$ (see Table 9). AES score means from the follow-up data were not statistically significantly greater than AES score means from the post-intervention data in either the expressive writing or control groups.

Follow-up AES score means were numerically larger than pre-intervention data for both groups (see Table 8). A paired samples *t* test was conducted, and results indicated that this difference in means was statistically significant, $t(14) = -2.28$, $p = .038$ for the expressive writing group only (see Table 9). The follow-up AES score means were statistically significantly greater than pre-intervention means for the experimental group but not for the control group. Cohen's *d* was estimated at 0.416, which is a medium effect size based on Cohen's guidelines (Cohen, 1992). These results could suggest that positive effects of expressive writing on emotional intelligence could be more evident after long-term participation in the expressive writing activity. The decrease in participant numbers from post-intervention to one month post-intervention should be noted when

considering the significant difference from pre- to follow-up AES score means. No significant difference existed for the control group AES score means in any comparison.

Table 9

Paired Samples Test[a]

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	tot_preaes - tot_postaes	-2.107	13.709	2.590	-7.423	3.20	-.813	27	.423
Pair 2	tot_postaes - totFUaes	-.2666	4.233	1.093	-2.611	2.07	-.244	14	.811
Pair 3	tot_preaes - totFUaes	-5.866	9.927	2.563	-11.364	-.369	-2.28	14	.038

a. intervention = experimental

Hypothesis 4

$H_0$4: Routine expressive writing did not significantly decrease perceived stress at one month post-intervention when compared to controls.

H_A4: Routine expressive writing significantly decreased perceived stress at one month post-intervention when compared to controls.

For the fourth hypothesis PSS score means gathered at one month post-intervention were compared between the expressive writing and control groups. PSS score means between the groups were numerically different (expressive writing group, M = 21.47, SD = 11.72; control group, M = 17.14, SD = 5.51). An independent samples t

test was conducted to determine if the numerical difference was statistically significant. Results indicated that the difference was not statistically significant, t (35) = -1.51, p = .14. Therefore, the null hypothesis was accepted.

To compare PSS score means for each group for data obtained pre-intervention, post-intervention, and one month post-intervention, a paired samples t test was conducted. Score means for the expressive writing and control groups from pre- and post-intervention, as well as follow-up data are in Table 10.

Table 10

PSS Score Means for Experimental and Control Groups

	Pre-	*Post-*	*Follow-up*
Expressive Writing	*M* = 21.33 *SD* = 6.44	*M* = 20.33 *SD* = 8.13	*M* = 21.47 *SD* =11.72
Control	*M* = 20.09 *SD* = 6.86	*M* = 19.18 *SD* = 4.87	*M* = 17.14 *SD* = 5.51

Results of the paired samples test of mean comparisons indicated that the score mean difference between post-intervention and follow-up PSS data for the expressive writing group was not statistically significant, t (14) = - 0.59, p = .562. Though the score mean for the post-intervention data was numerically smaller, the difference was not statistically significant. Paired samples test results of the mean difference in the experimental group between pre-intervention and follow-up PSS scores was also not statistically significant, t (14) = - 0.49, p = .962. However, comparisons of PSS score mean differences for the control group were statistically significant. A paired samples test

comparing score mean differences in post-intervention and follow-up PSS score means indicated a statistically significant difference, t (21) = 2.10, p = .047 (see Table 11). Cohen's d was estimated at 0.39, indicating a medium effect size. Perceived stress in the control group decreased from post-intervention to follow-up.

When comparing score means in the control group between pre-intervention PSS data and follow-up PSS data, a paired samples t test indicated a statistically significant difference, t (21) = 2.09, p = .049 (see Table 11). Cohen's d was estimated at 0.47, indicating a medium effect size. Thus, perceived stress in control group subjects decreased from pre-intervention to follow-up. The smaller participant numbers from post- to follow-up should be noted when considering the significance of the difference in PSS scores.

Table 11

Paired Samples Test[a]

		Paired Differences					t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	tot_postpss - totFUpss	2.045	4.551	.970	.0276	4.063	2.108	21	.047
Pair 2	tot_prepss - totFUpss	2.954	6.643	1.416	.0088	5.900	2.086	21	.049

a. intervention = control

Summary

Analyses of the data revealed several outcomes for the effects of expressive writing on emotional intelligence and perceived stress. The independent samples *t* test analyses completed for the first two hypotheses revealed that expressive writing did not significantly increase emotional intelligence scores in the sample of college undergraduates at post-intervention. However, expressive writing significantly increased emotional intelligence from pre-intervention to follow-up. It appears that the impact of expressive writing on emotional intelligence is evident after a longer duration of time.

Paired samples *t* test analyses revealed that for the first three hypotheses, expressive writing did not significantly increase AES scores at post-intervention nor at one month post-intervention. In addition, expressive writing did not decrease PSS scores at post-intervention nor at one month follow-up. In the control group, however, stress was moderately decreased from pre-intervention to follow-up.

Chapter 5 presents an analysis of these findings and an explanation of the study's limitations. Recommendations for future research are also presented. Finally, a discussion about how this study could potentially impact positive social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Since evidence suggests that students experience such difficulty in handling stress that it contributes to dropping out of college within the first two years, the current quantitative study was conducted to determine if expressive writing (EW) increased emotional intelligence (EI) in college undergraduates. The study also examined if EW reduced perceived stress in students as well.

Previous research has identified emotion regulation (ER) as a component of EI. EI has also been identified as a contributory factor in appropriate coping skills. Prior research has also demonstrated that EW engages those skills associated with both ER and EI. This study employed an experimental design to compare EI and perceived stress scores obtained before and after implementation of two writing conditions (expressive writing versus non-emotional writing) for a period of one thirty-minute session per week for four consecutive weeks. Scores on measures of EI and perceived stress were compared between the experimental (EW) and control group (non EW). Data was also analyzed pre- and post –intervention, as well as at one month post intervention. Results indicated that EI score differences between the experimental and control groups were not statistically significant from pre- to post-intervention. However, at one month post-intervention, the EW group EI scores were statistically significantly larger than EI scores from the control group.

Results of the analyses of EI scores within each of the treatment groups (the experimental group and the control group), determined that from pre-intervention to post-

intervention, no significant differences existed. However, within the experimental group from pre-intervention to one month follow-up, a statistically significant difference was found. EI scores in the experimental group were significantly increased from pre-intervention to one month follow-up.

Data analysis of perceived stress score differences between the experimental and control groups indicated that no statistically significant differences were found at post-intervention or at follow-up. A statistically significant difference was found, however, between pre-intervention and follow-up perceived stress scores for the control group.

Interpretation of the Findings

Emotional Intelligence

For the first research hypothesis, an independent samples *t* test indicated no statically significant difference in AES score means at post-intervention between the EW and the control groups. Expressive writing did not significantly increase EI scores in comparison to the control group at the final writing session. These results were in contrast to those found in previous studies which indicated that EW increased emotional intelligence, when compared to controls (Kirk, Schutte, & Hine, 2011; Wing, Schutte, & Byrne, 2006).

Results of a paired samples *t* test analysis indicated no statistically significant differences between pre-writing AES and post-writing scores for either the experimental or the control groups. Expressive writing did not significantly increase AES scores from pre-intervention to post-intervention. Previous studies found increased levels of EI after three consecutive days of 20 minute writing sessions. These studies also involved

emotional expression through writing, but with specific emphasis on aspects of cognitive reappraisal and management of feelings (Kirk et al., 2011; Wing et al, 2006). Prior research regarding EW emphasized, not only the benefits of expressing emotions, but also its role in facilitating cognitive processing (Boals, 2012; Hoyt & Yeater, 2011; Lepore, 1997; Lepore et al, 2002; Pennebaker, 1990; 1997; Ullrich & Lutgendorf, 2002).

The current study employed 30 minute writing sessions once per week for four consecutive weeks. The study also differed from the previous studies regarding writing instructions, which focused on the expression of feelings and no specific emphasis on ER. The contradictory results of the current study could suggest the importance of the impact of such an emphasis.

The third hypothesis was also examined using an independent *t* test. AES score means from pre-intervention to one month post-intervention between the experimental and control groups did reveal a statistically significant difference. The EW group had a significantly higher AES score mean at follow-up than the control group. A paired samples *t* test examined scores from pre-intervention to one month follow-up. A statistically significant difference was found only in the experimental group. The results contradict those obtained by Wing, Schutte, and Byrne (2006). The results of the 2006 study indicated significant results from pre- to post-intervention EI scores; however, at a two-week follow-up, this significance had reduced to only a trend. The current study employed a suggestion by Pennebaker, Zach, and Rime (2001) that EW be conducted across a greater time span than those used previously.

Perceived Stress

For the second hypothesis, an independent samples *t* test indicated that perceived stress scores of the EW group were not significantly lower than those of the control group. These results contradicted results of previous studies featured in the literature review which suggested that EW resulted in higher EI which was related to more effective coping of stress (Downey et al, 2010; Erozkan, 2013); perception of oneself as confident and capable of coping with stress (Kirk et al, 2011;Lepore et al, 2002); reduction of intrusive thoughts (Lepore, 1997); higher life satisfaction (Wing et al, 2006); and fewer incidences of incivility (Kirk et al, 2011). Given that the current study did not indicate a statistically significant difference in EI scores between the EW and control groups pre- to post-intervention, a significant decrease in perceived stress was unlikely to be found.

An independent *t* test examined PSS score means between the EW and control groups at one month post-intervention. No significant difference between perceived stress in the EW and the control groups was found. Paired samples tests compared PSS score means within each treatment group. The decrease in perceived stress in the EW group from pre- to post-intervention, as well as from pre- to follow-up, was not statistically significant. However, within the control group, pre- to follow-up, perceived stress was statistically significantly lower. This result contradicted those from studies in the literature review, which indicated that EW resulted in more effective coping of stress (Downey et al, 2010; Erozkan, 2013). The control group did not engage in EW, nor did they have significant increases in EI scores. Therefore, the decrease in perceived stress from pre-intervention to follow-up cannot be attributed to EW.

Theoretical Framework

The theory on which the current study was based was the idea that the ability to regulate emotions leads to effective coping of stress and adaptive behavioral strategies (Aldao et al, 2010; Gratz, 2007; Gross, 1998; 1999; 2002; Gross & Munoz, 1995; Thompson, 1994). Emotion regulation is a component of EI and is engaged through the act of EW (Boals, 2012; Hoyt & Yeater, 2011; Pennebaker, 1990). The writing protocols in the current study deviated from those in previous studies in that the sessions occurred once weekly over a period of four weeks. This adjustment was made to include a suggestion by Pennebaker et al (2001), that greater effects may be observed if EW was conducted over a longer time span rather than in brief, consecutive sessions used in the previous studies. The current study did not demonstrate a significant increase in EI at immediate post-intervention, but the EW group did exhibit a significant increase at one month post-intervention. This is contradictory to results of a study by Wing et al (2006) in which increases were not sustained at two weeks post-intervention. Results at follow-up in the current study may indeed be evidence to support the lengthening of the writing sessions in order to obtain long-term impacts on EI. Expressive writing significantly increased EI when sessions occurred over a period of a month rather than a three day period.

Limitations of the Study

The current study has some limitations which may influence the generalizability of the results and validity of the conclusions. As previously discussed in chapter 1 of this document, limitations include sample selection, reliance on self-report surveys, and

contextual issues of study procedures. Other limitations, not anticipated in chapter 1, are also noted.

One limitation of the current study involved the selection of the sample. The study utilized a sample of college freshmen and sophomores from three of the five campus sites of a university in middle Georgia. The participants volunteered in exchange for assignment credit in a class in which the instructor had agreed to such terms. Therefore, the results cannot be generalized to all of the university freshmen and sophomores nor to all in the state or country. No all instructors offered course credit; therefore, this was not available to all first and second year students. The accessible population also included only those students who were willing and able to attend research sites at 3 locations and not all 5 locations of the university.

Another limitation involved the self-report nature of the surveys used to assess measures of EI and perceived stress. As noted by Schwartz (1999), self-report assessments can be influenced by the subjectivity of human error and personality which can affect the accuracy of reporting. Individual participant responses could also have been distorted through self-deception, denial, or defensiveness.

Additional limitations involved implementation procedures. The timing and locations of the writing sessions, although considered participant convenience, were ultimately selected by the researcher. These times could not accommodate each individual participant. Locations of the writing sessions was selected by the researcher as well. Classrooms were selected due to convenience and were perhaps not optimal to some

participants. A classroom setting may not have been the most conducive to emotional expression or survey response.

A final crucial limitation of the current study was the sample size. Of the initial 72 participants, only 58 (83%) completed all phases of the writing interventions and post-intervention procedures. Only 37 of the 58 (64%) provided follow-up data. The control group featured 22 participants at follow-up and the experimental group contained only 15. The sample size at one month post-intervention follow-up was only 53% of the estimated target sample size of 70. This impacted the validity and generalizability of the follow-up results.

Recommendations

The benefits of EI, ER, and EW have been noted in the chapter 2 literature review of this document. Also, previously discussed is the lack of research regarding the impact of EW on EI. Therefore, future research could add to this lack of knowledge. This particular study could be repeated utilizing the implementation of writing sessions over the extended period of time rather than the brief sessions featured in the other studies. This could observe the effects of regularly maintained emotional expression in writing.

Another suggestion for a repeat of this study is for a sample size to be more representative of the university. Participants could include first and second year students from all campus sites and from all declared and undeclared major areas of study. If course credit is offered in exchange for participation, efforts to gain cooperation from more instructors could be necessary so that a larger, more accurate representation of the university population could be obtained.

Other recommendations for future research could include employing study procedures according to preferred times and locations of the participants themselves. This could encourage emotional disclosure as well as more genuine responses on the surveys. Measurements which do not involved self-report responses to report EI and perceived stress scores could be more objective and not vulnerable to subjectivity could also be considered.

Lastly, another important consideration for future study could focus on the retention of study participants for all study procedures, including collection of follow-up data. It is crucial that data be obtained at all stages so that continuity could allow for increased validity and generalizability of the results. This could perhaps be accomplished by improved recruitment and assignment credit opportunities.

Implications for Positive Social Change

A major rationale of research is considered to be the potential of study results to positively impact achievement and well-being for all persons in a society. It is important that methods to enhance productivity and accomplishment of personal goals be investigated. Abandonment of educational and personal aspirations due to an inability to cope with distressing circumstances and situations could be assuaged by inexpensively and relatively simple practices.

The current study hinted at the possibility of improving abilities which enhance goal attainment and emotional and psychological health. Individuals could then be more capable of developing skills with which to pursue their aims. Such practices could

become part of the curriculum in traditional educational facilities, in families, and with individuals in counseling or therapy. Increased emphasis could be placed on individual psychological and emotional factors which influence academic achievement and personal well-being. This could result in improved intrapersonal and interpersonal interactions which could positively affect society at large.

Conclusion

The purpose of this study was to examine the impact of EW on EI and perceived stress. Analysis of data found a significant increase in EI among those who engaged in EW at one month post-intervention. Though study results must involve consideration of the previously discussed limitations, these results demonstrate the need for study replication, as well as the need for further investigation. The results of such studies could expand knowledge and create an application regarding using EW to improve EI and perceived stress.

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Appendix A: Perceived Stress Scale- Revised

For the following items, report how often each has occurred using the following scale:

0 = Never 1 = Rarely 2 = Sometimes 3 = Often 4 = Very Often

How often have you felt that you were effectively coping with important changes that were occurring in your life?

How often have you felt confident about your ability to handle your personal problems?

How often have you been able to control the irritations in your life?

How often have you been able to control the way you spend your time?

How often have you been upset because of something that happened unexpectedly?

How often have you felt that you were unable to control the important things in your life?

How often have you felt nervous and stressed?

How often have you found that you could not cope with all the things that you had to do?

How often have you been angered because of the things that happened outside your control?

How often have you found yourself thinking about things that you have to accomplish

How often have you felt difficulties were piling up so high that you could not overcome them?

Appendix B: The Assessing Emotions Scale

Directions: Each of the following items asks you about your emotions or reactions associated with emotions. After deciding whether a statement is generally true for you, use the 5-point scale to respond to the statement. Please circle the "1" if you strongly disagree that this is like you, the "2" if you somewhat disagree that this is like you, "3" if you neither agree nor disagree that this is like you, the "4" if you somewhat agree that this like you, and the "5" if you strongly agree that this is like you.
There are no right or wrong answers. Please give the response that best describes you.

1 = strongly disagree
2 = somewhat disagree
3 = neither agree nor disagree
4 = somewhat agree
5 = strongly agree

1. I know when to speak about my personal problems to others.	1	2	3	4	5
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them.	1	2	3	4	5
3. I expect that I will do well on most things that I try.	1	2	3	4	5
4. Other people find it easy to confide in me.	1	2	3	4	5
5. I find it hard to understand the non-verbal messages of other people.	1	2	3	4	5
6. Some of the major events of my life have led me to re-evaluate what is important and not important.	1	2	3	4	5
7. When my mood changes, I see new possibilities.	1	2	3	4	5
8. Emotions are one of the things that make my life worth living.	1	2	3	4	5
9. I am aware of my emotions as I experience them.	1	2	3	4	5
10. I expect good things to happen.	1	2	3	4	5
11. I like to share my emotions with others.	1	2	3	4	5
12. When I experience a positive emotion, I know how to make it last.	1	2	3	4	5
13. I arrange events others enjoy.	1	2	3	4	5
14. I seek out activities that make me happy.	1	2	3	4	5
15. I am aware of the non-verbal messages I send to others.	1	2	3	4	5
16. I present myself in a way that makes a good impression on others.	1	2	3	4	5
17. When I am in a positive mood, solving problems is easy for me.	1	2	3	4	5
18. By looking at their facial expressions, I recognize the emotions people are experiencing.	1	2	3	4	5
19. I know why my emotions change.	1	2	3	4	5
20. When I am in a positive mood, I am able to come up with new ideas.	1	2	3	4	5

21. I have control over my emotions.	1	2	3	4	5
22. I easily recognize my emotions as I experience them.	1	2	3	4	5
23. I motivate myself by imagining a good outcome to tasks I take on.	1	2	3	4	5
24. I compliment others when they have done something well.	1	2	3	4	5
25. I am aware of the non-verbal messages other people send.	1	2	3	4	5
26. When another person tells me about an important event in his or her life, I almost feel as though I experienced this event myself.	1	2	3	4	5
27. When I feel a change in emotions, I tend to come up with new ideas.	1	2	3	4	5
28. When I am faced with a challenge, I give up because I believe I will fail.	1	2	3	4	5
29. I know what other people are feeling just by looking at them.	1	2	3	4	5
30. I help other people feel better when they are down.	1	2	3	4	5
31. I use good moods to help myself keep trying in the face of obstacles.	1	2	3	4	5
32. I can tell how people are feeling by listening to the tone of their voice.	1	2	3	4	5
33. It is difficult for me to understand why people feel the way they do.	1	2	3	4	5

Appendix C: Informed Consent
CONSENT FORM
Expressive Writing Study

You are invited to take part in a research study about emotional intelligence of freshman students. The researcher is inviting freshmen or students in their first year in college to be in the study. You must be at least 18 years of age to participate (as indicated by a picture identification card). This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Elizabeth H. Walker, who is a doctoral student. You might already know the researcher as an instructor at MGSU, but this study is separate from that role.

Background Information:
The purpose of this study is to examine the effects of expressive writing on college freshman.

Procedures:
If you agree to be in this study, you will be asked to:

- Complete 3 short surveys regarding your experiences.
- Meet once per week for 4 consecutive weeks to write about an assigned topic, as well as answer questions in 2 short surveys.
- Meet one month after the last writing session to complete 2 short surveys.

Here are some sample questions:

- How often have you felt stressed? (Never, Rarely, Sometimes, Often, Very Often)
- I like to express my feelings. (Strongly disagree, Somewhat disagree, Neither agree or disagree, Somewhat agree, Strongly agree)

Voluntary Nature of the Study:
This study is voluntary. You are free to accept or turn down the invitation. No one at MGSU will treat you differently if you decide not to be in the study. If you decide to be in the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as becoming upset due to the writing topic. Being in this study would not pose risk to your safety or wellbeing.

Participation in the study could provide you with the experience of adding to our limited knowledge of experiences and opinions of first year students in college. This knowledge is valuable in contributing to ways in which students effectively deal with the transition to college.

Payment:
In exchange for your participation, an extra credit assignment grade in your English or psychology course will be given (per agreement with the instructor). This extra credit grade may not be substituted for any activities, tests, research papers, projects, absences, or grades assigned by your English or psychology instructor. If you choose not to participate, you have the option of completing a written assignment with which to earn an extra credit grade.

Privacy:
Reports coming out of this study will not share the identities of individual participants. Details that might identify participants, such as the location of the study, also will not be shared. Your personal information will be known only to the researcher and will be kept strictly confidential. You will be given a code to use as identification in place of your name. The researcher will not use your personal information for any purpose outside of this research project. Data will be kept secure by being locked in a cabinet in a secured location. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact the researcher via (478) 290-3735 and/or elizabeth.walker1@mga.edu. If you want to talk privately about your rights as a participant, you can contact the Middle Georgia State University Instituitional Review Board at irb@mga.edu. MGSU Counseling Center may be contacted at (478) 934-3092 or (478) 934-6221.

The researcher will give you a copy of this form to keep.

Obtaining Your Consent

If you feel you understand the study well enough to make a decision about it, please indicate your consent by signing below.

Printed Name of Participant _____

Date of consent _____

Participant's Signature _____

Researcher's Signature _____

Appendix D: Writing Instructions

Experimental group writing instructions:

During these sessions, I want you to let go and write about your thoughts and feelings regarding your experiences in college. In your essay you may want to write about your thoughts and feelings about the courses in which you are enrolled, the expectations of your professors, your preparedness for the academic demands of college, financial issues related to attending college, the relevance of your performance to your future goals, and/or your feelings about other relationships (friendships, family, romantic attachments, etc.) in your life. The important thing is that you delve into your deepest emotions and explore them in your writing. Do not be concerned with spelling, grammar, or punctuation.

Control group writing instructions:

Since we are interested in the day to day activities of students at MGSU, please describe in detail what you have done in the last 24 hours. Please include who you met with, how much time you spent on meals, socializing, studying, etc. It is important that you describe things exactly as they occurred. Do not mention your emotions, feelings, or opinions. Your descriptions should be as detailed and objective as possible. Do not be concerned with spelling, grammar, or punctuation.

Appendix E: Demographic Questionnaire

Demographic Information

Date of Birth: MM/DD/YYYY - / /

Gender (circle): Male Female

Ethnicity (circle): Caucasian African American Hispanic-American

Asian Other

Number of semesters you have been enrolled in college: _____

Major: _____