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A Division of the American Counseling Association

Letter from the Editors

The *Journal of Military and Government Counseling* (JMGC) is an official publication of the Military and Government Counseling Association (MGCA), a division of the American Counseling Association. The mission of the journal is to promote reflection and to encourage, develop, facilitate, and promote professional development for administrators, counselors, and educators working with all members of the Armed Services and their families, whether active duty, guard, reserve, retired, or veteran; civilian employees of the Department of Defense; first responders including EMS, law enforcement, fire, and emergency dispatch personnel; and employees of Local, State and Federal governmental agencies.

Welcome to the Journal of Military and Government Counseling

Well, we've come to the end of our shift, and will be handing over the journal to the incoming crew.

It's been great and we hope that you have enjoyed the last three years as much as we have. As always, thank you for the work you do in support of our military, first responder and emergency service personnel, and those that work in and with government agencies.

We hope to see you again somewhere down the line. Take care and safe travels.

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The Journal of Military and Government Counseling

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Posttraumatic Growth in Military Survivors of Trauma: Exploring the Predictive Roles of Meaning-Making, Social Support, Life Satisfaction, and Post-Traumatic Stress

Aaron J. Smith, Alysia Noriega, Melanie Valdez, Julia Daniels, Gage Nelson, Anya Tyutyunnik, Zachary Z. Willett, & JianBo He

Western Washington University

The following study sought to explore the role of meaning-making as a predictor of posttraumatic growth (PTG), above and beyond other known predictors such as social support, post-traumatic stress symptoms, perceptions of life satisfaction, and demographics in military personnel and Veterans that self-report as having survived trauma ($N = 154$). Perceptions of meaning in life were found to positively and significantly predict PTG-outcomes ($p < .000$), as well as contributed a significant amount more variance above and beyond social support and the symptoms of post-traumatic stress (PTS). We attempted to replicate the finding that the presence of meaning significantly moderates relationships between social support and PTG. We also explored relationships between PTG and other variables, such as life-satisfaction, symptoms of posttraumatic stress, and perceptions of the meaningfulness of work in our sample of Veterans that self-report as having a history of trauma. Implications for counselors and counselor

educators are discussed, including implications for multiculturalism and social justice.

Keywords: Posttraumatic growth, meaning-making, military, veterans, counseling

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With over two decades of sustained military operations across multiple fronts and amidst epidemic-levels of Military Sexual Trauma (MST), Veterans represent one of the most at-risk populations for trauma-exposure examined in the clinical literature (Smith, 2014). Paralleling the rise of trauma in US military populations, since the 1990's, the fields of psychology and counseling have also seen a rise in studies examining psychological growth in the aftermath of challenging life circumstances (i.e., posttraumatic growth), though this research has been primarily conducted with non-Veteran populations. Posttraumatic growth (PTG) – or positive new perspectives that survivors attribute directly to their challenging life circumstances – is an important phenomenon to study in Veterans and service people, specifically, because in addition to enduring two decades of rising rates of trauma-exposure, this sub-population also experiences epistemic levels of substance use, depression, and, ultimately, suicide (United States Department of Veterans Affairs, 2019). While PTG does not appear to reduce the symptoms of trauma (Tsai, et al., 2016) in Veterans, people who experience PTG often report things like greater appreciation of life, enhanced awareness of the importance of relationships, and an awareness of new possibilities, among other positive experiences, that they directly attribute to their challenging life circumstances. Thus, the primary purposes of these exploratory quantitative analyses were to begin addressing these known gaps in research on PTG and meaning-making in Veterans.

Introduction

Contemporary studies have begun identifying perceptions of meaning-in-life as one of the most robust predictors of PTG, including in Veterans (Tsai, et al., 2015). There is also some agreement that PTG appears to require the presence of social support (Janoff-Bulman, 1992; Tedeschi & Calhoun, 2004), though again, this research was conducted with non-Veteran populations. As such, we examine levels of perceptions of the presence and search for meaning, life satisfaction, social support (i.e., from family, friends, and significant others), Post-Traumatic Stress (PTS), perceptions of life satisfaction, and PTG present in our sample of Veteran survivors of trauma. We also measured the role of meaning-making in the prediction of PTG-outcomes above and beyond other known predictors. This required using both overall scores for meaning-in-life as a primary predictor of PTG-outcomes, as well as including individual analyses of the predictive roles of each subscale (i.e., the presence and search for meaning).

We then sought to replicate significant moderation between meaning-making and social support in predicting PTG in the sample population of Veterans. Zeligman et al. (2018) found that meaning-making moderated this relationship between social support and PTG when looking at a sample population of US college students living with chronic illness. Then, the researchers tested a series of exploratory hypotheses including the degrees to which perceptions of life-satisfaction, social support, and the presence of symptoms of posttraumatic stress each appear to predict and covary with PTG-outcomes in our sample of Veterans. One further exploratory hypothesis that to the authors' knowledge has not yet been examined in the research literature on posttraumatic growth in Veteran *or* non-Veteran samples – complicating and enriching our knowledgebase – is whether perceptions of the meaningfulness of one's work are significantly predictive of PTG-outcomes in our sample of Veterans, above and beyond meaning-in-life, more generally. This exploratory hypothesis has been postulated by nearly 100 years of existential theory from the likes of Frankl (1959), May (1975), and Yalom (1980; 2012) who spoke on the importance of finding meaning-in-work after traumatic experiences. Finally, limitations

will be discussed, including implications for professional counselors, researchers, multiculturalism, and social justice.

Review of the Literature

Theorists have long posited that challenging life circumstances represent more than just catalysts for suffering; They also present opportunities for growth (Frankl, 1959; May, 1975; Yalom, 1980; 2012). Mental health researchers, though, have tended to focus their efforts predominantly on seeking an understanding of the causal mechanisms of suffering, understandably, and it was not until the latter half of the 20th century that a select few began the process of exploring the phenomenon of growth using a scientific-lens (Janoff-Bulman, 1992; Tedeschi & Calhoun, 2004). Growth that occurs as a direct result of suffering is most typically conceptualized using Tedeschi and Calhoun's (1996) Transformational Model of Posttraumatic Growth (PTG), that is operationalized as having five subscales of additive gains among survivors, including to: the depth and quality of their relationships, their sense of appreciation of life, recognition of personal strength, awareness of new opportunities, and to their spiritual/religious selves.

In addition to these alleged positive changes, there are a number of other positive mental health correlates to PTG, ranging from greater perceptions of satisfaction with life to enhanced levels of general health and wellbeing (Tedeschi & Calhoun, 2004). PTG has also been found in a number of diverse populations, ranging from people with chronic illness (Zeligman et al., 2018) to Veterans of the US military (Tsai et al., 2016). The following sections will briefly examine the extant scholarship related to PTG and the variables that will be independently explored in the present study's analyses, including: the presence and search for meaning, social support (i.e., from family, friends, and significant others), perceptions of life satisfaction, the presence of Post-Traumatic Stress symptoms, and demographic factors.

PTG and Meaning-Making

The current literature on posttraumatic growth (PTG) and meaning-making shows a consensus that there appears to be a positive correlation between the two phenomenon. In the literature, PTG is generally defined as a form of personal growth in the wake of experiencing a traumatic event. Meaning-making is defined differently depending upon the authors and purpose of the study, but most definitions seem to include the personal reflection (i.e., intentional rumination) in which one must engage in to create meaning for a traumatic event, while also finding a place for the event in their lives that makes sense for their journeys. In a study by Mangelsdorf and Eid (2015) that explored the characteristics of 683 people who appeared to thrive after traumatic events, the participants were asked if they have considered what their lives would be like had they not experienced a specific traumatic event, finding a statistically significant relationship between PTG and meaning-making for their traumatic event ($r = .38, p < .001$) ($N = 683$).

A qualitative study done by Ross et al., (2018) ($N = 14$) examining the effects of different coping strategies and mechanisms in parents who have lost a child by suicide found that meaning-making was in the top three most important factors for growth. The parents that engaged in meaning-making reported that it had, “enabled them to grow emotionally and spiritually. Many parents described how they felt – that they had a greater awareness of others who might be in need of help, and were more aware and open to listening and offering help,” (Ross, et al., 2018, p. 6). A 2013 qualitative study of 17 clinicians that worked with refugees reporting histories of torture and other traumas investigating vicarious-PTG and meaning-making found similar results (Barrington & Shakespeare-Finch, 2013). A quantitative study by Merrill et al. (2016) that was conducted on 225 introductory-level psychology students at Emory University showed a statistically significant positive correlation between PTG and positive connections ($p < .01$). – the ability to make positive associations out of a negative event or trauma. Given the scholarship examining associations between meaning-making and PTG, the current study hypothesized that meaning-making would predict a statistically significant amount of variance

in PTG-outcomes, above and beyond our other predictors. Further, given Zeligman et al. (2018) recent findings, the current study also predicted that meaning-making would moderate the relationship between social support and PTG.

PTG and Social Support

Social support has been found to be positively correlated with PTG among Veterans, trauma survivors, those struggling with chronic illnesses, and in samples across the world, among others. Social support was positively correlated with PTG in adults living with HIV (Zeligman, et al., 2016), with PTG being operationalized in the same way as the present study, (i.e., via Tedeschi & Calhoun's [2004] Transformational Model). That same year, three more studies by Brooks et al. (2016) also found a positive correlation between social support and PTG among samples of students, crime survivors, and trauma workers.

Drawing closer parallels to the sample used in the present study, among a sample of Veteran amputees that served during Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) there was a positive correlation between PTG and social support (Benetato, 2011). However, the study also highlighted that there was variance in the effects of social support on PTG among veterans which was attributed to the quality of social support that was available. Internationally, social support was found to be positively correlated with PTG in a sample of male Israeli veterans (Saltzman, et al., 2018). Saltzman et al. (2018) suggested that PTG emerges as a result of successful coping, which is largely influenced by social support. However, they found that the individual and experiential differences of the veterans created variations on the effect size of social support on PTG.

Tsai and Pietrzak (2017) longitudinally examined the trajectory of PTG and found three growth trajectories: Low and decreasing PTG, Moderate PTG, and High and increasing PTG. Moderate *and* High and increasing PTG had higher perceived social support, while Low and Decreasing PTG tended to report lower social support. Given the empirical findings described in the literature, it appears that there is support for the current study's hypothesis that social support correlates positively with

PTG. Further, given the findings of Saltzman et al. (2018), the present study hypothesized that PTG-outcomes would be highest among Veterans in the sample that reported a higher quality of social support.

PTG and Post-Traumatic Stress

The extant scholarship on relationships between Posttraumatic Growth (PTG) and Post-Traumatic Stress (PTS) appears to generally affirm the idea that PTG does not typically result in a reduction of the symptoms of PTS (Tsai et al., 2016). Countless studies have found that individuals can experience both deficit-based symptoms, such as experiences of PTS, while simultaneously finding meaning and growth in their experiences (Tedeschi & Calhoun, 2004). One study in 2015, for example, surveyed 3,157 Veterans and found that slightly more than half of them that qualified for a diagnosis of Post-Traumatic Stress (PTS) also qualified for PTG (Tsai et al., 2015). Perhaps counter-intuitively, some studies have also found that as symptoms of PTS increase, reports of PTG also increase. Boals and Schuettler (2011), for example, found a significantly positive relationship between the symptoms of PTS and reports of PTG using a sample of 929 undergraduates at the University of North Texas. ($r = .44, p < .001$). This positive association between PTS and PTG has also been found in international samples, evidenced by studies like the one conducted by Jin et al. (2014), when they surveyed 2,080 survivors of the Chi-Chi earthquake in China.

This association is most often attributed to the idea that traumas must be severe enough to significantly “shatter” survivors’ assumptions about the world, such that they are forced to grapple with, and re-construct new beliefs about the world (i.e., meaning-making), resulting in manifestations of PTG (Shay, 1992). This idea is also evidenced in a recent landmark study that examined the importance of trauma-centrality (i.e., the degree to which a survivor’s trauma plays a central role in their current life narrative) on predictions of growth, post-trauma (Kramer, Whiteman, Witte, et al., 2019). Given the available research, we predicted that higher levels of PTG would not be significantly predictive of lower scores for the symptoms of PTS, but that PTS-symptoms would be positively correlated with self-reported PTG-outcomes.

PTG and Life Satisfaction

Generally speaking, traumatological researchers have tended to focus their efforts on understanding deficit-based symptoms directly attributable to trauma. One of the most important questions that has yet to be answered as researchers continue to explore the phenomenon of posttraumatic growth (PTG) – particularly given that it does not appear to result in a reduction of post-traumatic symptoms – is what the wider benefits might be of making adaptive meanings of our traumatic experiences. One growth-enhancing, intra-psychic phenomenon that has been found to be positively correlated and predictive of PTG are perceptions of life satisfaction.

A known protective factor against suicide (Juhnke, et al., 2007), life satisfaction may be an especially important predictor of PTG to explore in a sample of service people and Veterans that are currently facing a suicide epidemic (US Department of Veterans Affairs, 2019). Life satisfaction has also been found to be positively correlated with PTG in international samples. Kim et al. (2016), for example, found a significantly positive correlation between life satisfaction and PTG in a sample of 244 South Korean para-Olympians surveyed with physical disabilities. In particular, they found that the PTG-subscales of new possibilities and personal strength were most significantly predictive of perceptions of life satisfaction. Given the available research on associations between PTG and perceptions of life satisfaction, we hypothesized that life satisfaction would positively correlate with and positively predict PTG in our sample of Veterans self-reporting a history of trauma.

PTG and Demographics

Existing research on PTG has presented evidence of a correlation between several demographics, such as race/ethnicity and gender, and PTG. PTG research conducted with veteran populations provides evidence for a positive correlation between identifying as a racial/ethnic minority and PTG (Hijazi, et al., 2015; Maguen, et al., 2006; Mitchell, et al., 2013). Maguen, et al. (2006) found that, in a sample of veterans from the Gulf War, PTG was statistically significantly positively correlated to identification as a

racial/ethnic minority on the Posttraumatic Growth Inventory (PTGI) subscale of New Possibilities (Maguen et al., 2006). Hijazi et al. (2015) also provide evidence for a positive correlation in their study of PTG in a sample of U.S. veterans that served in various wars/conflicts, with ethnic minorities exhibiting higher rates of PTG (Hijazi et al., 2015). In regard to gender and PTG, Zeligman et al. (2018) discovered a positive correlation between identifying as female and PTG from a sample of undergraduate students that identified as living with a chronic illness (Zeligman, et al., 2018). Shand et al. (2015) demonstrated a similar correlation between PTG and identifying as a female in their study of PTG in cancer patients, with females exhibiting more PTG than males (Shand, et al., 2015). While research on the impact of demographics on PTG has varied in the use of study designs, all research has utilized some form of the PTGI in order to measure PTG. Given the evidence for a correlation between PTG and racial/ethnic minority status, individuals identifying as a member of a marginalized group(s) may exhibit higher rates of PTG which is consistent with this study's hypothesis.

Method

Participants

We used an a-priori power analysis tool developed by Soper (2016) that is specifically tailored for Hierarchical Multiple Regression (HMR), the main statistical analysis used in this study, to determine a minimum sample size requisite for achieving adequate statistical power (.80) for a medium effect size and a significance level of .05. The results of the a priori power analysis suggested a minimum sample size of 76 Veterans self-reporting a history of trauma. For the purposes of this study, a Veteran was defined as any person that has served any length of time in the US military. This includes Active Duty, Reserve, and National Guard personnel, having served in the past or the present. We developed a demographics questionnaire to gather information on: Age, gender, sexual orientation, race/ethnicity, branch of service, dates served, time since the most recent trauma (in months), branch of service, and duty-status (i.e., Active, Reserve, National Guard).

154 participants initially consented to participate and reported having served in the US military. Of those, 17 did not complete the survey and of the 137 remaining, 125 reported having survived a traumatic experience and their average age was 43.32 ($SD = 13.12$). 125 participants reported being survivors of at least one traumatic experience and only 88 reported their gender-identity. 21 reported identifying as female (23%), with 67 self-identifying as male (76%), and one choosing to identify as transgender (1%). The sample was largely homogenous in terms of their ethnicities, with 73 reporting being white, four participants reported being Hispanic, four as Asian or Pacific Islander, six as African American, two reporting being multi-racial (i.e., one reporting being Hispanic and White and the other reporting being Native American and White), and one preferring not to say. The sample was overwhelmingly heterosexual (80 participants) among those that reported their sexual identity, followed by four identifying as bisexual, two as pansexual, and one each as homosexual, pansexual, and asexual (and one that preferred not to say).

Of those reporting, 37 reported having served in the Army, 22 in the Air Force, 19 in the Navy, 15 in the Marines, 5 in the Coast Guard, and one chose not to say. 76 participants reported being on active duty, 21 reported being reservists, 17 reported being National Guards-people, and one preferred not to say. The sample included 13 Actively serving military personnel and 80 US military Veterans (i.e., no longer serving). Finally, the average number of months since their last reported trauma(s) was 119.87 ($SD = 139.04$).

Procedure

The current climate of military-culture in the United States (US) largely stigmatizes open-disclosures of mental health-related struggles or experiences (Smith, 2014), making it notoriously difficult to find Veterans and currently serving military members that are willing to participate in mental health research. As a result, this study was conducted anonymously and snowball sampling was used for participant-recruitment, as it has been found to be well-suited for gaining access to populations that are otherwise difficult to recruit due to valid concerns regarding social-retribution (Smith, 2017). Snow-ball sampling occurs when one participant that meets the

criterion for participation is identified. Then, that participant goes out and recruits other people that they believe also meet the criterion for participation. Further, the US Department of Veteran Affairs (Safdar & Brys, 2017) specifically recommends the use of snowball sampling for research involving Veterans, as many researchers have found success for their studies via asking Veterans to participate and/or refer the study's participation-opportunity to other Veterans that they know. A digital recruitment flyer containing information about the study and a link to the electronic surveys was posted to the personal Facebook accounts of each member of the research team ($N = 10$) with a request that for any Veterans that came across it with a history of trauma to either consider participating or to connect the survey to other Veterans they know that may meet the inclusion criterion (or both).

Once participants clicked on the link, they were taken to a HIPAA-compliant, electronic survey software that allowed us to collect survey data anonymously, upon permission from their Institutional Review Board (IRB). We received a waiver of consent documentation for anonymity, so participant-consent occurred at the click of a button on the first item of the survey. After indicating consent, participants responded to a series of screening questions to ensure participants were at least 18 years of age, had served in the US military, and had experienced a traumatic event. Then, the sample population that met all of these criterion were granted access to the surveys.

Surveys were given in the following order: demographics, Meaning-in-Life Questionnaire (MLQ)(Steger et al., 2006), the Posttraumatic Growth Inventory - Short Form (PTGI-SF)(Cann, et al., 2010), the Post-Traumatic Stress Checklist 5 (PCL-5)(Weathers, et al., 2013), the Multidimensional Scale of Perceived Social Support (MSPSS)(Zimet, et al., 1988), Satisfaction with Life Scale (Diener et al., 1995), and the Work and Meaning Inventory (Steger et al., 2011). Participants took the surveys in a location of their own choosing, taking anywhere from five to 15 minutes to complete.

Measures

PTGI-SF

The purpose of the Posttraumatic Growth Inventory – Short Form (PTGI-SF; See: Cann et al., 2010) was to provide an outcome measure of PTG that provides a valid and reliable combined measure of potential growth using each of the five areas identified by Tedeschi and Calhoun's (2004) Transformational Model: Relationships, appreciation of life, new opportunities, personal strength, and religion/spirituality. The larger parent-version has been found to be significantly correlated with the meaning-making outcome measure used in the present study (Zeligman et al., 2018). According to the Transformational Model of PTG, growth is the result of a combination of approach coping, social support, and cognitive-reprocessing – a form of meaning-making.

Further, according to Cann et al. (2010), the instrument has been shown to have adequate test-retest reliability, as well as, sufficient internal reliability (Cronbach's $\alpha > .70$) for predicting a total PTG-outcome score based on each of the five categories of PTG when used for research purposes. The PTGI-SF (Cann et al., 2010) has 10 self-report items that use a 6-point Likert scale ranging from 0 (i.e., *I did not experience this change as a result of my trauma[s]*) to 5 (*I experienced this change to a very great degree as a result of my trauma[s]*). Participants are asked to indicate for each statement the degree to which they believe the change occurred as a direct result of their trauma(s). It uses items such as, "I established a new path for my life," and, "I have a greater sense of closeness with others," (Cann et al., 2010). Higher scores indicate greater self-reported PTG. Cronbach's alpha for the present study was strong at .897.

MLQ

The purpose of Steger and et al.'s (2006) Meaning-in-Life Questionnaire (MLQ) is to measure meaning-making, operationalized via two subscales: The presence of meaning and the search for meaning. The MLQ correlates strongly with meaning-making and has been operationalized using these two subscales successfully by past researchers

(Crumbaugh & Maholic, 1964). Further, the MLQ (Steger et al., 2006) used the same existential philosophy that informs the present study in the development of the instrument – Frankl’s Logotherapy. Briefly, this theory posits that when the presence of meaning is disrupted, such as by a traumatic event, it simultaneously activates the search for meaning (i.e., Frankl’s *Will to Meaning*). This theory has been supported by multiple studies, evidencing a statistically significant positive correlation between the two subscales of the presence and search for meaning. Hence, we chose meaning-making as the main predictor of interest when attempting to predict growth in the aftermath of trauma, as done in the present study.

Participants are asked to think about what makes their lives feel important and significant, responding to statements with their degree of agreement. A 10-item self-report instrument with a 7-point Likert scale ranging from 1 (*absolutely untrue*) to 7 (*absolutely true*), it uses items such as, “My life has a clear sense of purpose,” and, “I have a good sense of what makes my life feel meaningful,” (Steger et al., 2006). The instrument has been found to correlate significantly with other measures of the presence and search for meaning, and evidenced adequate internal reliability (Cronbach’s $\alpha > .70$) (Steger et al., 2006; Zeligman et al., 2018). Scores are out of 70 with higher scores meaning greater perceptions of meaning-in-life, and each subscale can be totaled by adding their respective items (5 items for the search for meaning subscale and 5 items for the presence of meaning subscale). Cronbach’s α for the present study between the two subscales was moderate to strong at .766.

MSPSS

The purpose of the Multidimensional Scale of Perceived Social Support (MSPSS; See: Zimet et al., 1988) is to measure the presence of perceptions of social support from family, friends, or significant others, including each of their perceived quality. It was chosen because social support has been found to mediate the relationship between trauma and PTG (Calhoun & Tedeschi, 2004) among survivors of challenging life circumstances, such as those sampled in the present study. The MSPSS was also chosen to test Zeligman et al.’s (2018) finding that the presence of meaning moderated the relationship between social support and PTG.

The instrument contains 12 self-report items with Likert scales ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Participants are asked to rate how they feel about each of the 12 statements, including items such as, “My friends really try to help me,” and, “There is a special person in my life who cares about my feelings,” (Zimet et al., 1988). Total scores are achieved by adding all of the items and dividing by 12, which will be the only measure used in this study. A score of 1 - 2.9 indicates low perceived social support, 3 - 5 would be moderate social support, and 5.1 - 7 would indicate high perceived social support. Each subscale can be totaled by adding their respective items and dividing by 4 (the number of items in each subscale). Cronbach’s alpha for the present study was very high at .949.

PCL-5

Post-Traumatic Stress Disorder Checklist for the DSM-5 (PCL-5) (Weathers et al., 2013) was developed to identify the presence of symptoms consistent with the diagnostic criterion for PTS in the DSM-5. The purpose of the measure’s inclusion in the present study was *not* to establish whether participants met the criterion for PTS; rather, it was to gain an opportunity to explore any relationships between meaning-making and PTS, above and beyond demographics. It was also included as a statistical control, with symptoms of PTS sometimes associating positively with PTG (Tedeschi & Calhoun, 2004). Further, the instrument was chosen because it has been found to be psychometrically sound (e.g., adequate test-retest, Cronbach’s alpha > .70) in multiple studies (Blevins, et al., 2015), including among Veteran survivors of trauma, specifically (Blovin, et al., 2015).

Participants are asked to self-report responses to 20 items examining symptoms of PTS identified in the DSM-5 on a Likert scale from 0 (*not at all*) to 4 (*extremely*), with items such as, “Repeated, disturbing dreams of the stressful experience?” and, “Avoiding memories, thoughts, or feelings related to the stressful experience,” (Weathers et al., 2013). Higher scores indicate higher numbers of symptoms of PTS being self-reported to be present at the time of the assessment. Cronbach’s alpha for the present study was very high at .965.

Satisfaction with Life Scale

The Satisfaction with Life Scale (SLS; See: Diener et al. 1985), is a 5 item self-report questionnaire using a Likert Scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with questions like, “In most ways, my life is ideal,” and, “So far, I have gotten the important things I want in life.” Scores are out of 35 points, with higher scores indicating greater perceived satisfaction with life and lower scores representing the absence of satisfaction with life. Cronbach’s alpha for the SLS (Diener et al., 1985) in the present study was very strong at .863.

Work and Meaning Inventory

The Work and Meaning Inventory developed by Steger et al., (2011) is a 10-item self-report survey using a Likert Scale ranging from 1 (*absolutely untrue*) to 5 (*absolutely true*). It asks questions like, “I have found a meaningful career,” and, “I have discovered work that has a satisfying purpose.” Scores are out of 50, with higher scores speaking to higher perceptions of meaning in their careers, while lower scores represent the absence of perceptions of meaning in their careers. While there are three subscales (positive meaning, meaning-making through work, greater good motivations), only total scores were used in the present study. Steger et al. (in press) reported strong scores for reliability and these were successfully replicated in the present study, evidencing a Cronbach’s alpha of .872.

Data Analysis

After downloading the participant-data from the HIPAA-compliant Qualtrics server, the primary researcher cleaned the data via a set of pre-defined protocols intended to maintain data-integrity. These rules included things like: Keeping one copy of all raw data, removing participants that failed to complete at least the surveys on meaning-making and posttraumatic growth (except participants that withdrew early, per the approved Institutional Review Board protocols), removing participants that appeared to move to through the survey too quickly (when elapsed time to completion was under 120 seconds), and removing items only after verified

within specific item-statistic parameters (*no* items were removed). Once the data that was used for analysis was consolidated onto an encrypted excel spreadsheet, it was then transferred into the Statistical Procedures for the Social Sciences (SPSS) Version 26 program and analyzed further for compliance with the assumptions of regression (i.e., multicollinearity, normality, homoscedasticity, and homogeneity of variance).

Multicollinearity was examined via a correlation matrix, finding that perceptions of satisfaction with life were significantly negatively correlated with the search for meaning in the expected direction ($r = -.342$, $p < .001$, $\alpha = .05$), as were perceptions of social support from significant others and social support from family ($r = -.645$, $p < .001$, $\alpha = .05$). As such, all of the independent variables were standardized before analyses via mean-centering. Normality was examined by plotting the standardized residuals of the dependent variable against the observed values and superimposing a normal bell curve (it was approximately normally distributed). Finally, a combination of Ordinary Least Squares (OLS) linear regression and hierarchical multiple regression were then used to answer each of the primary and secondary exploratory-research questions.

Results

The primary research question of interest explores whether perceptions of the search for and presence for meaning significantly and positively predicts scores for posttraumatic growth (PTG). Secondary questions sought to explore whether this same relationship would be true between other factors and PTG including life satisfaction, social support (e.g., from friends, family, and significant others), and perceptions of the meaningfulness of work. We also sought to replicate a finding by Zeligman et al. (2018) that perceptions of meaning moderate the relationship between social support and PTG.

Descriptive Characteristics

In Table 1, the authors calculated a correlation matrix with means and standard deviations for core variables in the study, including: total scores for posttraumatic growth (PTG), the presence and search for

meaning, social support from friends, family, and significant others, perceptions of life satisfaction, and the presence of post-traumatic stress symptoms. With 91 reporting, the Veterans in our sample, on average, self-reported as having 23.05 total points (out of 35 possible points) for the presence of meaning and 23.25 (out of 35 possible points) for the search for meaning, judged on a continuous scale (with low scores meaning low presence or search for meaning and high scores meaning high presence or search for meaning). On average and with 86 Veterans self-reporting, they reported a high degree of perceived social support from their significant others ($M = 20.86, SD = 7.39$), and moderate amounts of social support from their families ($M = 18.95, SD = 6.70$) and friends ($M = 19.20, SD = 6.48$). With 83 reporting, on average, the Veterans in our sample scored a 17.99 (out of a possible 35) for satisfaction with life – a score that would qualify as moderate life satisfaction according to Diener et al. (1985). The item that the Veterans rated agreeing with most was, “If I could live my life over, I would change almost nothing,” while the item that they least agreed with was, “So far, I have gotten the important things in life.” Finally, while there are no empirically validated severity scales available for determining categories of severity for PTS symptoms, a cutoff score of 31-33 is generally used for a diagnosis of PTS for research purposes (Weathers et al., 2013). On average, the Veterans in our sample reported 55.94 (out of a possible 100) for symptoms of PTS. Participants reported the most agreement with troubles falling or staying sleep (3.33 out of 5) and the least agreement with the item, “Taking too many risks or doing things that could cause you harm.” (2.34 out of 5).

Table 1 *Correlations, Means, and Standard Deviations for the Study Variables*

Variable	1	2	3	4	5	6	7	8
1. PTG	—							
2. PM	.435*	—						
3. SM	.098	.269	—					
4. SFA	.074	.168	.072	—				
5. SSO	.047	.262	-.032	.685*	—			

Variable	1	2	3	4	5	6	7	8
6. SFR	.293*	.273	.037	*	.711*	—		
7. SW	*	.207	-	.645*	*	.228	—	
L	.003*	-.216	.342*	*	.145	*	-	—
8. PTS	*		*	.181	-.126	-.153	.555*	
	-.218		.316*	-.173			*	
			*					
<i>M</i>	26.50	23.0	23.25	18.95	20.86	19.2	22.25	37.6
		5				0		6
<i>SD</i>	12.18	5.26	8.56	6.70	7.39	6.48	7.30	22.1
								4

Note: PTG = Posttraumatic Growth total score, PM = Presence of Meaning; SM = Search for Meaning; SFA = Social Support from Family; SSO = Social Support from Significant Other; SFR = Social Support from Friends; PTS = total score for presence of Post-Traumatic Stress symptoms; SWL = Satisfaction with Life; * $p < .05$, ** $p < .01$.

Meaning-Making as a Predictor of PTG

Examining whether meaning-making acts as a statistically significant predictor of growth in the aftermath of trauma required investigation of three distinct variables as predictors: Perceptions of the presence of meaning, the search for meaning, and a total score including the presence *and* search for meaning. When using total scores for meaning-in-life (i.e., the presence and search for meaning) as the primary predictor of total PTG-outcome scores, they appeared to account for a statistically significant amount of variance ($B = .391, p < .000, \alpha = .05$). The *presence of meaning* subscale, alone, accounted for a statistically significant amount of variance in PTG-outcomes ($B = .430, p < .000, \alpha = .05$), while the *search for meaning* subscale appeared not to ($B = .098, p < .12, \alpha = .05$). We used a hierarchical multiple regression to show that meaning-in-life (i.e., both subscales) would predict a significant amount more variance, above and beyond the variance already accounted for by social support. The results suggested that social support alone accounted for approximately 4 percent of variance in PTG outcomes ($r^2\Delta = .017, p < .248, \alpha = .05$).

Posttraumatic stress symptoms accounted for another 1.10 percent of variance in PTG-outcomes ($r^2\Delta = .011, p < .348, \alpha = .05$). Finally, as hypothesized, meaning-making added a significant amount of variance above and beyond social support and PTS-symptoms, at 21.3 percent ($r^2\Delta = .21, p < .000, \alpha = .05$) – the only step in the model that resulted in an overall model that accounted for a statistically significant amount of variance in PTG-outcomes ($F = 5.974, p < .000, \alpha = .05$) in our sample of Veteran survivors of trauma.

Social Support as a Predictor of PTG

Interestingly, in spite of rating overall as having high social support on average, total scores for social support, alone, did not appear to be significant predictors of overall scores for posttraumatic growth ($B = .032, p < .761, \alpha = .05$). For maximum utility in the hands of mental health counselors, our study used three subscales of social support to examine this with more precision, including support from: Significant others, family, and friends. In getting more specific in our analyses when examining social support as a predictor of PTG by using each of the three subscales as predictors, some divergent findings emerged. The social support from friends appeared to be the only subscale significantly correlated with PTG ($r = .293, p < .01, \alpha = .05$). Social support from family ($r = .074$) and significant others ($r = .047$), both, appeared not to be significantly correlated with PTG.

The Presence of Meaning as a Moderator Between Social Support and PTG

Prior to conducting our analysis of moderation, we first standardized our data to reduce multicollinearity by computing new, mean-centered variables for each of the predictors (versus z-scores) for ease of interpretability. Results of the moderation analysis are depicted in Table 2, below. We did a hierarchical multiple regression with two steps. In model 1, the uncentered presence of meaning subscale and the uncentered total scores for social support were used as predictors. In the second step (i.e., model 2), the moderator (i.e., standardized version of the presence of

meaning X standardized total scores for social support) was entered to explore whether there was significant moderation occurring. If the change in variance accounted for (i.e., $r^2\Delta$) by model 2 with the interaction effect was significantly greater than model 1, then we would reject the null hypothesis that there was not moderation occurring between the presence of meaning and perceptions of social support on total PTG-outcomes.

In the first step of the hierarchical multiple regression (i.e., model 1) using both the presence of meaning and overall scores for social support as independent predictors, it appeared to produce a significant outcome ($F[2,80] = 10.367, p < .000$). Model 2 containing our interaction effect was also significant ($F [3, 79] = 6.832, p < .000$). Unfortunately, model 2 did not appear to account for a significant amount *more* variance than model 1 ($r^2\Delta = .001, p < .899, \alpha = .05$). As such, this does not appear to support the hypothesis that there is significant moderation between the presence of meaning and perceptions of social support in our specific sample of Veterans, as was found by Zeligman et al. (2018) with survivors of chronic illness in 2018. However, this may be due to lower statistical power in one of the predictors, as there was approximately 6 percent participant-attrition in the sample when completing the survey on perceptions of social support ($N = 86$) relative to those who completed the *preceding* survey on perceptions of meaning ($N = 91$).

Table 2

Summary of Presence of Meaning (PM) as Moderator Between Social Support (SS) and Posttraumatic Growth (PTG)

Variable	β	95% CI	B
1. SS	.021	[-.117, .160]	.032
2. PM	1.031***	[.547, 1.513]	.443
3. SS X PM	-.002	[-.026, .023]	-.013

Note: CI = confidence interval.

* $p < .05$. ** $p < .01$. *** $p < .01$.

Exploratory Hypotheses: Extending the Conversation

Demographics, time since trauma, meaning-making, and PTG

Contrary to our prediction that people of marginalized identities would report more growth in the aftermath of trauma, it did not appear that means for PTG-outcomes varied significantly by gender ($F [2,80] = .818, p < .541$), nor ethnicity ($F [5,78] = .659, p < .655$) when analyzed via analysis of variance.

Time since trauma and PTG

Using a linear regression analysis, it appeared that time since trauma (in months) was a significant predictor of PTG outcomes ($F [1,72] = 4.505, p < .037, \alpha = .05$), accounting for approximately 24 percent of variance in our outcome. To examine this more closely, we transformed the time-data into three categories, including long, medium, and short time groups since trauma (by dividing the largest number of months reported since their most recent trauma by 3 and using this as a guideline for transforming the rest of the continuous time data). This resulted in 0 - 200 months being a short amount of time since trauma, 201 - 400 months being the medium time since trauma, and 401 - 600 months being the long time since trauma. After dummy-coding the variables into the aforementioned three time-categories, we then ran a multiple linear regression to examine differences in predictive capacity on total PTG-outcomes. Categories for short ($B = 36.35, t = 23.397, p < .000, \alpha = .05$) and long ($B = -.233, t = -2.016, p < .048, \alpha = .05$) time since trauma were found to be statistically significant predictors of PTG, while the medium time since trauma category was non-significant ($B = .559, t = .142, p < .888, \alpha = .05$). It is important to note, though, that only two participants reported long times since trauma (i.e., 401 months or longer), so there was ultimately insufficient statistical power to draw a valid and reliable conclusion. Finally, means for PTG outcomes were highest in the medium time since trauma group ($M = 36.90, SD = 12.41, N = 11$), followed by the Short ($M = 36.35, SD = 11.64, N = 60$), and Long ($M = 22, SD = 10.44, N = 2$) time since trauma groups.

Life satisfaction as a predictor of PTG

As expected, overall scores for life satisfaction did predict a significant amount of variance in total PTG-outcomes ($F [1,79] = 35.149, p < .000, \alpha = .05$). Life satisfaction was also found to be significantly negatively correlated with the search for meaning ($r = -.342, p < .001, \alpha = .05$), and positively significantly correlated with both social support from friends ($r = .228, p < .01, \alpha = .05$) and perceptions of the meaningfulness of work ($r = .352, p < .001, \alpha = .05$).

Perceptions of the meaningfulness of a Veteran's work as a predictor of PTG

As this exploratory hypothesis is the first known example of using perceptions of the meaningfulness of work as a predictor of PTG, we used Frankl's (1959) existential theory on the meaning of work and suffering (i.e., that survivors often find new purpose in the work that they pursue in trauma's aftermath) to pose a hypothesis that the two variables would be positively and significantly correlated. As expected, perceptions of the meaningfulness of work were statistically correlated with total scores for PTG ($r = .440, p < .001, \alpha = .05$). Further, and perhaps more interestingly, not only did the meaningfulness of work predict a significant amount of variance in PTG outcomes as a sole predictor ($F [1,79] = 19.005, p < .000, \alpha = .05$), it also predicted a significant amount *more* variance in PTG-outcomes (nearly 15 percent more) *above and beyond* total scores for the presence and search for meaning, combined ($r^2\Delta = .148, p < .000, \alpha = .05$). Perceptions of the meaningfulness of work significantly correlated with both the presence ($r = .369, p < .001, \alpha = .05$) and search ($r = .005, p < .001, \alpha = .05$) for meaning, individually. Other variables that were significantly correlated in the expected direction with perceptions of the meaningfulness of work were symptoms of Post-Traumatic Stress ($r = -.359, p < .001, \alpha = .05$), and satisfaction with life ($r = .352, p < .001, \alpha = .05$).

Discussion

Implications for Clinical Mental Health Counselors and Counselor-Educators

In spite of the limitations described in the section that follows, there are still some important take-aways for both counselors and counselor educators. Professional counselors that are likely to come into contact with service people and Veterans that self-report as having survived trauma should consider the critical importance of meaning-making as a factor that is closely related to posttraumatic growth. It has also long been known that trauma amounts to a direct assault on survivors' assumptive worlds (e.g., beliefs about things like who and when to trust). While a cross-sectional study cannot infer some deeper implications for the relationship between meaning-making and posttraumatic growth (PTG), such as how it might act as a causal mechanism, it does extend the conversation by evidencing their close connections in *Veterans*, uniquely. Existential theorists from Frankl (1959), to Bugental (1965) to May (1975) and Yalom (2012) all agree that traumatic experiences often disrupt perceptions of meaning in life, which in turn catalyzes survivors' *will to meaning* – motivation to seek new purpose. Findings like the ones in this study evidence that the presence and search for meaning are, at the very least, powerfully linked with one another. Clinicians and school counselors alike can take steps to assist survivors in processing the ways in which their challenging life circumstances may have affected either their search for a meaningful life or their current perceptions of life's meaningfulness, where appropriate.

Further, studies like the present one help to affirm the relationship between social support and PTG, such as the kind of support that comes from friends, which was shown to be the only kind of social support that significantly predicted PTG in the present study. This might be explainable by the fact that many service people and Veterans choose to process with other service people and Veterans (Smith, 2014) while their significant others and family may not have served in the military. This is not to suggest that social support from non-military-affiliated folks is not critically important throughout the recovery process; rather, it is evidence of the

importance of support from friends in the aftermath of challenging life circumstances in Veterans, specifically. This is also consistent with the conceptual underpinnings of the model of PTG used as the present study's outcome variable – the Transformational Model – developed by Tedeschi and Calhoun (2004), that also promotes social support as a primary causal mechanism of PTG-development. Also consider the finding that in spite of generally perceiving low satisfaction with life on average, the Veterans in our sample tended to agree most with the report that, “If I could live my life over, I would change almost nothing,” – a finding that serves to affirm that our sufferings can also provide meaningful components to our overall life narratives. This may support Frankl's (1959) conceptualization of the *defiant human spirit* – the human motivation to seek meaning under even the worst of circumstances.

A final interesting take-away for professional counselors emerged from the first known analysis using perceptions of the meaningfulness of work on predictions of PTG-outcomes, based on Frankl's (1959) ideas on the meaningfulness of work as a common source of meaning-in-life after challenging life circumstances. Consider the finding that perceptions of the meaningfulness of work accounted for a statistically significant amount *more* variance in PTG-outcomes above and beyond total scores for the presence and search for meaning combined. It is possible that people who experience growth in the aftermath of trauma are more likely to perceive their vocational work as meaningful. It is also possible, however, that finding meaningful work in the aftermath of trauma assists in facilitating meaning-making and, hence, growth. Assuredly, many survivors of traumas also find a meaningful task or purpose that directly relates to their experiences, such as the survivors of the Holocaust later assisting in the hunting of former NAZI prison guards (Frankl, 1959) or survivors of Military Sexual Trauma (MST) later becoming Uniformed Victim's Advocates for survivors of sexual assault. Regardless, for mental health counselors and Career Development Facilitators (CDFs), alike, it may be important to consider the importance of finding meaningful work when working with Veterans that are survivors of trauma.

Implications for multiculturalism and social justice

First off, while PTG did not appear to vary by gender or sexuality in the present study, it was likely the result of low statistical power, as people of marginalized identities represented an unusably small fraction of the total sample population of Veterans self-reporting as having survived traumas. Underrepresentation of diverse populations is the case with a majority of studies and is deserved of critical inquiry, in and of itself, and future researchers should seek to remedy this. This study explicitly sought and received the assistance of Veterans' groups on social media (i.e., Facebook) that cater to Veterans of diverse identities (i.e., Female Veterans of America, Veterans of Color, LGBTQ+ Veterans) and in spite of these efforts, representation was poor from groups like Native Americans/First Peoples (n= 0, with only two participants identifying as half Native American), and those identifying as Middle Eastern (n = 0). As more complex analyses require greater statistical power, and, hence, greater group-wise sample sizes, it is imperative that researchers focus their efforts on developing means of advertising to and successfully recruiting people of marginalized identities, such as people of color and members of the LGBTQ+ community or those at the intersection of multiple marginalized identities, so that more traditionally under-served groups can be represented in the research literature.

Limitations and Future Explorations

Though appropriate for exploratory pilot research (especially research that also seeks to fortify a relatively weak base of literature regarding posttraumatic growth (PTG) in Veterans, specifically), like the current study, we acknowledge that cross-sectional designs are limited in their ability to infer causal relationships between predictor and criterion variables. This bias is perhaps especially prevalent given that this research study examined predictors of an outcome that involved alleged growth in the aftermath of challenging life circumstances, sans a pre-trauma measure for comparison where susceptibility to fallible human recall, maturation, history, and other considerations pose legitimate threats to internal validity. Further, snowball sampling disallowed control over sampling outcomes;

however, screening questions were included to help rule-out participants that did not meet the requisite thresholds for participation. Future studies should look to develop interpretable, within-subjects time-series experimental designs using stratified random sampling (i.e., of demographic categories) that allow researchers to say that growth in the aftermath of trauma actually occurred. Further, oversampling key demographic groups should be a priority in future studies to allow for more statistical power when analyzing PTG by demographic-factors due to the homogeneity of gender, sexuality, and ethnicity in the present study's sample of Veterans. Qualitative research should be used to provide rich description of the lived experience of key study variables, such as the presence and search for meaning, social support (i.e., from family, friends, and significant others), life satisfaction, and symptoms of Post-Traumatic Stress. Finally, researchers should continue exploring potential linkages between perceptions of the meaningfulness of work and the development of posttraumatic growth, as it was found to predict a significant amount more variance in PTG-outcomes relative to the search and presence for meaning, combined.

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Can Neuroscience Repair Insecure Attachment?

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This study used a sample of five treatment seeking veterans to explore a six-month neuro-process intervention guided by attachment theory. The veterans were given assessment instruments to measure attachment, combat exposure, attachment styles, PTSD, suicidality, resilience, depression, generalized anxiety, and relationship satisfaction. The participants were given the battery of assessments at six-week intervals for a total of 24 weeks. After completion of the neuro-intervention, data was examined to explore the possible connection with attachment. There was an 11% increase in resilience and 13% in relationship satisfaction whereas there was a 33% decrease in depression, 67% in generalized anxiety, 17% in suicidality, and 64% PTSD symptomatology. Lastly, we present an evidence informed theoretical neuro-outcome model guided by attachment theory.

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Scholarship over the course of the past two decades consistently shows that the elevated rates of mental health symptoms in veterans have not abated (Hoge et al., 2004, Ponder & Aguirre, 2012; Sripada et al., 2017). Consequently, it is important to continue exploring new and innovative ways to address the mental health crisis of our warriors. One of the first studies to assess mental health among a post 9/11 sample was by Hoge et al. (2004). Their study found that after an Army unit deployment to Operation Enduring Freedom (OEF) 6.9% of returning soldiers screened positive for depression, 7.4% for anxiety, and 6.2% for Posttraumatic Stress Disorder (PTSD) whereas a different Army unit returning from Operation Iraqi Freedom (OIF) found that 7.9% of returning soldiers screened positive for depression, 7.9% for anxiety, and 12.9% for PTSD. Additionally, a Marine Corps unit returning from OIF found that 7.1% of returning Marines screened positive for depression, 6.6% anxiety, and 12.2% PTSD.

Unfortunately, there has been empirical evidence that the rate of mental health symptoms has not decreased over the almost twenty years since the Global War on Terrorist (GWOT) started. Ponder and Aguirre (2012) found that over 37% of their sample had a probable PTSD diagnosis using the cutoff score of 50 or greater. In a recent treatment seeking sample across the Department of Veteran Affairs (VA) who screened positive for PTSD, 57.1% screened positive for having comorbid depression and 35.2% screened positive for having comorbid anxiety (Sripada et al., 2017).

Examining veteran's attachment style and mental health constructs is gaining traction in published scholarship (Bannister et al., 2018; Currier et al., 2012; Ponder & Carbajal, 2020; Renaud, 2008). Bannister et al. (2018) conducted bivariate correlations between the Experiences in Close Relationships-Revised (ECR-R) and the Clinician Administered PTSD Scale (CAPS F+I; sum of the Frequency and Intensity of symptoms across the CAPS) and PTSD Checklist–Civilian (PCL-C) version 17 question measure which is part of the CAPS package. They found that veteran ECR-R anxiety and veteran ECR-R avoidance were both positively correlated with the CAPS F+I and PCL-C (Bannister et al., 2018).

Theoretical framework

Attachment theories' earlier pioneers were John Bowlby and Mary Ainsworth. Ainsworth et al. (1978) created a laboratory called the *Strange Situation Procedure*, which placed infants into one of three categories: secure, insecure (avoidant), and insecure (ambivalent/resistant). Later on, research revealed a fourth category for infant attachment, the disoriented-disorganized attachment pattern (Main & Solomon, 1986). These same four categories have been shown to carry over into adulthood. For adults, the classifications are secure, preoccupied, dismissive, and fearful (Mikulincer & Shaver, 2016). Attachment theory at its core is emotional regulation. When researchers utilize one umbrella to conceptualize and study a given group of people, interventions might be developed at a quicker rate.

Grady et al. (2018) examined the role of unit cohesion and mental health symptoms in a sample of veterans. They found that attachment avoidance and attachment anxiety was significantly positively correlated with generalized anxiety, depression and PTSD symptoms when controlling for adverse childhood events (Grady, et al., 2018). Correlation analyses has revealed that veteran attachment avoidance has been significantly negatively correlated with relationship satisfaction (Ponder & Carbajal, 2020). Additionally, scholarship has found a relationship between attachment and suicidal thoughts in a sample of homeless veterans (Brenda, 2003).

Neurofeedback and the Brain

The human brain is composed of intricate systems of electrical and chemical activities with approximately 86 billion neurons (von Bartheld et al., 2016). The knowledge that both chemical and electrical signals contributed to brain activity has been widely accepted prior to the pharmacological revolution (Green et al., 2018). One would expect then that researchers over the years would have focused their attention on both of these mechanisms in order to determine which one would provide optimal opportunities for positive impact on the brain. While there was some early exploration of how electrical stimulation impacted the brain (Harrington & Linder, 1962; Zeigler, 1957), the pharmacological revolution

virtually annihilated interest in examination of electrophysiology on the brain (Van der Kolk, 2014).

The examination of how electrical processes in the brain could be used to assist with seizure disorder (Sternman & Friar, 1972), Attention Deficit Hyperactivity Disorder (ADHD; Lubar & Bahler, 1976), learning disabilities (Lubar & Lubar, 1984), intelligence quotient (IQ; Tansey, 1991), and addiction (Peniston & Kulkosky, 1989), began to shift some attention back to the electrophysiology of the brain. Over the course of scientific research, it has been noted that neurofeedback provides the brain with a mirror of its own function, nudging the brain to create new patterns that improve self-regulation (Fisher, 2014). Additionally, neurofeedback has been seen to stabilize brain connectivity patterns and provide increased engagement and resilience (Van der Kolk, 2014). The newest neurofeedback processes have been described as a radical departure from all existing approaches in that they are not deficit-focused or prescriptive (Othmer & Othmer, 2016). During the course of neurofeedback, it detects the location and electrical frequency that is dysregulated (Stoler, 2014) and then the brain's neuroplasticity (Fuchs & Flugge, 2014) makes adaptive changes in function and structure (Zilles, 1992), restoring balance to the brain's processes. This positive neuroplasticity allows the brain to remodel and refine existing connections via outgrowth of dendrites, axonal sprouting, and strengthening synaptic connections (Chen & Nedivi, 2010; Kerr et al., 2011; Kolb et al., 2011; May, 2011; Warraich & Kleim, 2010).

Another perception about neurofeedback that has changed, is the age-old doctrine that brain structures are fixed after the juvenile period of neuroplasticity (Nelson et al., 2012). Neuroplastic changes in adults involve subtraction and addition to axon terminal boutons or dendritic spines, adjustments to myelin, or changes to the synapse that all impact the speed of neural conductance (Lillard & Erisir, 2011). Besides these more subtle changes, adults may also experience axon growth, widespread changes in cortical fields (Lillard & Erisir, 2011) and neurogenesis (Bruehl-Jungerman et al., 2005), resulting in reduced and increased activations across areas (Karni et al., 1995; Sanes & Donoghue, 2000).

Exploring the connection between neurofeedback and attachment

The past decade of research elucidates the role of the brain in a wide breadth of areas, highlighting how important it is to examine theory supporting neurobiological processes and how the brain contributes to our overall mental wellness. Attachment theory is one of the important areas in which connection to the brain should be examined. Siegel (2007) noted that a key neurobiological connection with attachment has been found in the medial prefrontal cortex, which also plays an important role in affect regulation, empathy, intrapersonal insight, attunement with others, as well as behavioral and emotional flexibility. Researchers (Cozolino, 2006; Suomi, 1999) have found that neuroplasticity can assist in molding secure attachments even when not originally formed. Furthermore, McKinney et al. (1972), show how these changes made to the brain can be maintained. In fact, Coan (2016) notes that the entire human brain can be thought of as an attachment system, concluding that examining attachment neuroscience would enable scholars to identify how the brain supports developmental, social, and clinical aspects of psychological systems.

Despite these initial observations about the brain's role in attachment, Vrticka and Vuilleumier (2012) observe that there is very little known about the underlying neurobiological connections associated with different attachment orientations. Coan (2010) found that attachment style might possibly guide neural circuits as to how resources are managed by the brain. Coan (2016) later states that the examination of attachment from a neuroscience perspective has been currently limited in theoretical scope and empirical foundation. Consequently, examination of the brain in relation to attachment styles may provide insight into attachment-based treatment.

Some initial research has been done examining insecure attachment styles and brain processes. Quirin et al. (2009) found reduced hippocampal cell density in those who scored high on anxiety and avoidance as measured by the Experiences in Close Relationships (ECR) assessment. Also, Benetti et al. (2010) found that higher ECR anxiety scores were associated with reduced gray matter in the anterior temporal lobe. A functional Magnetic Resonance Imaging (fMRI) showed that ECR scores of trait attachment

avoidance and anxiety was positively correlated with amygdala activation (Norman et al., 2014).

Schore (2003a; 2003b, 2015) and Siegel (1999) specifically note that the right hemisphere of the brain is affected by the developing patterns of attachment in infancy. Schore (2003b) goes on to assert that the mother assists in the development of key right prefrontal cortex processes that contribute to the child's regulation of affect as the child grows older. This developmental process sets the stage for the amygdala to either be able to regulate emotional states, or, to dominate brain response with fear (Fisher, 2009). Fisher (2009) notes that the core affect of insecure attachment is fear and quieting this fear enriches the capacity for attachment bonds and meaningful relationships.

One of the ways fear can dominate brain response is if the right orbital-frontal cortex (ROC) has not developed normally. Schore (2003b) argues that attachment between mother and child is critical in the development of this area in the brain, and when this development is compromised the ROC's ability to inhibit the amygdala and mediate impulses generated neurochemically, neuroelectrically, and behaviorally. Consequently, the amygdala can overload the brain's circuits with fear in most situations, even when those with adequate ROC development would not have this same response (Schore, 2003b). Using neurofeedback as a means to change electrical responses in the brain can quiet this fear, increasing the capacity to engage in meaningful relationships and the therapeutic process via increased capacity for attachment bonds (Fisher, 2009). These changes would allow for the functional reorganization of neuronal networks and interconnections underlying a variety of complex behaviors (Joseph, 1996).

Fisher (2009) also notes that because fear is the core affect of attachment issues, quieting this fear would have the impact of enhancing the treatment of any disorder rooted in attachment disruption through better judgment, empathy, affect regulation, as well as less anger and agitation. It would be important to examine how other variables would be impacted, as previous literature has established that insecure attachment can lead to depression, substance use disorders, anxiety, and several medical illnesses (Davies et al., 2009; McWilliams & Bailey, 2010; Puig et al.,

2013). Research has established through Dialectical Behavior Therapy (DBT) the importance of affect regulation when working with those who struggle with these disorders (Linehan, 1993). It appears that the frequency-dependent properties of neuronal plasticity via neurofeedback can impact the brain's role in attachment and mental health. This pilot study begins to examine some of these associations. Consequently, the research question of this study is, does an evidenced informed theoretical model exist that blends the neuro-process within an attachment framework?

Methods

Participants

The sample was drawn from an outpatient mental health organization, Stay The Course (STC) which was started in 2016 in an effort to provide culturally competent evidence-based therapies in the greater Dallas-Fort Worth metroplex. STC is the clinical program of the organization, called One Tribe Foundation (OTF). Their mission state is to *create a community that raises awareness and combats suicide by empowering veterans, first responders, frontline healthcare workers, and their families through traditional and non-traditional therapies*. OTF also has non-traditional therapies that promote general wellness and connectedness for veterans, first responders (i.e., police officers, fire, and EMS), and their families. This sample was recruited from one of two methods. The first was at the client's intake appointment when they were informed of the opportunity to participate in this current study which was offered at no-cost to them. The second way participants could have participated was by being referred from their treating clinician.

Procedure

Vitanya, which was established in Scottsdale Arizona in 2012 to explore drug-free brain performance, provided an intervention through applying neuroscience guided technology and neuro focused nutritional supplementation to support rapid positive neuroplasticity. Clinical assessment and packages were administered prior to program start and then every six weeks until the end of the program. Surveys were administered at

the outpatient treatment location and it took approximately 15-20 minutes to complete. The 3-fold intervention process took place at the outpatient location and was administered by a Vitanya Brain Performance Coach over the course of 6-months. A neurofeedback bio-mapping session took place at the beginning of the program and then again at one-month intervals. For the first 12-weeks, two sessions of neuro/biofeedback were completed each week. For weeks 13-24, one session of neuro/biofeedback were completed each week. Neurofeedback sessions took approximately 10-25 minutes and biofeedback sessions were 20 minutes. Clients also took neuro-supplementation consisting of enzymes, antioxidants, and performance drops. Two enzymes were taken prior to each meal and two antioxidants and performance drops were taken in the morning and in the evening each day.

Electrodermal Measurements (Neurofeedback)

Electrodermal activity measurements were performed using a hand cradle connected to a USB port on a computer, while having the client's hand placed with fingers and palm on the device. The equipment used was handset cradle Bio-Communication device, ZYTO, Linden, Utah. Vitanya has created proprietary processes different from manufacturing protocols. A software program examines the bio-electrical signal sent by the hand cradle and assesses the communication patterns in the brain. These responses are then converted into a stress profile, and consequently queries the body about possible balancing solutions through an electric pulse emitted through the palm contact point. Most participants were unable to detect this mild pulse. This is a form of neurofeedback that allows the brain to make refinements to its processes, based on the subtle neurofeedback signal that it receives (Othmer, 2017).

Neuro-Nutritional Support

Supplements that target areas of neuro processing are used to support the brain as well. The supplements included in this study are antioxidants, enzymes, and proprietary performance drops. Research has proposed that antioxidants activate genes involved in neuroprotection such

as up-regulation of endogenous antioxidant systems (Dore, 2005; Moskaug et al., 2005), and enzymes are key in supporting the ‘second brain’ in digestion.

Neuro-Guidance Technology (Biofeedback)

An additional neuro-guidance technology is used to assist the brain in achieving flexibility in different states of arousal. The equipment used is a Bluetooth headset developed by BrainTap, New Bern, North Carolina. Vitanya has created specific protocols separate from standard use. The software uses binaural beats, isochronic tones, and gentle light pulsations along with different brain waves to guide the brain into different states. Beta is targeted to assist with precision, focus, and problem solving and has been found to assist with depression, ADHD, and insomnia (Egner & Gruzelier, 2004). Alpha training is focused on a state of alert relaxation (Evans & Abarbanel, 1999), while theta is focused on the brain activities of memory, emotion, creativity, and sleep. Theta has also been found to reduce anxiety, depression, daydreaming, distractibility, emotional disorders, and attention deficit hyperactivity disorder (ADHD; Beatty et al., 1974; Vernon, 2005).

Brain Performance Coach

As an important part of the process, Brain Performance Coaches are there to integrate scientifically validated assessments into the process, providing clients with support and identifying areas for potential growth. They also ensure that clients are taking neuro-nutritional support supplements appropriately. Coaches are given a weeklong training once they are hired, at the Corporate office in Scottsdale, Arizona, and receive additional training at least once a quarter.

Measures

This study used eight standardized assessments: Combat Experiences (CE), PTSD Checklist-5 (PCL-5), Suicide Behavior Questionnaire-Revised (SBQ-R), Experiences in Close Relationships (ECR), Response to Stressful Experiences Scale (RSES), Patient Health

Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), and the Relationship Assessment Scale (RAS)

Combat Experiences (CE)

Vogt et al. (2012) created the Combat Experiences (CE) which was specifically designed for OIF/OEF veterans. The CE has 17-questions that on a Likert scale 1 (never) to 6 (daily or almost daily) which produces an aggregated score that ranges from 17 to 102. Higher scores represent greater combat exposure.

PTSD Checklist-5 (PCL5)

The PCL-5 was developed to assess for the presence of PTSD and is consistent with the DSM-5 (Blevins et al., 2015). The PCL-5 is comprised of 20-questions that are on a Likert scale from 0 (*not at all*) to 4 (*extremely*) which are summed, producing an aggregated score ranging from 0 to 80. Higher scores indicate the more severe the presence of PTSD symptomatology.

Suicide Behavior Questionnaire-Revised (SBQ-R)

Osman et al. (2001) developed the SBQ-R to assess suicidality. It probes for different dimensions of suicidality: lifetime suicide ideation and/or suicide attempt, frequency of suicidal ideation over the past 12 months, threat of suicide attempt, and self-reported likelihood of suicidal behavioral in the future (Osman et al., 2001). SBQ-R scored range from 3 to 18, with higher scores indicating the higher the risk of suicide.

Experiences in Close Relationships

Brennan et al. (1998) developed the Experiences in Close Relationships (ECR) scale which assesses adult attachment on two factors: anxiety and avoidance. The ECR includes 36-questions which are on a 7-point Likert scale with responses ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). The ECR produces two means, one for each factor, anxiety and avoidance, with mean scores ranging from 1 to 7,

respectfully. Higher scores on each factor, indicate greater presence of each construct.

Response to Stressful Experiences Scale (RSES-22)

The Response to Stressful Experiences Scale (RSES-22) is a 22-item measure to assess resilience (Johnson et al. 2011). The RSES-22 is comprised of 22-questions that are on a Likert scale from 0 (*never true*) to 4 (*always true*) which are summed, producing an aggregated score ranging from 0 to 88. Higher scores represent the more resilient one is.

Patient Health Questionnaire-9 (PHQ-9)

Kroenke et al. (2001) developed the PHQ-9 to assess the presence of depression. The PHQ-9 responses range from 0 (*not at all*) to 3 (*nearly every day*) and scores are summed ranging from 0-27. Higher scores represent the greater severity of depression.

Generalized Anxiety Disorder 7-item (GAD-7)

The Generalized Anxiety Disorder-7 (GAD-7) was developed to screen for Generalized Anxiety Disorder (GAD) (Spitzer et al., 2006). The GAD-7 responses range from 0 (*not at all*) to 3 (*nearly every day*) and aggregated scores ranging from 0 to 21. Higher scores indicate the greater severity of anxiety.

Relationship Assessment Scale (RAS)

Hendrick (1988) developed the Relationship Assessment Scale (RAS) to assess relationship satisfaction. The RAS is a seven-question measure that produces a cumulative score ranging from one to five. Higher scores indicate higher relationship satisfaction. Hendrick et al. (1998) determined scores that are 4.0 or higher represent non-distressed couples and scores between 3.0 to 3.5 and lower suggest distress in the relationship for men and women.

Informed Consent

The clients were given verbal and written consent before they saw their assigned clinician. Before their first therapy session, the counselor and client both signed a written voluntary consent. Before the client entered into the Vitanya project, they were again given verbal consent. Informed consent by participants was also given to Heal-the-Hero who funded and monitored the project. STC, the clinical program from which these clients were recruited have weekly staff meetings where they monitored cases. The study coordinator kept in constant contact with the treating clinician and Vitanya coach to ensure continuity and ethical services.

Results

There are five individuals that participated in this research project. The mean age was 37.20 years old ($SD = 7.19$) with a range of 31 to 49. The average level of education was 14.50 ($SD = 1.73$) years. Three were married and two were in a committed relationship. Four of the participants identified at White and one self-identified as Hispanic. Three of the participants deployed and their combat exposure mean score was 37.00 ($SD = 17.06$) with a range of 23 to 56. After one participant was discharged from the military, he was a municipal police officer for over 25 years. Four of the five participants were enlisted, and one was an officer. Three of the five participants forwardly deployed to Iraq and Afghanistan in support of the GWOT. Three of the five participants were in the Marine Corps, one was in the Army, and one was in the Navy.

The sample was given the ECR at all five data points to assess how each secondary strategy changed over the course of treatment. At baseline there were two secure, one dismissive, and two participants who were coded as fearfully attached. At week 6, there were four secure and one was fearfully attached. At week 12, there were three securely, one preoccupied, and one fearfully attached. At week 18, there were four securely and one fearfully attached. At week 24, there were four securely and one fearfully attached. To see the means and standard deviations for each secondary strategy, see Table 1.

Resilience scores at baseline 65.20 ($SD = 7.12$) increased to 72.20 ($SD = 11.51$) at the last data point, an almost 11% increase. Relationship satisfaction at baseline 3.86 ($SD = 0.52$) increased to 4.34 ($SD = 0.39$) at the last data point, an almost 13% increase in relationship satisfaction. Depression at baseline 10.40 ($SD = 3.78$) decreased to 7.00 ($SD = 6.52$) at the last data point, an almost 33% decrease in depressive symptomatology. Anxiety at baseline 11.00 ($SD = 4.69$) decreased to 3.60 ($SD = 3.21$) at the last data point, an almost 68% decrease in anxiety symptoms. Suicidality at baseline 7.00 ($SD = 2.74$) decreased to 5.80 ($SD = 2.17$) at the last data point, an almost 18% decrease in suicidality. PTSD scores at baseline 49.00 ($SD = 17.59$) decreased to 17.80 ($SD = 21.03$) at the last data point, an almost 64% decrease in PTSD symptoms. See Table 2 for means and standard deviations for all six dependent variables.

PTSD has four separate and distinct symptom clusters, (Blevins et al., 2015). Accordingly, we calculated each symptom cluster and all six data points. Intrusion scores at baseline 11.40 ($SD = 6.19$) decreased to 3.40 ($SD = 5.64$) at the last data point, which is approximately at 70% decrease in PTSD cluster B scores. Avoidance scores at baseline 5.40 ($SD = 2.30$) decreased to 2.20 ($SD = 3.49$) at the last data point, which is approximately at 60% decrease in PTSD cluster C scores. Alterations in cognitions and mood scores at baseline 16.20 ($SD = 6.38$) decreased to 5.80 ($SD = 7.76$) at the last data point, which is approximately at 64% decrease in PTSD cluster D scores. Alterations in arousal and reactivity at baseline 16.00 ($SD = 4.85$) decreased to 6.40 ($SD = 5.37$) at the last data point, which is approximately at 60% decrease in PTSD cluster E scores. Please see Table 3 for means and standard deviations for all four symptom clusters.

Discussion

The current study examined the efficacy of an intervention consisting of neurofeedback, neuro-nutritional support, and biofeedback as a neuroelectrical and neurochemical method of impacting positive neuroplasticity in the brain. Our research question of this study is, does an evidenced informed theoretical model exist that blends the neuro-process within an attachment framework? After the intervention, clients self-reported decreases in mental health constructs such as depression, anxiety,

suicidality and PTSD symptomology, while reporting increases in resilience and relationship satisfaction. These authors conceptualized these results from an attachment theoretical framework using secondary strategies anxiety (hyper-activation) and avoidance (de-activation) to determine if attachment dimensions might be modified by this three-fold intervention.

Attachment has been shown in previous literature (Grady et al., 2018) to impact depression, anxiety, and PTSD, and these authors wanted to see if these decreases in the outcome variables could be explained (Frazier et al., 2004) by changes in attachment styles as a result of the intervention. Although there were not enough participants in this study to do robust statistical analyses that would provide this information, we felt that the change in attachment dimensions (or lack of) would indicate whether future research would be desired in this respect. The results showed that over the course of the intervention, attachment styles moved toward or reached secure attachment, resilience and relationship scores increased, whereas depression, generalized anxiety, PTSD symptomology and suicidal ideation scores decreased.

In this same outpatient mental health agency, Prosek & Ponder, (under review) conducted a separate data analysis in the validation of the RSES-22 assessment which revealed the relationship between resilience and other mental health constructs. Statistically significant correlations were found between resilience and the three dependent variables of generalized anxiety, depression, and PTSD. This study concluded that any process that promotes and reinforces resilience appears to have a cascading relationship with negative outcome variables, notably, self-reported depression, PTSD, and generalized anxiety.

Additionally, attachment theory informs us on the role of secure attachment and resilience. Mikulincer and Shaver (2016, p. 499) present a schematic representation of the formation and activation of security-based self-representation: “In an effort to understand how relationships with security-enhancing attachment figures increase a person’s resilience we (Mikulincer & Shaver, 2004) proposed that ‘internalization’ of and identification with these figures allows a person to develop effective self-soothing techniques based on what we call security-based self-representations.”

Recent scholarship using attachment theory as a guiding theoretical framework have also revealed the relationship between veteran secondary strategies as measured by the ECR on dependent variables. In correlational analyses veteran attachment anxiety was positively correlated with self-reported depression and PTSD, while veteran attachment avoidance was negatively correlated with relationship satisfaction (Ponder & Carbajal, 2020).

The literature on the relationship between attachment and suicide among veterans is slowly emerging. Nye et al. (2009) examined Vietnam combat veterans who sought treatment at a VA PTSD clinic. Contrary to what those authors expected to find, those with secure attachment had higher levels of current suicidal ideation than those with insecure attachment as measured by the Beck Scale for Suicidal Ideation. The authors also used the Adult Attachment Interview to code the veterans into one of the nominal attachment categories. It is unknown if those findings would look different if they used the secondary strategies to assess attachment as opposed to the nominal approach. The symptom presentation can look different for individuals who are preoccupied, whose secondary strategy is hyper-activation, whereas those individuals who are dismissive, have the secondary strategy of deactivation.

When examining the construct of attachment, the researcher is typically faced with one of two choices. First, one can assess attachment from a categorical framework, which is nominal (secure, dismissive, preoccupied, or fearful). Secondly, attachment can be examined by secondary strategies, anxiety (hyper-activation) or avoidance (deactivation). The ECR was selected in this study for its ability to do both. Though, Brennan et al. (1998), caution against it, the ECR can assess secondary strategies along with placing the respondent into one of the four nominal categories. In this sample, from baseline to week 24, veterans decreased avoidance from 3.58 to 2.30 which equates to a 36% decrease. Similarly, veteran anxiety decreased from 3.60 to 2.91, which is also a significant decrease of 19%. Also, at baseline the attachment status was (2=secure, 1=dismissive, 2=fearful) and at the end of treatment there were four with a secure and one with a fearful attachment status. The implications of this study is that neurofeedback may assist in the

modification of attachment styles leading to a variety of positive outcomes is something that deserves further examination. Based on the above information, a model (see Figure 1) was created to illustrate the three-fold neuro-process.

Limitations and Future Directions

Our findings suggest that there is an important role that neuro and biofeedback can play in the increase of resilience and relationship satisfaction as well as the alleviation of the symptomatology of generalized anxiety, depression, PTSD, and suicidal ideation. Especially important to note is the impact that this intervention seems to have had on decreasing suicidality. However, this study has several limitations that we hope may be addressed in future research. First, while these findings are promising, further exploration with a larger sample is needed to run more robust inferential statistics. The measurable changes that this study has noted on suicidality as well as other mental health variables make this research too important to ignore. Future scholarship should continue to explore how this combination of neuro and biofeedback along with neuro-nutritional support can assist those who struggle with these and possibly more mental health challenges. Second, it is important to note that during this study, we observed movement in attachment styles that may have contributed to these changes. Further scholarship is also needed to see if this change is a mediating variable on other mental health constructs. If this is the case, it would then be important to see whether this change is able to sustain over time. Despite these limitations, this study is the first to examine a combination of intervention protocols focused on neuroscience and the interplay of attachment as well as other important mental health constructs.

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APPENDIX

Table 1 Theoretical Framework: Attachment Secondary Strategies

	Baseline	Week 6	Week 12	Week 18	Week 24	% Change
Avoidance	3.58 (1.15)	2.61 (0.53)	2.53 (0.58)	2.58 (0.79)	2.30 (1.15)	(-) 35.75%
Anxiety	3.60 (0.52)	2.83 (0.55)	3.30 (0.92)	2.87 (0.99)	2.91 (1.15)	(-) 19.17%

Note: Avoidance (ECR avoidance); Anxiety (ECR anxiety); standard deviations are within the parentheses.

Table 2 Dependent Variables

	Baseline	Week 6	Week 12	Week 18	Week 24	% Change
RSES-22	65.20 (7.12)	68.40 (9.29)	68.20 (13.05)	63.60 (16.41)	72.20 (11.51)	(+) 10.74
RAS	3.86 (0.52)	3.70 (0.51)	4.06 (0.36)	4.17 (0.44)	4.34 (0.39)	(+) 12.44
PHQ-9	10.40 (3.78)	7.40 (3.85)	10.00 (6.44)	8.80 (6.94)	7.00 (6.52)	(-) 32.70%
GAD-7	11.00 (4.69)	8.40 (5.27)	6.40 (3.78)	8.60 (5.90)	3.60 (3.21)	(-) 67.30%
SBQ-R	7.00 (2.74)	7.00 (2.74)	5.80 (1.92)	5.80 (2.77)	5.80 (2.17)	(-) 17.14%
PCL-5	49.00(17.59)	20.20 (22.95)	24.80 (20.43)	23.60 (22.37)	17.80 (21.03)	(-) 63.70%

Note: RSES-22 (Resilience); RAS (Relationship Satisfaction); PHQ-9 (Depression); GAD-7 (Generalized Anxiety); SBQ-R (Suicidality); PCL-5 (PTSD); standard deviations are within the parentheses.

Table 3 PTSD Symptom Clusters

	Baseline	Week 6	Week 12	Week 18	Week 24	% Change
Intrusions	11.40 (6.19)	5.20 (7.92)	5.60 (5.98)	5.20 (6.06)	3.40 (5.64)	(-) 70.20%
Avoidance	5.40 (2.30)	1.60 (2.51)	3.00 (3.46)	2.00 (3.46)	2.20 (3.49)	(-) 59.30%
Cognitions/Mood	16.20 (6.38)	6.60 (8.26)	8.60 (7.27)	7.40 (7.09)	5.80 (7.76)	(-) 64.20%
Arousal/Reactivity	16.00 (4.85)	6.80 (4.92)	7.60 (5.55)	9.00 (6.40)	6.40 (5.37)	(-) 60.00%

Note: Intrusions (PCL-5 Questions 1-5), Avoidance (PCL-5 Questions 6-7), Cognitions/Mood (PCL-5 Questions 8-14), Arousal/Reactivity (PCL-5 Questions 15-20); standard deviations are within the parentheses.

Figure 1: Neuro Outcome Model

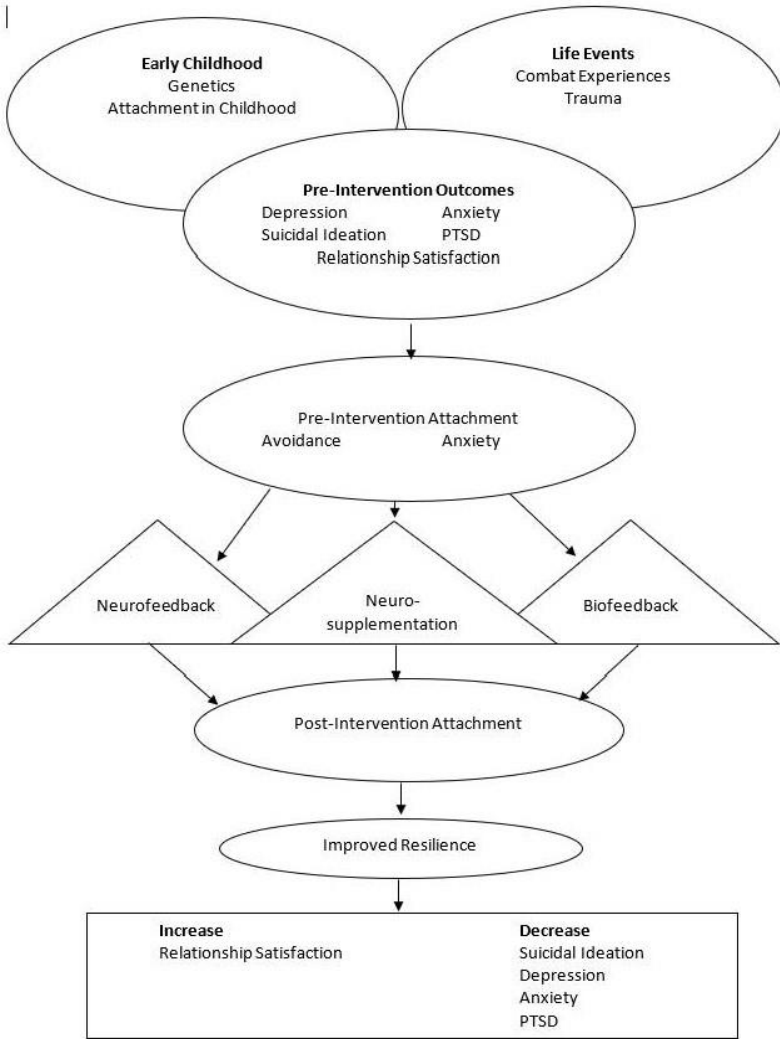


Figure 1: Neuro Outcome Model: Theoretical model examining the impact of the neuro-process (neurofeedback, neuro-supplementation, biofeedback) within an attachment framework.

Recognizing Resiliency: A Strengths-Based Approach for School Counselors Working with Military Children

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School counselors must understand the nature of military children’s resiliency in order to work with this population from a strengths-based perspective. This article explores the nature of military children’s resiliency that results from adapting to challenging transitions and deployments common to the military lifestyle. Specific suggestions are made to how school counselors can capitalize on this resiliency in their work with military children both directly and on a systemic level from a strengths-based perspective. Finally, a case study illustrates the nature of military children’s resiliency and provides implications for school counselors in drawing out and strengthening resiliency as they help military children thrive in the school setting.

Keywords: military, school counselors, resiliency, strengths-based, military children

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Currently, there are 981,871 military children in the United States (Department of Defense, 2018). While they experience many hardships as a result of the military lifestyle (Ruff & Keim, 2014), military children are known for their resiliency as they overcome these challenges (Easterbrooks et al., 2013; National Academies of Sciences, Engineering, and Medicine, 2019). However, while military children are resilient, they are not invulnerable to the constant stress brought on by frequently moving and their parents' deployments (Ginsberg & Jablow, 2015). Thus, it is crucial that school counselors support this population as a part of their comprehensive school counseling programs, helping them to withstand prolonged stress and challenges of the military lifestyle (Cole, 2019; Cole, 2017; Cole, 2014; Cole & Cowan, 2019). In order to best help military children, school counselors must understand the ways in which military children are resilient in the midst of the challenges they face (Barron, 2012; Easterbrooks et al., 2013). By understanding this resiliency, school counselors will be able to draw out and capitalize on military children's inherent strengths as they work closely with this population (Echterling et al., 2010).

Understanding Resiliency in Military Children

Resiliency is defined as the ability to overcome challenging risk factors (Rose & Steen, 2015) and function well under stress (Murphey et al., 2013). Resilient children take on several different characteristics. First, they are active problem solvers (Theron et al., 2013; Werner & Smith, 1982). Next, they are able to perceive challenges in a constructive way and make sense of them (Theron et al., 2013; Werner & Smith, 1982). Resilient children can foster positive interactions with others and make constructive attachments (Theron et al., 2013; Werner & Smith, 1982). Finally, they are able to self-regulate, or adjust their behavior and emotions to fit their current situation (Theron et al., 2013).

Cultural factors are roots of resiliency (Theron et al., 2011) and must be taken into consideration when discussing resiliency (Clauss-Ehlers, 2008; Panter-Brick, 2014). The military culture is a complex and unique culture (Hall, 2016) with its own set of rules, regulations, hierarchy, language, and tradition and thus must be closely examined by school

counselors when working with military children (Cole, 2014). Overall, military children's cultural values and identity are strong as they commonly live in close proximity to other military families on military bases and thus share a strong sense of community and shared purpose (Ginsberg & Jablow, 2015).

Military Children's Resiliency

Military children develop resiliency during the most challenging aspects of the military lifestyle: frequent relocations and deployments (Cole, 2017; Cole, 2019; Ginsberg & Jablow, 2015). Military children move three times as much as their civilian peers (DODEA, 2018) as their active duty parent is transferred to a new duty station in the United States or abroad in another country (Bradshaw et al., 2010). While it can be difficult to separate from their homes, schools, and peer groups, military children often view moving as an adventure and opportunity for personal growth (Easterbrooks et al., 2013). They develop the ability to maintain long-distance relationships with friends at different duty stations, staying in touch with them over time and geographical distance (Ehmke & Ehmke, n.d.). Because they have to meet new friends after each move, military children become exceptionally confident about their social skills (Ginsberg & Jablow, 2015). In addition, after living in various regions across the United States and in different counties around the world, military children develop an open-mindedness about different cultures (Bradshaw et al., 2010; Ruff & Keim, 2014). Overall, after moving frequently and often unexpectedly, military children develop an innate ability to adapt to and embrace change (Ruff & Keim, 2014).

In addition to regular relocations, military children experience frequent deployments when one of the active-duty parent(s) is sent on a mission for an extended period of time (Ruff & Keim, 2014). During this time military children develop an ability to seek out support from just one caregiver instead of two caregivers (Chandra, 2016) and take on more responsibility within their family in order to compensate for the loss of the deposed parent (Ruff & Keim, 2014). Military children seek out comfort in their relationships with friends and their close-knit military community (Morgan & Ross, 2013). Overall, when their parent is away, rather than

taking on a victim perspective, military children take on a sense of pride for service and sacrifice as a part of their cultural identity (National Academies of Sciences, Engineering, and Medicine, 2019).

Strengths-Based Approach to Counseling Resilient Military Children

A school counselor's strengths-based approach to working with military children is rooted in the belief that military children have the potential and capacity to overcome the challenges they face (Frankowski & Duncan, 2013). Rather than focusing on the child's problems from a deficit perspective, this approach focuses on the wellness and resiliency of military children (Hass, 2018). School counselors can capitalize on the resiliency in military children by working with them from a strengths-based perspective and as a result, draw out and develop additional strengths and resiliency that the military children may or may not / might not be aware of (Echterling et al., 2010). Ultimately, as military children become more aware of and focused on their strengths, they will become more resilient when facing the challenges of the military lifestyle (Padesky & Mooney, 2012).

School counselors can specifically utilize this strengths-based approach by focusing on and emphasizing strengths and resiliency when providing direct individual and group counseling services to military children. In addition, school counselors can utilize a strengths-based systemic perspective to celebrate the resiliency of the military child within the school culture as a whole and to build school-family-community partnerships that will provide additional resources to help the military child thrive in the midst of challenging circumstances.

Direct Approaches

School counselors can foremost provide strength-based direct counseling services to military children in order to help promote their resiliency. For example, school counselors can utilize individual counseling to help military children explore their resiliency and to foster a sense of self-awareness in the child, which promotes increased resiliency (Claus-Ehlers, 2008). In addition, school counselors can help military children

build time management skills and strategies to handle new responsibilities that they are faced with as a result of a parent's deployment (National Military Family Association, 2009). School counselors can also engage military children in goal setting during individual counseling sessions, fostering a sense of hope during a stressful time such as a deployment or transition to a new duty station (Echterling et al., 2010). Finally, in individual counseling sessions school counselors can focus on military children's cultural open-mindedness by encouraging them to explore diverse relationships and cultural opportunities within the school setting (Bradshaw et al., 2010; Ruff & Keim, 2014). School counselors might help the student process their unique cultural worldview and how this worldview can contribute to their ability to interact with their peers from different backgrounds.

In addition to individual counseling, school counselors can engage military children in group counseling. In these groups school counselors can provide military students with a safe place to discuss their resiliency and can teach them new ways to overcome challenges they are facing as a part of the military lifestyle (Rose & Steen, 2015). In addition, focus on behavioral rehearsal, relaxation training, and teaching self-control techniques can be integrated into the group plan in order to strengthen and increase military children's resiliency (Alvord, 2005). In the group counseling sessions school counselors working from a strengths-based perspective rather than a deficit perspective can encourage the military children to tell their stories, engage in meaning-making, and "transform crisis narratives into survival stories" (Echterling et al., 2010, p. 3).

Systemic Approaches

In addition to these direct counseling services, school counselors can approach military children's resiliency from a systemic perspective. The school counselor can work to celebrate and normalize military culture within the school, making it an embedded aspect of the school culture (Morgan & Ross, 2013). School counselors are charged with creating a school climate that embraces all cultures, including the military culture (ASCA, 2015). Celebrating holidays such as Veteran's Day in November (U.S. Department of Veteran's Affairs, n.d.) and Month of the Military

Child in April are ways to promote an awareness of and celebrate the resiliency of military children within the school culture (DODEA, n.d.). In addition, educating the administration, faculty, and staff in the school regarding the challenges of the military lifestyle and ways to capitalize on military student resiliencies on a daily basis in the classroom will help to create a culture of understanding and support within the school setting for military children (Ruff & Keim, 2014).

School counselors can also utilize school-family-community partnerships in order to foster protective factors and strengthen the resiliencies of military children (Bryan, 2005; Bryan & Henry, 2012). These partnerships involve connecting with parents, community members, and community organizations (such as libraries, churches, local businesses) in order to foster supportive relationships for the students (Bryan, 2005; Bryan & Henry, 2012; Bryan et al., 2017). In building these partnerships, school counselors reach out and educate parents and community members about the resiliencies of military children and encourage them to work together to strengthen these resiliencies (Bryan, 2005; Bryan & Henry, 2012; Rose & Steen, 2015). The more that these family and community partners are involved in the military child's education, offering support and guidance, the more educationally resilient the child will be, achieving in school despite the challenging circumstances (Rose & Steen, 2015).

Case Study

This case study provides an example of a military child whose mother recently deployed and therefore needs extra support from her professional school counselor. Instead of focusing solely on the student's current or potential problems surrounding her mother's absence, the school counselor works to discover and recognize the students' resiliencies. She then capitalizes on these resiliencies from a strengths-based approach, utilizing both direct and systemic approaches.

Jaya is a 12-year-old, 7th grader at Patriot Middle School in Norfolk, VA. Her mother is a U.S. Navy sailor and recently deployed on an aircraft carrier to the Gulf for an eight-month deployment. This is the family's second long-term deployment in the past three years. Jaya has two younger siblings at home, a brother (age 3) and a sister (age 5). Jaya's

father works as a substitute teacher in Jaya's school district. The family lives in base housing in Norfolk, where they have lived for the past two months after moving to the area from Sasebo, Japan.

Mary, the school counselor at Patriot Middle School, hears from Jaya's teacher that since her mother recently deployed, Jaya seems distracted and is regularly putting her head down on her desk in class. After agreeing with Jaya's teacher that she could use some additional support over the next eight months, Mary met with Jaya in order to explore her strengths and resiliencies. Jaya first described how her mother was in charge of other sailors on the ship and had sent her pictures of her recent promotion ceremony. Jaya then revealed to Mary that she has been able to email her mom regularly and has learned how to upload and print out pictures to the family computer so that she can make photo collages to send to her mom through the mail.

Jaya also described how she has been spending more time at her neighbors' houses on the base since her mom had deployed. She said that she and her family had a cookout on Mother's Day with one of her neighbor's family because they didn't have any plans to celebrate on their own with their mother being deployed. Jaya also described how she was helping to bathe and put her brother and sister to bed now that their mom was gone, a bedtime routine that her mother usually took part in. Finally, Jaya described how she often cooks dinner for the family and helps her sister with her homework if her father is tired from work.

When Mary asks Jaya how she is transitioning to her new school after moving to Virginia from Japan, Jaya describes how she has quickly made new friends, although she misses her friends from Japan and Facetimes with them on the weekends. Jaya said that she likes her teacher, who is a military spouse, and knows a lot about her mom's work and ship. Jaya reported that her teacher is helping to catch her up on her math skills since she missed a month of school with the family's move from Japan to Norfolk.

Capitalizing on Jaya's Resiliencies

After this initial interview Mary schedules regular bi-weekly counseling sessions with Jaya. During these sessions she talks to Jaya about

the definition of “resiliency” and they make a list of the ways that Jaya has been resilient as she adapts to her mother’s deployment (Clauss-Ehlers, 2008). Jaya’s list includes: developing a sense of pride in her mother’s mission, taking on increased responsibilities with her siblings, finding comfort in her relationships with her neighbors, and transitioning well to her new school both socially and academically.

In their counseling sessions Mary also encourages Jaya to set goals for the next eight months while her mother is away (Echterling et al., 2010). Jaya’s goals include writing her mom a letter once a week, making As and Bs in her classes, and helping her brother learn how to ride a bike so that he can show his mom this new skill when she returns from deployment. Mary talks to Jaya about ways that she can successfully manage her time so that she can work on her homework and help take care of her brother and sister. Mary finally suggests that Jaya become involved in the school’s Middle School United Nations club, since she is interested in world issues after living in Japan. This opportunity will provide Jaya with a new focus and growth opportunity while her mother is away (Military One Source, 2020).

In addition to individual counseling, Mary invites Jaya to participate in a weekly lunch group of students whose parents are also deployed. In this group Mary utilizes a positive, strengths-based approach (Park & Peterson, 2008) and asks the students to share their stories, focusing on ways that they are persevering during their parent’s deployment (Echterling et al., 2010). Mary allows the group members to share these stories in the school newsletter, to foster their sense of pride (National Military Family Association, 2009). Mary also asks the students to share with each other ways that they are thriving during the deployment and strategies they have found to stay in touch with their deployed parent. At the end of each group session Mary leads the group in a stress-relieving five-minute mindfulness meditation exercise (Wisner & Norton, 2013).

In order to strengthen Jaya’s resiliencies from a systemic perspective, Mary looks for ways to celebrate military children as a part of the school culture. First, Mary approaches her principal and asks to chair a committee on celebrating Month of the Military Child (DODEA, n.d.) in the school during the month of April. Mary asks Jaya, a teacher, an active-duty parent, a military spouse, a city council member, and a local restaurant

owner to serve on this committee. Together they plan daily events for the month of April to celebrate the military students in the school, including Purple Up Day, where everyone in the school wears purple to show their support for military children, a school-wide assembly where active duty parents and their children will be recognized, a school-wide art contest with a military child theme, and enhancing the school's website to include resources for military families (DODEA, n.d.).

In addition, approaching Jaya's case from a school-wide systemic perspective, Mary hosts an in-service training for teachers in the school discussing military children's resiliencies and ways that teachers can capitalize on these resiliencies in the classroom. The local restaurant owner that Mary partners with for the Month of the Military Child Committee agrees to provide lunch for the training for the teachers. Mary invites Jaya and her father to speak to the teachers during the training, sharing her family's story and talking about their thoughts and feelings during her mother's current deployment. Mary also partners with active-duty parents from other military families, inviting them to speak to the teachers about the resiliencies they see in their children so that the teachers can hear real-life perspectives on the military lifestyle.

Mary likewise utilizes a school-community partnership in order to develop a school-wide mentorship program for students whose parents are deployed. Mary calls the local church and asks the pastor if there are church members who are willing to spend at least two hours per month with a military child in addition to calling them every week to check in with them. Together, Mary and the pastor train the mentors to discover and affirm resiliencies in military children and to help provide consistent and supportive relationships during challenging deployments. In this program Jaya is paired with a female college student mentor named Nikki, who attends the church. Jaya and Nikki play basketball after school twice a month and afterwards Nikki helps Jaya write letters to her mother. In these meetings Nikki also helps Jaya finish her homework so that she can have more time at home to help her sister with her homework.

Conclusion

As demonstrated in Jaya's case, school counselors are called to approach their work with military families from a strengths-based perspective. Focusing on resiliencies and ways to foster their protective factors is key to helping them to overcome the long-term stressors of the military lifestyle. As seen in Jaya's case, taking a strengths-based approach when working with this population is key in order to capitalize on their resiliencies (Echterling et al., 2010). When fully understanding and affirming these resiliencies, school counselors will be able to help military children in the best way possible, supporting them in the important part they play in serving our country.

Future Research

Future studies are needed to further examine resiliency in military children and ways school counselors can effectively work with this population. For instance, a phenomenological qualitative study could be conducted with military children to explore their experiences, including resiliency development. Quantitative research could use standardized scales, such as the Resiliency Scales for Children and Adolescents (RSCA; Prince-Embury, 2007), to compare findings between resilience in military children and civilian children. Additionally, quantitative studies could be designed to explore differences in resiliency in military children based on the child's age when the parent joined the military, military branch, race, ethnicity, and gender. Finally, longitudinal quantitative research could be conducted focusing on factors that foster resiliency in military children throughout their development.

As a way to explore school counselors' competence regarding their work with military children, a qualitative study may be warranted. Specifically, a qualitative phenomenological study could be conducted to explore the experiences of school counselors who have worked with military children in the past. This exploration might highlight training needs that could be addressed in counselor education or continuing education programs for school counselors. Additionally, survey research could be conducted with this same population and would allow researchers to target

a larger sample size. This research could potentially focus on school counselor competence and strategies used when working with military children from a strengths-based perspective.

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Anxiety, Burnout, Depression, and Suicidality Among EMS Professionals: Perceptions of Counseling Services

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Emergency Medical Service (EMS) professionals are exposed to highly stressful trauma. To ascertain whether they experienced a need for counseling services, 426 EMS professionals completed an anonymous online survey they received via link from their employer or through an EMS social media page. The survey included a demographic questionnaire, standard measures of burnout, items pertaining to anxiety, depression, suicidal ideation, their desire for mental health services, and whether the participants perceived the stigma attached to their seeking mental health services affected career advancement. Participants reported moderate emotional exhaustion and anxiety, high depersonalization and personal achievement and minimal suicidal ideation. Although 93% expressed an interest in greater availability of counseling services, only 23% had sought counseling services. Further, 67% felt that there is a stigma attached to seeking counseling and 54% felt that employers might use seeking mental health treatment against them. Present results support efforts to reduce the stigma that EMS professionals believe is attached to seeking mental health treatment.

Keywords: emergency medical professionals, burnout, seeking treatment, stigma, depression

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In the United States, there are 362,535 nationally certified Emergency Medical Technicians (EMT) according to the 2017 National Registry of Emergency Medical Technicians (NREMT) database. These EMTs are responsible for treating between 25-30 million patients per year (NREMT, 2017). In the United States, workers have four levels of training: emergency responder, emergency medical technician-basic, emergency medical technician-intermediate, and emergency medical technician-paramedic. Emergency responders are volunteers trained in cardiopulmonary resuscitation (CPR) and first aid. Emergency Medical Technicians (EMT)-basic receive training in CPR and first aid, as well as basic training in managing medical and traumatic injuries. EMT-intermediate adds training in minimally invasive skills. Paramedics have more advanced training, including anatomy, physiology, and advanced medical skills (Bureau of Labor Statistics, 2011). Thus, each level of preparation has an established skill set, with paramedics holding the highest level of training and skill development. While this study focuses on EMTs, the term first responder is a broad description that includes EMS personnel of all levels of development, firefighters, and police officers.

Emergency medical service personnel must cope with a variety of job-related stressors. The nature of the job entails high perceived workload and time pressure, and working to stabilize patients, comfort panicked or distressed victims and loved ones, and ensure appropriate continuity of care once patients arrive at their destination medical centers (Essex & Scott, 2008). Further, the job of handling emergencies can intrude into family life through emotional changes and sleep disruptions (CDC, 2013). In addition, exposure to painful injuries, fear-inducing events, and the death of patients or co-workers can increase the capacity for suicidality to emerge (Van Orden et al., 2010). These work-related issues, alone and in combination, may lead to a variety of mental health consequences (Fullerton et al., 2004, p 1370).

Among first responders, paramedics are a particularly vulnerable group (David & Brachet, 2009). Holland (2011) indicated that paramedics reported

more general health problems than other emergency personnel. However, this study did not assess mental health problems or coping strategies. Similarly, among medical technicians in Turkey, a group including EMS professionals reported more emotional exhaustion than nurses, and less personal achievement than physicians (Schooley et al., 2016). Although this study included a large group and a variety of health-related professions, it did not include measures of employment related mental health issues, such as burnout, anxiety, depression, suicidality, or treatment seeking.

One potential mental health consequence for emergency personnel is burnout. According to the Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health (2003) burnout is defined as emotional and physical exhaustion resulting from a combination of exposure to environmental and internal stressors and inadequate coping and adaptive skills. In addition to exhaustion, the person with burnout exhibits a negative attitude toward their job, low self-esteem, and personal devaluation. Causes of burnout often include stressful, even dangerous, work environments; lack of support; lack of respectful relationships within the work environment; low pay scales; shift changes and long work hours; understaffing; pressure from providing continuous high levels of care over long periods; and frustration and disillusionment resulting from the difference between job realities and job expectations (Miller-Keane Encyclopedia and Dictionary of Medicine, 2003). Burnout Syndrome is not recognized by the *Diagnostic and Statistical Manual-5* (2013) in the US as an official, diagnosable mental illness, but has been recognized by the *International Classification of Disease-10* in Europe and only recently recognized in the US as of May 2019 with the *International Classification of Disease-11*. Burnout is a threat for EMS professionals as it is associated with greater reported sickness-related absences and likelihood of leaving the EMS profession. (Crowe et al., 2017). There is also evidence that symptoms of burnout and PTSD increase the chance of errors in their medical diagnosis and treatment on the job (LeBlanc et al., 2005). For example, most volunteer EMS professionals in one U.S. sample reported high depersonalization and emotional exhaustion, but also high personal achievement (Essex & Scott, 2008). Also, almost half of EMS professionals in Iran reported emotional exhaustion, and over one third reported depersonalization (Khatiban et al., 2015). In comparison, Iranian physicians scored moderately for measures of emotional exhaustion, depersonalization, and personal achievement, respectively (Jalili et al., 2013). However, among

medical professionals in Turkey, paramedics reported less emotional exhaustion than physicians and nurses (Gökçen et al., 2013).), but this study did not compare paramedics to other EMS personnel. Depersonalization, emotional exhaustion, and personal achievement are factors in burnout (Maslach & Jackson, 1981). Paramedics may experience more of all three aspects of burnout than other EMS professionals related to prolonged exposure to patient care and years of service (Bently et al., 2005).

Anxiety and depression are also dangers for EMS professionals (Bennett et al., 2014). For example, among over 600 emergency personnel in the UK, 23% reported clinical levels of anxiety, and 9% reported clinical levels of depression (Bennett et al., 2005). This large-scale study indicated that emergency work was associated with negative emotional impact but did not compare paramedics to other EMS professionals. However, there is evidence that some groups of professionals are different than others on anxiety and depression. Among employees of 19 French companies, engineers and managers had less anxiety and depression than blue- or white-collar workers and technicians (Bocerean, 2014). What is missing in the scientific literature is research comparing anxiety and depression among paramedics compared to other EMS professionals.

Unfortunately, suicidal ideation also appears common for EMS professionals. A recent, comprehensive meta-analysis of 63 quantitative studies indicated that first responders had elevated suicide risk compared to the general population (Stanley et al., 2016), but also reported that few studies of first responders focused on EMTs and paramedics. According to the CDC website (2015) the national average for suicide contemplation is about 3.7% (Newland et al., 2015).

Given these dangers, coping is important. Experts agree that research on coping with exposure to critical incidents is needed (Holland, 2011). One positive coping method might be seeking mental health treatment. In Essex and Scott's (2008) study of volunteer EMS, slightly over half reported using available EMS mental health services. However, volunteers may respond differently than paid EMS professionals. Due to their greater exposure to critical patients than other EMS professionals, we expected paramedics to have higher levels of anxiety, burnout, depression, and suicidality, and to be more likely to seek treatment.

Method

Participants and Procedures

After obtaining approval from the Human Subjects Protection Review Committee at the University of Holy Cross, EMS providers were sent a link to an anonymous questionnaire. We distributed this survey in two ways. Two large companies in the United States distributed the link to their emergency medical service employees for voluntary, anonymous participation. Secondly, we posted information about a link on a social media site for EMS providers. The authors' institutional review board approved this project.

The survey included five demographic questions about provider level, gender, years of service, marital status, age range. Mental health treatment questions included four yes-no format: desires ("Do you want to see more available counseling options in EMS?"), experience ("Have you seen a counselor for stress related to work?"), stigma ("Do you feel there is a stigma attached to seeking counseling?"), and career advancement ("Do you think that seeking counseling could be used against you by a company [denial of promotions, shifts, etc.]?"). Experts have noted concerns about career advancement as a common reason why EMS professionals are reluctant to seek treatment (Alexander & Kline, 2001). Also, one other question was "Have you ever called in sick to work because you just couldn't deal with being there that day? (Answers are per year)," with options of *Never*, *1-2 days*, *3-5 days*, and *6 or more days*.

Online Instruments

The *Maslach Burnout Inventory Self-Test* (MBI; Maslach & Jackson, & Leiter 1996), is 22 questions about burnout in three subscales (emotional exhaustion, personal achievement, and depersonalization). The original scale asks about both frequency and intensity, but we used the short version that only asked about frequency (Maslach et al, 1996), answered from 1 = *never* to 7 = *every day*. Among a wide range of human service professionals, reliability was strong for emotional exhaustion and personal achievement, but inadequate for depersonalization (alphas = .89, .74, and .59, respectively). However, among Romanian emergency medical workers (Popa et al., 2010) all three subscales were internally consistent (alphas = .90, .71, and .79, respectively). Evidence of validity was that scores correlated with ratings by outside observers

(Maslach & Jackson, 1981). Present internal consistencies were .90, .79, and .87, respectively.

The *Hospital Anxiety Depression Scale* (HADS; Zigmond & Snaith, 1983) is 14 questions about anxiety and depression scored 0 to 3, so that a high score (21 is the highest possible on each subscale) indicates anxiety or depression. The HADS was reliable among adult inpatients (Zigmond & Snaith, 1983). Also, a literature review indicated that factor analysis generally supported the validity of the two subscales (Bjelland et al., 2002). Present internal consistencies were .85 for anxiety and .86 for depression.

The *Suicide Behaviors Questionnaire-Revised* (SBQ-R; Osman et al., 2001) is four questions about suicide ideas, thoughts in the past year, communications, and likelihood of future attempts. Each item is scored differently, but total scores can range from 0 to 23, with higher scores indicating more suicidality. The SBQ-R has good psychometric properties when completed by a variety of samples (Osman et al., 2001). Present internal consistency was .83.

Results

Participants were 426 EMS professionals (58% men, 42% women). They included paramedics (61.5%), emergency medical technicians (EMT; 28.2%), advanced EMTs (5.6%), and other types of first responders (4.7%). The average job experience was 10 years ($M = 3.50$ on a scale from 1 = *less than 1 year* to 5 = *16+ years*). They were typically in their 30's ($M = 2.55$ on a scale from 1 = *18-25* to 5 = *55+ years*). They were in their first marriage (33.57%), in a subsequent marriage (15.73%), in a committed relationship (17.14%), single, (21.36%), or divorced (12.21%).

On the Maslach Burnout Inventory, present EMS professionals reported moderate emotional exhaustion ($M = 27.26$, $SD = 11.61$); high depersonalization ($M = 15.14$, $SD = 8.03$); and high personal achievement ($M = 43.09$, $SD = 8.30$).

On the HADS, the participant mean for anxiety was 17.43, in the borderline to high range. On depression, the aggregate mean of 15.66 was on the high end of the normal range. Participants had a mean score of 5.74 ($SD = 3.56$) on the SBQ-R, which indicates low suicidality; with 39.4% reporting no suicidal ideation or behaviors.

ANOVAs indicated that, as would be expected, paramedics were older, $F(1,424) = 15.68, p = .000$, and more experienced, $F(1,424) = 58.91, p = .000$ than other emergency medical professionals. Consequently, we controlled for age in subsequent analyses. Paramedics reported more depersonalization than all other EMS professionals, $F(1,411) = 13.25, p = .000, \eta^2 = .03$. However, paramedics were not significantly different from other EMS professionals on emotional exhaustion, personal achievement, anxiety, depression, or suicide ideation. Also, paramedics were more likely to report calling in sick 43.9% versus 56.9%, respectively, $F(1, 423) = 4.84, p = .03, \eta^2 = .01$. Paramedics were not significantly different from other EMS professionals on desire for more counseling, stigma, or perceptions that seeking treatment might be used against them at work.

On the mental health treatment questions, 93% of the participants said they would like to see more mental health services available in EMS, yet only 23% had actually seen any counselor in the past. Paramedics were more likely to have sought previous counseling (26.7%) than other EMS professionals (17.2%), $\chi^2(1, N = 425) = 5.15, p = .03$. Among all participants, 67% felt that there is a stigma attached to seeking counseling and 54% thought that seeing a counselor might be used against them at work. Among the 52% who reported missed workdays, 35% reported 1-2 days, 12% reported missing 3-5 days, and 5% reported 6 or more days of work.

Discussion

Among present emergency personnel, paramedics reported more depersonalization than other participants, but all reported moderate emotional exhaustion and depersonalization, the negative aspects of burnout. The present finding that paramedics reported more depersonalization than other emergency personnel is consistent with findings in the UK (Bennett et al., 2005), Romania (Popa et al., 2010), Iran (Khatiban et al., 2015), Canada (Halpern et al., 2012a), and South Africa (Fjeldheim et al., 2014). Troubling memories and depersonalization seem to be true of people in emergency medical services throughout the world, and paramedics seem to be a particularly vulnerable group (Halpern et al., 2012b). However, in this study there was not a significant difference between paramedics and other emergency personnel in the areas of emotional exhaustion, personal achievement, anxiety, depression, or suicidal ideation. Thus, the depersonalization apparently was limited in

scope. Paramedics had moderate to high levels of burnout, and moderate levels of anxiety and upper level of normal depression. Other emergency personnel scored similarly on depression and anxiety but did not present the higher levels of burnout.

One positive finding in the present study is all the EMS professionals scored highly in the construct of personal achievement; this finding is comparable to a study in India (Koval et al., 2020). Further, actual suicidal ideation was reportedly low. This finding is contradictory with several other studies that have been done (Stanley et al., 2016; Newland et al., 2015). Newland et al found that suicidal ideation among EMS professionals was around 37% with 6.6% having made a suicide attempt compared to the CDC national average of 3.7% suicidal ideation and 0.5% suicide attempt (Newland et al.,).

In the US, men comprise 75% of Nationally Registered EMT's (National Registry of Emergency Medical Technicians, nd), so the fact that present participants were mostly men is consistent with the profession. Present participants were 58% men. In comparison, the mostly men (85%) UK EMS professionals surveyed by Bennett et al. (2005) reported borderline to possible clinical levels of anxiety, but not depression

Although both participating companies have EAP programs, a high majority of present participants said that they would like to have more mental health options available. Despite the desire for increased mental health options, most of the participants also felt that seeking counseling was stigmatizing and potentially damaging to their work status, with only about one fourth having accessed mental health services about work-related issues. Concerns about work ramifications may be validated by news reports in 2015 and 2019 of other emergency workers having been denied licensure and fired for diagnoses of post-traumatic stress (Warnica, 2015; Paschall-Brown, 2019). In comparison, about half of the volunteers in an earlier study reported using mental health services (Essex & Scott, 2008).

A limitation of this study was the majority of participants were a convenience sample drawn primarily from two large national EMS employers or those who frequented a social media page targeted to EMS professionals. Another limitation was the absence of questions regarding the intensity of symptoms. However, the large sample size and anonymous responding are strengths. This study was also limited by the lack of identifying questions of race and ethnicity.

Even though the two large EMS agencies that employed many of present participants offer counseling services through employee assistance programs, more than half of present EMS professionals expressed concerns about negative work repercussions when seeking counseling. This would be consistent with the findings of research by Newman et al. (2015) that showed EAP programs as being underutilized. This finding could represent a mistrust of the system in place with their employers and further research should look at this finding. Present results support efforts to reduce the perceived stigma that EMS professionals have about seeking counseling.

One method that could reduce the stigma of counseling and benefit EMS providers, employers, and the patients that they treat, would be to make counseling a compulsory part of credential renewal. While this has not been researched among EMS professionals, there is data that shows success rates of compulsory counseling with other populations (National Institute on Drug Abuse [NIDA], 2020). Routine counseling could reduce the stigma associated with counseling services as every EMS professional would be required to see a counselor as part of their job or continuing education requirements. Another way that routine counseling would be beneficial is that the EMS professionals could develop a relationship with a trusted outside professional with whom they could confide when they struggle with inner turmoil. As shown by Newland et al., formal support was effective when utilized (Newland et al, 2015). Finally, routine or compulsory counseling might benefit employers by reducing absenteeism through the reduction in lost time benefits that occur when EMS professionals call in sick to work due to stress (Navare, 2008).

Similar to the findings of Newland, Barber, et al. (2015), even when turning to mental health professionals, the emergency medical personnel in this study expressed a lack of trust in the capabilities of the services they received. The participants felt that their counselors were unable to understand them. Increased training for counselors in training, in-service opportunities for practicing counselors that educate the unique mental health experiences of EMS professionals and or the development of empirically based standards for credentialing practitioners for counseling EMS professionals could be beneficial in servicing this population of first responders.

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