DISSERTATION

THE IMPACT OF MALTREATMENT HISTORY AND THE PRESENCE OF INDIVIDUAL,

FAMILIAL, AND COMMUNAL PROTECTIVE FACTORS ON COLLEGE ADJUSTMENT

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ABSTRACT

THE IMPACT OF MALTREATMENT HISTORY AND THE PRESENCE OF INDIVIDUAL, FAMILIAL, AND COMMUNAL PROTECTIVE FACTORS ON COLLEGE ADJUSTMENT

There is a wealth of studies examining trauma, protective factors, and outcomes in college students. There are questions, however, about how certain protective factors relate to certain types of maltreatment, and how these relationships impact college adjustment. There is also a lack of clarity in the literature as to whether the number of traumatic events experienced is a sufficient measure of trauma history or if the cumulative severity of traumatic experiences must be measured. This study aimed to address these gaps in the protective factors literature by examining relationships between trauma history, protective factors, and college adjustment using the Social Emotional Resources Inventory (SERI), a newly published measure of protective factors (Oberdorfer, Mohr, & Rosén, 2019). Results indicated that both the number of traumatic events endorsed by participants and the cumulative severity ratings they gave the traumatic events they experienced predicted almost the exact same amount of college adjustment. It was also found that maltreatment no longer had a significant relationship with college adjustment when controlling for protective factors. How much more variance cumulative protective factors predicted than cumulative traumas reinforced the emphasis that this paper, and the field, have put on protective factors. The results further indicated that individual protective factors were the strongest predictors of later college adjustment across all types of maltreatment. Self-Esteem, Coping, and Optimism emerged as strong predictors of college adjustment across types of maltreatment. Clinical and research implications of these findings are discussed.

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Chapter 1: Introduction

There is a wealth of studies examining trauma, protective factors, and outcomes in college students (Read et al., 2014; Weltz et al., 2016). There are questions, however, about how certain protective factors relate to various types of trauma, and how these relationships impact college adjustment. There are also no studies comparing the impacts of individual, familial, and communal protective factors as sub-categories of protective factors in this population – having implications for allocation of prevention resources. And, lastly, there is a lack of clarity in the literature as to whether the number of traumatic events experienced is a sufficient measure of trauma history or if the cumulative severity of traumatic experiences must be measured. This study aims to address these gaps in the protective factors literature by examining relationships between trauma history, protective factors, and college adjustment using the Social Emotional Resources Inventory (SERI), a newly published measure of protective factors (Oberdorfer, Mohr, & Rosén, 2019). Doing so will also provide initial evidence of clinical utility for SERI administrations within the college population.

Trauma Research

Potentially traumatic experiences can involve a wide range of events, including being exposed to the death of others, a near-death experience of oneself or a loved one, personally experiencing or having a loved one experience a serious illness, losing a home to a fire or flood, or experiencing a natural disaster (Sheline & Rosén, 2017). They can also include being a victim of interpersonal sexual or physical violence (Yoshimura & Campbell, 2016) or of childhood maltreatment, a broad category that includes all types of child abuse and neglect (Becker-Lausen et al., 1995). Reactions vary among those who have been exposed to potentially traumatic experiences, as do the effects that such experiences have on their lives and their perceptions of

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the significance of what happened. However, in the research literature, individuals who have been exposed to potentially traumatic experiences are often considered to have experienced trauma (Portnoy et al., 2018). Furthermore, having experienced trauma has been repeatedly found to have the potential for long-term effects (Chalavi et al., 2015; Paivio & Pascual-Leone, 2010).

Though there is some research that has found positive effects of trauma when it can be processed into a meaning-making experience (Kashdan & Kane, 2011; Mohr & Rosén, 2017; Xiong, Yang, & Zhu, 2015), most research has found trauma to be correlated with a variety of negative outcomes. Childhood maltreatment has been correlated with long term health problems including diabetes, malnutrition, and heart attack; psychological problems including low self-esteem, emotional regulation issues, and difficulty forming and maintaining relationships; and behavioral problems including unhealthy sexual practices, juvenile delinquency, and antisocial behaviors (Child Welfare Information Gateway, 2019). A history of maltreatment has also been associated with decreased understanding of social interactions (Luke & Banerjee, 2013), lower cognitive abilities (Jaffee & Maikovich-Fong, 2011), changes in brain structure (Chalavi et al., 2015), the development of a variety of psychological disorders (Anand et al., 2015; Becker-Lausen et al., 1995), and lower levels of academic and professional achievement (Stone & Zibulsky, 2015).

Though the majority of studies broadly relating trauma as a category to various outcomes look at childhood maltreatment, there is also evidence that trauma as a broader category, including non-maltreatment trauma, both early in life and later in adulthood, can have negative, long-lasting effects. Studies examining a wider range of traumatic experiences, including but not limited to childhood maltreatment, have found correlations between trauma and lower levels of

emotional wellbeing (Castro et al., 2019), higher rates of incarceration (Ross et al., 2018), and early onset of disease and premature death (Sonu et al., 2019). The experience of any type of childhood trauma seems to be associated with lower levels of educational attainment, including lower likelihood of college attendance (Hardner et al., 2018). However, for individuals with trauma histories who do attend college, college seems to be a time of particular importance.

Trauma in the College Population

College tends to be a time of major transition, increased demands and stress, and reduced contact with previous social support networks. It is also a critically important point in the lives of many individuals. College attendance rates in the US are constantly climbing. College graduation has become an expectation of many of the youth in America, and yet many students do not graduate college with a bachelor's degree. In 2017, only 60% of students who had started college had graduated within 6 years (National Center for Education Statistics, 2019). Graduating college is an important milestone that can open up opportunities for career advancement, new career prospects, and higher earnings. In 2016, young adults with bachelor's degrees earned, on average, 57% more than young adults with high school diplomas (National Center for Education Statistics, 2018). Some students are not able to graduate from college for financial reasons or due to unforeseen life events. Other students are forced to drop out due to the stress and the emotional burden of college or due to academic difficulties. College is a time of unprecedented importance for many students, in terms of its long-term impact on career and financial success. It is also a time of unprecedented challenges, changes, and stressors. For many students, college is a time when a variety of coping resources are tested in ways they never have been before.

The stress of college has been shown to be especially impactful for individuals who have experienced trauma (Read et al., 2014). This is likely due in part to the increased stress-reactivity

that is often associated with a history of trauma (Weltz et al., 2016). A history of trauma has been linked with lower levels of mental and physical health and higher suicide risk in college students (Bulathwatta et al., 2017; Sheline & Rosén, 2017). In this population, a history of childhood maltreatment has been correlated with higher levels of aggression, lower GPA, and lower levels of personal and emotional college adjustment (Moore et al., 2019) as well as higher levels of psychological distress and PTSD symptomology (Dale et al., 2018). Furthermore, it has been shown that many college students arrive to college reporting histories of trauma, making this an important issue for colleges to be aware of and to address (Banyard & Cantor, 2004).

Differential Impacts of Trauma

Both in college students and in the general population, however, all types of trauma do not always have the same impacts. While some studies have found no differences across types of trauma (Read et al., 2014), other studies have found that different types or amounts of trauma have different types or severity of effects. Ballard et al. (2015) noted worse psychological and behavioral outcomes for those who had experienced childhood sexual and non-sexual violence compared with trauma that did not involve interpersonal violence. Álvarez et al. (2015) noted significantly higher levels of schizophrenia and dissociation in individuals who had experienced multiple types of trauma. Kira et al. (2013) found distinct profiles of trauma with distinct symptoms based on whether individuals had suffered traumas that fell into the categories of survival traumas, abandonment and maltreatment traumas, or oppression and societal traumas.

Turner et al. (2019) found that physical and supervisory neglect led to increased trauma symptoms, and that abuse combined with neglect led to the highest level of trauma symptoms. Another study conducted in Israel by Ben-David (2016) that compared types of maltreatment found that neglect led to worse developmental outcomes while abuse led to worse mental health

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problems. Poverty has consistently been found to be a major predictor of neglect, which in turn has been found to be a major predictor of abuse (Slack et al., 2011). However, it has been found that the effects of poverty alone do not explain outcomes often associated with neglect. In a study comparing impoverished households where neglect was present and where it was absent, Font and Maguire-Jack (2020) unequivocally found that the effects of poverty and neglect were far worse than the effects of poverty alone. These studies highlight the impact of neglect, the heightened impact of abuse combined with neglect, and the tendency for neglect to increase the likelihood of abuse.

In college students, a history of emotional abuse has been linked with higher rates of depression and general psychopathological symptoms (Rich et al., 1997). A history of childhood maltreatment has been associated with lower levels of college adjustment (Maples et al., 2014). Higher numbers of accumulated traumas have also been correlated with lower levels of college adjustment (Banyard & Cantor, 2004). Similarly, high cumulative levels of victimization in childhood have been found to significantly predict negative college adjustment beyond any specific type of childhood victimization (Elliot et al., 2009). Traumas that were subjectively rated as more severe by college students have been linked with higher reported suicide risk (Nock & Kessler, 2006; Schwartz, 2006). Together, these studies show that not all traumas have the same effect. Instead, they show the importance of examining the impact of specific traumas, trauma severity, and number of traumatic experiences on specific groups of individuals. These findings highlight the importance of examining histories of trauma in the college population.

Categories of Maltreatment While many studies suggest that different types or amounts of trauma have different effects, it is still common for researchers to report results in terms of the effects of "trauma" in general (e.g. Chalavi et al., 2015). Lack of clear definitions of what

traumas are being measured and how they are being categorized makes meta-analyses and broad interpretation of the trauma literature difficult (Alisic et al., 2014). According to the Modified Maltreatment Classification System (MMCS), there exist four major categorizations of childhood maltreatment: Physical abuse, sexual abuse, emotional abuse, and neglect (Barnett et al., 1993). However, the most common measure of childhood maltreatment that is used in the research literature is the Adverse Childhood Experiences Scale (ACEs) developed by the Center for Disease Control (Parker et al., 2020; Petruccelli et al., 2019). This scale asks only a single question about physical and emotional abuse and no questions about neglect (Ford et al., 2014). Some studies looking at the effects of trauma use the MMCS classifications of maltreatment, while some use ACEs, or trauma checklists that scan for every type of trauma, or a variety of other measures. Within the college population, there exist few studies that examine students' histories for the presence of each of the four MMCS classifications of maltreatment. Given the impact that histories of maltreatment have been shown to have on college students, there is a need for more studies within this population examining both cumulative maltreatment and each of the four categories of maltreatment. There is also a broader need within the trauma literature to be clear about how trauma is being defined and categorized.

Number vs. Severity of Traumatic Experiences This need for clarity is also present in questions of how cumulative trauma is defined and studied in the literature. Some measures, such as the ACEs questionnaire (Felitti et al., 1998) consider number of instances of trauma to be sufficient measures of how much cumulative trauma a person has experienced. Other scales such as the Cumulative Trauma Disorder Scale (Kira et al., 2012) focus on combining perceived severity scores of traumatic experiences to measure cumulative trauma. It is unclear from the literature whether severity scores are a better predictor than examining a person's number of

traumatic experiences. Many studies examine numbers of traumatic experiences for simplicity, but it is not clear if this is a sufficient measure to capture the construct of cumulative traumas. Cumulative traumas have been shown to be important to examine in order to understand the impacts of trauma in many populations, including the college population. Thus, this uncertainty is a gap in the literature that must be explored to ensure that studies examining cumulative traumas are doing so in an effective manner.

Resilience

There are many studies that have found higher rates of negative outcomes in populations that have experienced trauma when compared with populations that have not. However, what each of these studies also highlights is the large majority of individuals who have experienced trauma that still achieve outcomes similar to or better than those with no trauma history. In the 1970's, researchers began studying this population who seemed to experience no adverse long-term effects of trauma. The concept that some individuals are able to "bounce back" from trauma and return to a pre-trauma level of functioning is known as resilience (Masten et al., 1990). Through the study of resilience, researchers began to notice that long-term effects of trauma on individuals varied, not only by the type and amount of trauma, but also by characteristics of the individual and their environment. It was also noted that most individuals return to their baseline functioning despite experiencing trauma without any formal intervention. This process of overcoming trauma through everyday experiences and processes was coined "ordinary magic" (Masten, 2014). Through the work of Masten and others, a loosely defined "Resilience Theory" has come to dominate research on trauma and resilience (Van Breda, 2018). Resilience Theory essentially states that individuals are capable of bouncing back from trauma.

One basic tenet of Resilience Theory that has recently become widely accepted in the literature is that resilience is not a stable trait of the individual but is dynamic and situation-specific (Stainton et al., 2019). For example, an individual may be resilient to a certain trauma, but may no longer be able to bounce back when traumas accumulate. Similarly, an individual may be resilient to a certain type of trauma, such as a house fire, but unable to cope with another type of trauma, such as a physical assault. The other key tenet of Resilience Theory is that resilience is the result of the presence of a variety of protective factors present in an individual's life as well as an absence of risk factors, or at least the presence of a greater number of protective factors than risk factors (Stainton et al., 2019). Protective factors can be defined as forces present in the life of an individual that interrupt the pathway from adverse experiences to pathology, and thus increase the likelihood of that individual succeeding despite a history of trauma (Zimmerman et al., 2013). Risk factors work in the opposite way by increasing the likelihood of pathology in individuals with histories of trauma (Woodford et al., 2018). Thus, according to Resilience Theory, it is not solely the result of an innate "resilience" in a person if they overcome trauma, but a result of a mix of factors within that person and within their environment.

Protective Factors

There are several categories of protective factors that studies have shown to be important for increasing the likelihood of resilience in individuals who have experienced trauma. Some protective factors are internal to individuals. These are called individual protective factors. Effective cognitive coping techniques, high intelligence, and having faith in a higher power are examples of individual protective factors. Some protective factors are characteristics of families and family dynamics. These are called familial protective factors. Family access to resources, warm parent-child relationships, and effective parenting practices are examples of familial

protective factors. Some protective factors are characteristics of the community in which an individual lives. These are called communal protective factors. Having a positive adult role model in the community, attending a safe, academically challenging school, and having opportunities to volunteer in the community are examples of communal protective factors (Mohr & Rosén, 2012). All of these factors have been shown to increase the likelihood of resilience to trauma. A comprehensive list of these protective factors is outlined in Oberdorfer, Mohr, and Rosén (2019).

Some risk factors affecting individuals are just the absence or inverse of protective factors. For example, the absence of any positive relationships with family or kin would be a risk factor. Similarly, attending a poorly funded, unsafe school would be a risk factor. Some risk factors are unique elements in individuals' lives that can exacerbate the negative effects of trauma. For example, access to firearms is a risk factor for individuals who have previously experienced gun violence (Wamser-Nanney et al., 2019). Illicit substance use has also been considered both a negative outcome associated with trauma and a risk factor for later problems (Carliner et al., 2016). A peer group that engages in illicit drug use and other crime can be a related risk factor that increases the likelihood of negative outcomes, especially for individuals with a history of trauma (Ross & Arsenault, 2018). While many unique risk factors, such as peer group, are difficult for clinicians to remove, research suggests that increasing the presence of protective factors can counter the effects of these risk factors (Abrahams, 2009).

Differential Impacts of Protective Factors

The high rates of resilience to trauma that have been found across studies highlight the presence of protective factors in the lives of most individuals. Furthermore, research suggests that it does not take a particularly large number of protective factors to promote resilience. It

seems that the presence of just one or two critical protective factors at the right time in an individual's life can help them be resilient to trauma (Masten, 2014). However, there is controversy about what the most important protective factors, or combination of protective factors, are (Stainton et al., 2019). It is crucial for researchers to come to an agreement on what factors are missing in the lives of the minority of trauma survivors that experience negative long-term effects of trauma so that clinicians may develop interventions to improve resilience outcomes for this highly vulnerable and inadequately supported population.

Given the central role of protective factors in creating resilience, it is essential to understand what critical protective factors are absent in the lives of individuals who are experiencing negative long-term effects from trauma. It is also important to understand how to increase the presence of critical protective factors that will most effectively lead to resilience. To achieve these goals, it is essential that researchers have an intimate understanding of protective factors and how they interact with trauma to impact individuals' lives. One key aspect of protective factors is that their effects have been found to be cumulative (Deković, 1999). This means that the more protective factors that are present in an individual's life, the more likely it is that that individual will be resilient to trauma. Another key component of protective factors is that, like the effects of trauma itself, their effects can vary across individuals and populations. They can also vary within individuals and populations across time (Stainton et al., 2019).

Individual, Familial, and Communal Categories of Protective Factors. One important distinction for researchers and clinicians to understand is the difference between individual, familial, and communal protective factors. Researchers in some fields have historically tended to look only at internal attributes of individuals to understand resilience (e.g., Springer and Phillips, 1995). Other fields have tended to look only at the broader systems working around individuals

to understand resilience (e.g., Gardner et al., 2008). However, these perspectives tend to narrow the scope of what can be understood about protective factors and resilience. In line with Ecological Systems Theory (Bronfenbrenner & Morris, 2006), researchers have begun to look at how the nested systems within the individual sphere, within the family sphere, and within the broader community sphere interact to create resilience. More research needs to be done to understand how these systems interact, how their effects differ within and across populations, and how their effects are similar.

Within these broader categories, research has found certain protective factors to be particularly important for predicting resilience within certain populations at certain points in time. For children who have experienced trauma, having supportive adult mentors in the community has been consistently found to be a major predictor of resilience (Strolin-Goltzman, 2016). For adult survivors of childhood physical or sexual abuse, quality of early parent-child and other social relationships has also been found to be an important predictor of later resilience (Collishaw et al., 2007). Thus, for individuals who have experienced early life trauma, it is important to study the cumulative number and quality of protective factors present in their lives as well as to focus specifically on the quality of their relationships with parents, adult kin, and prosocial adults in the community in order to best understand their capacity for resilience.

Certain protective factors have also been found to be especially important for college students and the unique stressors they face (Maples et al., 2014; Sheline & Rosén, 2017). Self-esteem predicted resilience in college women in the United Kingdom (Robbins et al., 2018). Coping skills were found to be important for resilience in the face of everyday college stressors in the United Kingdom (First et al., 2018). Effective cognitive coping styles predicted resilience for both men and women in a college sample in Iran (Tamannaeifar & Shahmirzaei, 2019). They

were also found to be important in Turkey (Temiz & Comert, 2018). This study also found that early relationships with parents were important for understanding life satisfaction in a college population. Based on the existing research on college students around the world, it is likely that cognitive coping and parent-child relationships are important specific protective factors for college students. It is likely that the overall number of protective factors in the lives of college students in the US is a good predictor of resilience. However, it will be essential to understand more about the impacts of specific protective factors on individuals with histories of maltreatment within the college population.

Relationships between Maltreatment and Protective Factors

It is not enough to understand the maltreatment histories of college students and understand the protective factors in their lives independently. It is important to examine how a history of maltreatment combines with a history of protective factors to impact students' success at dealing with everyday stressors and traumatic experiences in college. A growing body of research in recent years has looked at specific types of trauma and their relationships with specific protective factors in various populations (Ozer et al., 2017; Slone & Shoshani, 2017). There has also been a growth in the number of studies looking at protective factors that promote resilience to the everyday stress and adjustment difficulties that are typical for college students. (Robbins et al., 2018; Tamannaeifar, & Shahmirzaei, 2019). However, the literature looking at the interplay between maltreatment histories, specific and compounded protective factors, and outcomes within the college population is incomplete. This gap is problematic, as it is highly likely that specific protective factors have different effects with specific traumas in specific populations (Maples et al., 2014).

In the college population, the protective factor of hope for one's future was found to predict college adjustment in the face of experiencing school shootings or similar collective traumas (Liu et al., 2017). Spirituality, friend support, and emotional awareness were found to predict resilience for college students who had been exposed to violence in childhood (Howell & Miller-Graff, 2014). Interestingly, family support was not found to predict resilience in college for students with a history of exposure to violence (Howell & Miller-Graff, 2014). Similarly, social support was found to predict a reduction of PTSD symptoms in college survivors of sexual assault, while the support of family members or of a "special person" was not associated with PTSD symptom reduction (Dworkin et al., 2018). Overall, the existing literature has established social support as an important protective factor for college students with several types of trauma history common in the college population. There is also a likelihood that hope and spirituality are important protective factors for college students with histories of collective trauma. The literature suggests that family support may not be a key protective factor for the college population in overcoming past trauma. This literature also highlights that there are many protective factors whose relationships with trauma still need to be explored in the college population.

Relationships Among Categories of Protective Factors. While there is a wealth of studies examining relationships between specific protective factors and specific traumas in various populations, there is little research that addresses the categorizations of individual, familial, and communal protective factors when examining trauma/protective factor relationships. These types of protective factors are categorically different from one another and it is possible that each category has differing impacts for different types of trauma (Mohr, 2012). However, the majority of widely used measures of protective factors ask questions about only

one or two of these categories (Oberdorfer, Mohr, & Rosén, 2019). There are few studies that examine all three of these categories in combination, or that even identify which category or categories of protective factors they are examining. This gap has prevented researchers and clinicians from examining the full range of protective factors across all three categories that may be present in the lives of individuals who have experienced trauma. It has also prevented researchers from critically examining the differences between the effects of these three categories. For example, one of the most widely used measures of resilience, The Connor-Davidson Resilience Scale, looks almost exclusively at individual protective factors, and yet claims to measure resilience as a broad construct (Connor & Davidson, 2003).

College Adjustment

Much of the previously cited research looking at resilience in college students uses college adjustment as a key outcome variable. In order to understand the impact of these studies, it is essential to understand what college adjustment refers to and why it is used as a proxy measure of college success. College adjustment refers to how well students feel they are doing across a variety of domains. Instead of looking at GPA or other objective measures of academic success, college adjustment looks at how well students feel they are doing in college academically, socially, and emotionally (Mohr & Rosén, 2017). For example, the college adjustment measure that will be used in this study, the College Adjustment Questionnaire (O'Donnell et al., 2018), asks academic questions related to individuals' motivation for learning and abilities to meet education demands, social questions related to interpersonal relationships and relationship satisfaction, and emotional questions related to perceived coping with college stress and overall emotional experience.

College adjustment is used frequently as both an outcome measure and a measure to guide intervention in the college population (e.g. Klein & Pierce, 2009; Lenz, 2014) as it gives a more detailed understanding of college students' experience across important domains than other college outcome measures, such as GPA. It is especially useful when looking at students with trauma histories, as they have an especially high tendency to be impacted socially and emotionally by college stress, which cannot be captured by purely academic measures. College adjustment is also a good proxy of college graduation rates, which is an important predictor of later opportunities and success. In fact, emotional and social variables related to college adjustment have been found to be a better predictor of college retention rates than academic measures (Gerdes & Mallinckrodt, 1994). Additionally, college adjustment has been found to be a good indicator of college student well-being and can be a particularly useful measure for helping universities identify areas where students could benefit from intervention (O'Donnell et al., 2018). These factors make college adjustment an ideal outcome measure for college students, especially those with histories of trauma.

Background of the Social Emotional Resources Inventory

The Social Emotional Resources Inventory (SERI) is the measure of protective factors that will be used in the study. The SERI is a 55-item measure of 14 protective factors grouped into three categories of individual, familial, and communal protective factors (Oberdorfer, Mohr, and Rosén, 2019). The authors suggested that the SERI was best used as a measure of 14 separate protective factors, but that a total "Protective Factors" score or sub-totaled "Individual" "Familial" and "Communal" protective factors scores could be calculated if necessary for research or clinical use. A Confirmatory Factor Analysis (CFA) indicated strong model fit for the initial administration of the SERI (CFI=.938; TLI=.931). For the same administration of the

SERI that this study will analyze, good test-retest (r ranged from .64-.89 across subscales) and internal consistency reliability (α ranged from .81-.96 across subscales), evidence was found. Convergent and discriminant validity evidence was also examined by comparing the Individual, Familial, and Communal subscales of the SERI with existing measures of each of these three categories of protective factors and with unrelated measures. The scores from this SERI administration correlated with existing measures as expected, except for the Communal subscale, indicating a need for further examination of convergent and discriminant validity evidence for administrations of this subscale in the college population. However, this will be difficult to re-examine due to the lack of existing measures of communal protective factors in the literature.

The SERI scale development study by Oberdorfer, Mohr, and Rosén (2019) did not examine concurrent or predictive validity evidence, indicating a need to examine these constructs within a college population. It is essential to examine relationships between trauma scores, SERI scores, and college adjustment scores in order to determine if scores on the SERI can discriminate between those with a trauma history who demonstrate high and low levels of college adjustment. If high scores on the SERI, or certain subsets of the SERI, correlate with high levels of college adjustment in some or all populations, this finding will establish initial evidence for the clinical utility of the SERI.

Resilience as a Target for Intervention

As the SERI is a measure of protective factors, and protective factors have been widely accepted as the means by which resilience is created (Stainton et al., 2019), the clinical utility of the SERI rests on the assumption that resilience is something that can be increased through intervention focused on increasing the presence of protective factors. Fortunately, effectiveness studies have found that interventions based on increasing protective factors increase resilience

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scores, promote effective coping strategies, and reduce symptomology related to high stress and depression in college students (Dolbier et al., 2010; Steindhardt & Dolbier, 2008). Resilience-building interventions have also been shown to be effective for adults in the workplace (Burton et al., 2010), though they were most effective in the long-term for at-risk adults in the workplace who lack specific protective factors (Vanhove et al., 2016), suggesting that targeting those individuals with histories of trauma that lack protective factors in their lives may be the most effective approach when designing resilience-based interventions for adults. However, there have been studies that suggest that similar resilience-based interventions are not as effective for adolescents (Dray et al., 2017; Hodder et al., 2017), indicating that protective factor-based interventions are not universally applicable.

Current Study

Despite a growing body of research examining trauma, protective factors, and college adjustment, significant gaps remain and there are inconsistencies that need to be addressed. The purpose of this study is to examine how the presence of protective factors in childhood and adolescence relate to later college adjustment in individuals who have experienced maltreatment. This study aims to fill gaps in the literature where no consensus has been reached by comparing amounts and severity of trauma reported and by comparing specific categories of maltreatment with specific categories of protective factors in the college population. It also aims to provide further evidence supporting the SERI as a useful tool for administrators, researchers, and clinicians.

The rationale for this study is that universities need more tools to help them understand the factors affecting their students. While the majority of individuals who experience trauma go on to lead successful lives, a percentage of trauma survivors never receive the support they need

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and experience negative life outcomes. Some of these trauma survivors are able to make it to college but not to succeed in a college environment. This phenomenon is problematic as college graduation is highly related to later career success. The majority of existing studies focusing on the college population only examine extant protective factors related to common college stressors without examining the trauma or protective factor histories of students. Studies that only look at protective factors and stressors that are present while a student is in college will not capture the important effects of earlier trauma and protective factors. The majority of existing studies examining trauma and protective factors also do not successfully differentiate types of trauma and types of protective factors, leading to the possibility of over-generalized conclusions. Additionally, most of the studies that do examine relationships between trauma history and specific protective factors likely do not apply to the college population, as there is evidence that these relationships vary across populations. This study aims to build off previous research within and outside of the college population to provide insight into those individuals in college who have trauma histories and the factors affecting their success.

The current study uses measures of many types of trauma but primarily focuses on histories of childhood maltreatment in the college population. Thus, the current study will use the Childhood Maltreatment Questionnaires for Abuse and Neglect (CMQ-A and CMQ-N) which have factors for emotional abuse, physical abuse, sexual abuse, and neglect (Shirley & Rosén, 2010). The current study will be the first to focus on the framework of these four types of maltreatment in comparison with protective factors and college adjustment. This will be the first study to use the version of the SERI developed in Oberdorfer, Mohr, and Rosén (2019) to examine relationships between trauma, protective factors, and college adjustment. The current study will also address discrepancies in the research as to whether the number of traumatic

events experienced or the perceived severity of trauma experienced is the better indicator of the amount of trauma a person has experienced.

The current study is important because it can give university administrators, teachers, and counselors a tool to better understand the students entering their universities and some of the factors promoting and hindering their success. The SERI, in conjunction with measures of trauma, could be an important screening tool for universities when determining what students may be at risk of struggling in college and may provide valuable information about what resources would be most helpful for those students. The SERI, in conjunction with measures of trauma, could also be an important tool for those working with children who have experienced maltreatment as a way to identify those that may be at risk of later academic and life difficulties. The results of the current study are expected to provide useful information about what factors are most likely to lead to later college difficulties and what factors are most likely to increase the likelihood of later college success.

This study draws on Resilience Theory and Ecological Systems Theory as the bases for its research questions and hypotheses. According to Resilience Theory, as outlined by Van Breda, (2018), protective factors are the primary mechanism by which individuals overcome trauma and experience positive life outcomes. The primary focus of the current study is on the relationship between trauma and protective factors. Thus, Resilience Theory is the base for the majority of the hypotheses included in this study. Ecological Systems Theory as updated by Bronfenbrenner and Morris (2006) is the primary basis for the distinctions between individual, familial, and communal protective factors made in the current study. This theory is not often considered in protective factors research but has the potential to help researchers and clinicians gain the most complete picture of protective factors possible, by encouraging a widening of

focus to include risk and protective factors within all the spheres interacting within and around any given individual.

The research questions and hypothesis are as follows:

R1: Is number of traumas or perceived severity of collective traumas experienced more related to college adjustment?

> H1: Trauma severity will be more strongly related to college adjustment than number of traumatic events experienced, with those who rated their traumatic experiences as most severe demonstrating the lowest levels of college adjustment.

R2: Do the presence of physical, emotional, or sexual abuse or neglect predict college adjustment?

> H2: Neglect and sexual abuse will predict lower levels of college adjustment than physical or emotional abuse.

R3: Do cumulative childhood protective factors positively impact college adjustment for individuals who have experienced sexual abuse, physical abuse, emotional abuse, or neglect?

> H3: The cumulative number of childhood protective factors endorsed will predict higher levels of college adjustment in individuals who have endorsed all four types of trauma history.

R4: Do childhood individual, familial, or communal protective factors positively impact college adjustment for individuals who have experienced physical abuse, sexual abuse, emotional abuse, and neglect for the college population?

R5: Will the presence of specific childhood protective factors relate to increased college adjustment scores in college students who have experienced trauma?

> H5: Prosocial adults and parent connections will improve college adjustment for individuals who have experienced childhood sexual and physical abuse. Only prosocial adults will improve college adjustment for individuals who have experienced neglect.

R6: Will the SERI be able to demonstrate evidence for clinical utility by differentiating between those with histories of trauma who experience higher or lower levels of college adjustment?

> H6: Those with histories of trauma who score high on the SERI will score higher on college adjustment than individuals with trauma histories and low scores on the SERI.

Chapter 2: Method

Participants

The current study used data from a larger study that examined the factor structure of an initial administration of the Social Emotional Resources Inventory (SERI). Data were collected in the form of an online survey (N=720). In the original study, "the data were cleaned by removing participants who had completed <90% of the survey, participants who appeared to be entering in numbers so quickly that it was highly unlikely that they read the question (as evidenced by their response patterns and time taken to complete the survey), participants who had multiple submissions under the same participant ID, and participants who only entered the same response across all questions or who entered the same response for both regularly scored and reverse scored versions of multiple questions" (Oberdorfer et al., 2019). Analyses were conducted to ensure that data was missing at random and that participants were not more likely to be excluded from analyses based on any demographic variables, with no issues identified. After the data were cleaned, 602 participants were included in the majority of data analyses. This set of 602 participants was used for all analyses in the current study.

The mean age of the sample that was included in data analyses was 18.77 years (*SD*=1.82). The sample consisted of 114 men (18.9%), 484 women (80.4%), one individual who identified as transgender (0.2%), and two individuals who identified as other (0.3%). This sample overrepresented females in comparison to the CSU population in general (51% female) as well as the incoming freshman class from which the sample was largely drawn (54% female). The sample included 400 first year students (66.7%), 135 second year students (22.5%), 41 third year students (6.8%), and 24 fourth year students (4.0%). The sample included 468 participants (77.7%) who identified as White/Caucasian, 64 who identified as Latino or Hispanic (10.6%),

26 who identified as Asian American (4.3%), 21 who identified as African American/Black (3.5%), 1 who identified as American Indian/Native American (<0.1%), and 21 who identified as Other (3.7%). The sample included 534 participants who identified as heterosexual (89.1%).

On the Childhood Maltreatment Questionnaire-Abuse (CMQ-A) and Childhood Maltreatment Questionnaire-Neglect (CMQ-N), 167 participants responded "Often" or "Very Often" to at least one item regarding childhood abuse or neglect (28%), while 100 participants responded "Often" or "Very Often" to multiple items regarding childhood abuse or neglect (17%). On the Trauma History Survey (THS), a broad checklist of traumatic experiences, 58 participants endorsed no types of traumatic experiences (9.6%), 151 participants endorsed one type of traumatic experience (25%), 161 participants endorsed two different types of traumatic experience (26.7%), and 234 participants endorsed three or more different types of traumatic experience (38.7%).

Measures

The Social Emotional Resources Inventory

The Social Emotional Resources Inventory (SERI; Oberdorfer et al., 2019) consists of 55 items across 14 subscales. Respondents are asked to rate how accurate a series of statements are about their childhood on a Likert scale ranging from 1 (Very Inaccurate) to 5 (Very Accurate). Each subscale assesses for the presence of a different protective factor. The SERI measures individual, familial, and communal protective factors, and a total score may be derived, but the factor structure performs best when each subscale is scored individually. In the sample from which this study is drawing data, the SERI demonstrated acceptable internal consistency statistics ($\alpha > .8$), with most having Cronbach's alpha values in the good range (>.9): Perceived

Intelligence ($α = .89$), Positive Parenting Practices ($α = .92$), Self-Esteem ($α = .91$), Financial

Resources ($α = .92$), Faith ($α = .96$), Perceived Talent ($α = .93$), Good Schools ($α = .90$),

Prosocial Adults ($α = .86$), Kin Connections ($α = .91$), Prosocial Organizations ($α = .94$), Parent

Connections ($α = .93$), Access to Healthcare ($α = .89$), Coping ($α = .81$), Optimism ($α = .91$).

Two of the three second-order subscales and the total scale showed good internal consistency

reliability evidence for this administration: Individual ($α = .94$), Family ($α = .95$), Full-Scale ($α =$

.97), while the Community subscale showed acceptable internal consistency reliability evidence

($α = .87$). The test-retest reliability evidence for the over-all scale ($r=.81$) was good. Test-retest

reliability alphas of this administration of the sub-scales ranged from .640 for the Perceived

Intelligence sub-scale to .894 for the Faith sub-scale for a two-week interval.

The Trauma History Survey

The Trauma History Survey (THS; Mohr & Rosén, 2015) is composed of 10 questions

based on Triplett et al.'s (2011) research on trauma history and meaning in life in the college

population. The scale assesses the presence, severity (on a 0-4 Likert scale ranging from "not at

all" to "extreme"), frequency, and recency of traumatic experiences. The ten experiences

included are "death of a close loved one," "very serious medical problem," "close friend,

significant other, or family member experienced a serious medical condition," "accident that led

to serious injury to yourself or someone close to you," "place of residence being damaged by fire

or other natural causes," "endured a divorce," "physically assaulted," "sexually assaulted,"

"victim of a crime such as robbery or mugging," and "being stalked." Items are single questions

relating to each trauma area and thus internal reliability analyses are not available.

The Childhood Maltreatment Questionnaire-Abuse and Neglect

The Childhood Maltreatment Questionnaire-Abuse (CMQ; Shirley & Rosén, 2010) consists of 19 items across four subscales: Sexual Abuse, Physical Abuse, Emotional Abuse, and Love. Respondents are asked about specific experiences in childhood and adolescence that are considered indicative of maltreatment. Participants then rate the frequency of occurrence of these situations, ranging from 0 (never) to 4 (very often). Cronbach's alpha for the CMQ-A total score in the development study was .95 (Shirley & Rosén, 2010). The CMQ-Neglect scale (CMQ-N) consists of 16 items and four subscales: Emotional Neglect, Physical Neglect, Supervision Neglect, and Love. Cronbach's alpha for the CMQ-N total score in the development study was estimated to be .86. On the sample being utilized in the present study, the Cronbach's alpha estimate for the CMQ-A subscale of Sexual Abuse was .92, for the Physical Abuse subscale was .87, for the Emotional Abuse subscale was .89, and for Love was .86. Within the CMQ-N the Cronbach's alpha estimate for the Emotional Neglect subscale was .93, for the Physical Neglect subscale was .80, for the Supervision Neglect subscale was .88, and for the Love subscale was .86. The full-scale Cronbach's alpha for the CMQ-A was estimated to be .92, and for the CMQ-N was estimated to be .94.

The College Adjustment Questionnaire

The College Adjustment Questionnaire (CAQ; O'Donnell et al., 2018) is composed of 14 items and is divided into three subscales: Educational Functioning, Relational Functioning, and Psychological Functioning. Respondents are asked to rate "how true" items about college experiences are for them "at this time." Responses are measured using a 5-point Likert scale. The Educational Functioning scale measures an individual's ability to meet educational demands and

their motivation for learning. The Relational Functioning scale measures interpersonal relationships and relationship satisfaction. The Psychological Functioning scale measures how successful participants have been at coping with the stresses of undergraduate life. In the initial development study, Cronbach's coefficient alpha estimates for the subscales were 0.89, 0.84, and 0.78, for the Educational Functioning, Relational Functioning, and Psychological Functioning subscales respectively (O'Donnell et al., 2018). Cronbach's alpha estimates for the full scale ranged from .83-.89. In the sample that the current study is using, the Cronbach's alpha estimate for the educational functioning subscale was .92, for the relational functioning subscale was .84, and for the psychological functioning subscale was .82. The Cronbach's alpha estimate for the full scale was .88.

Procedure

In the original study from which the current study drew data, all participants electronically received an informed consent form detailing the purpose and procedure of the study, the potential risks involved with participation in the study, and an assurance of confidentiality and anonymity. Participants then filled out a demographic questionnaire, followed by the SERI and the accompanying scales in order, online through Qualtrics. Participants were asked to re-take the SERI after an interval of two weeks in order to receive credit for the study. Finally, the participants received an electronic version of the debriefing form and were thanked for their participation.

The proposal for the study was submitted to the Colorado State University IRB for approval for administration to human participants and was determined to be exempt due to minimal risk to participants and the inability of participants to be identified based on their participation in the study.

Data Analysis

All analyses were conducted in SPSS. Data analyses were first performed to test hypothesis 1.To understand whether the number of traumas experienced or the severity of collective traumas experienced were more related to college adjustment, the number of traumatic events reported on the Trauma History Survey (NumTraum) and the cumulative severity of traumatic events reported on the Trauma History Survey (Severity) were both compared with the total score for the College Adjustment Questionnaire (CAQ). The variable NumTraum was a sum of the number of "yes" responses given on the THS to questions asking whether specific traumas had been experienced. The variable Severity was a sum of severity ratings of all the traumas participants endorsed. The variable CAQ was a summed total score for all responses on the College Adjustment Questionnaire. Simple linear regressions were run between both the number of traumatic events experienced and the severity of traumatic events experienced and college adjustment. Next a multiple linear regression was run including both predictor variables.

To test hypothesis 2, variables of Emotional Abuse, Physical Abuse, and Sexual Abuse were created from related scores on the Child Maltreatment Questionnaire-Abuse (CMQ-A) and the variable of Neglect was created from the total score of neglect-related questions on the Child Maltreatment Questionnaire-Neglect (CMQ-N). Each variable was a sum of frequency ratings for that type of maltreatment. Scores for individual items ranged from 0=never to 4=very often. Each of these scores was put into a simple linear regression with college adjustment to determine the extent to which each form of maltreatment predicted college adjustment. Next, a correlation matrix between all variables was examined. All variables were then put into a multiple linear regression to examine each category of maltreatment when the others were held constant. Finally, a total score (CMQ_Total) was made that was a sum of all the maltreatment scores. This

variable was put into a simple linear regression with college adjustment as a proxy of the total effect of maltreatment on college adjustment.

To test hypothesis 3, a total score for the SERI (SERI_FS) was created as a variable of cumulative protective factors. This variable was a sum score of all item scores on the SERI. This variable was put into a simple linear regression with college adjustment to examine the relationship between cumulative protective factors and college adjustment. Next, all predictor variables were centered and the SERI full scale score was put into multiple linear regressions with each type of maltreatment separately to examine the impact of cumulative protective factors and of different categories of maltreatment on college adjustment.

To test research question 4, variables comprised of the total scores for the SERI subscales of individual (SERI_IND), familial (SERI_FAM), and communal (SERI_COM) protective factors were created. Each of these variables was put into a simple linear regression with college adjustment to understand if they predicted college adjustment. Then each was put in a multiple linear regression with each type of maltreatment separately, with college adjustment as the outcome variable, to understand the impact of each category of protective factors and of each type of maltreatment on college adjustment.

To test hypothesis 5, variables were made for the specific protective factors of prosocial adults (SERI_PA) and parent connections (SERI_PC). Each of these variables was put individually into multiple linear regressions with each type of maltreatment, with college adjustment as the outcome variable, to understand relationships between specific protective factors, maltreatment, and college adjustment. Other specific protective factors were also exploratorily examined in relationship with maltreatment and college adjustment.

No new analyses were conducted for hypothesis 6, as the clinical utility of the SERI could be demonstrated by the previous analyses.

Chapter 3: Results

Number vs. Severity of Traumatic Events

In a simple linear regression the number of traumatic events experienced significantly predicted college adjustment, Beta $= -.085$, $t(600) = -2.09$, $p < .005$. The number of traumatic events experienced explained a small but significant proportion of variance in college adjustment, $R^2 = .007$, $F(1, 600) = 4.36$, $p < .05$. Severity of traumatic events experienced also significantly predicted college adjustment, Beta $= -.086$, $t(600) = -2.11$, $p < .005$. Severity of traumatic events experienced explained a similar proportion of variance in college adjustment, $R^2 = .007$, $F(1, 600) = 4.45$, $p < .05$. In a multiple linear regression examining both number and severity of traumatic events experienced, the number of traumatic events experienced no longer significantly predicted college adjustment, Beta $= -.025$, $t(599) = -.13$, $p = .894$, nor did the severity, Beta $= -.06$, $t(599) = -.32$, $p = .750$. The two variables combined no longer explained a significant proportion of variance in college adjustment, $R^2 = .007$, $F(2, 599) = 2.30$, $p = .108$.

Types of Maltreatment

In simple linear regressions, sexual abuse, emotional abuse, and neglect significantly predicted college adjustment (See Table 1). Emotional abuse ($R^2 = .017$) and neglect ($R^2 = .022$) explained more variance in college adjustment than did sexual abuse ($R^2 = .008$). Physical abuse did not significantly predict college adjustment and did not explain a significant proportion of variance in college adjustment (See Table 1). All maltreatment variables were negatively correlated with college adjustment. All maltreatment variables except physical abuse were significantly correlated with college adjustment (See Table 2). A multiple linear regression involving all types of maltreatment explained slightly more variance than any simple linear

regression involving only a single type of maltreatment, $R^2 = .030$, $F(4, 597) = 4.63$, $p = .001$.

When put into a multiple linear regression, all predictors became non-significant except neglect

(See Table 3). In a simple linear regression the cumulative maltreatment score also significantly

predicted college adjustment, Beta $= -.15$, $t(600) = -3.62$, $p < .001$. The cumulative maltreatment

score explained a similar proportion of variance in college adjustment as neglect alone, $R^2 =$

.021, $F(1, 600) = 13.09$, $p < .001$. The remainder of analyses involving maltreatment focused on

examining individual types of maltreatment instead of the composite score as the different

categories of maltreatment were the focus of the research questions. The majority of later

analyses also did not include physical abuse as it was not a significant predictor of college

adjustment.

Table 1

Sexual Abuse, Physical Abuse. Emotional Abuse, and Neglect Simple Linear Regressions on

CAQ

	SA	PA	EA	N
Beta	-.09	-.05	-.13	-.15
df	600	600	600	600
t	-2.17	-1.18	-3.19	-3.71
p	.03*	.24	.002*	.000**
F	4.71	1.39	10.17	13.77
R²	.008	.002	.017	.022

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 2

Sexual Abuse, Physical Abuse. Emotional Abuse, Neglect, and CAQ Correlations

	SA	PA	EA	N	CAQ
SA					
PA	.22**				
EA	.27**	.66**			
N	.31**	.60**	.73**		
CAQ	-.09*	-.05	-.13**	-.15**	

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3

Sexual Abuse, Physical Abuse. Emotional Abuse, and Neglect Multiple Linear Regression on

CAQ

	SA	PA	EA	N
Beta	-.05	.10	-.09	-.13
df	597	597	597	597
t	-1.09	1.77	-1.30	-2.14
p	.28	.08	.19	.03*

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Cumulative Protective Factors

In a simple linear regression, SERI full scale significantly predicted college adjustment, Beta = .29, $t(600)$ = 7.48, $p < .001$. SERI full scale explained a significant proportion of variance in college adjustment, R^2 = .085, $F(1, 600)$ = 55.92, $p < .001$. SERI full scale was a much stronger predictor and explained more variance than any trauma score. In a multiple linear regression with SERI full scale and neglect, SERI full scale continued to significantly predict

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college adjustment, Beta = .28, $t(599) = 6.50$, $p < .001$ while neglect no longer significantly

predicted college adjustment, Beta = -.04, $t(599) = -1.00$, $p = .318$. This model explained a

similar amount of variance in college adjustment as SERI full scale alone, $R^2 = .087$, $F(2, 599) =$

28.46, $p < .001$. In a multiple linear regression with SERI full scale and emotional abuse, SERI

full scale continued to significantly predict college adjustment, Beta = .28, $t(599) = 6.74$, $p <$

.001 while emotional abuse no longer significantly predicted college adjustment, Beta = -.03,

$t(599) = -.71$, $p = .476$. This model explained a similar amount of variance in college adjustment

as SERI full scale alone, $R^2 = .086$, $F(2, 599) = 28.19$, $p < .001$. In a multiple linear regression

with SERI full scale and sexual abuse, SERI full scale continued to significantly predict college

adjustment, Beta = .29, $t(599) = 7.18$, $p < .001$ while sexual abuse no longer significantly

predicted college adjustment, Beta = -.04, $t(599) = -.89$, $p = .373$. This model also explained a

similar amount of variance in college adjustment as SERI full scale alone, $R^2 = .086$, $F(2, 599) =$

28.35, $p < .001$.

Categories of Protective Factors

In a simple linear regression SERI individual significantly predicted college adjustment,

Beta = .32, $t(600) = 8.19$, $p < .001$. SERI individual explained a significant proportion of

variance in college adjustment, $R^2 = .101$, $F(1, 600) = 67.09$, $p < .001$. SERI individual was a

stronger predictor and explained more variance than SERI full scale or any trauma score. In a

simple linear regression SERI family significantly predicted college adjustment, Beta = .20,

$t(600) = 5.05$, $p < .001$. SERI family explained a significant, though smaller, proportion of

variance in college adjustment, $R^2 = .04$, $F(1, 600) = 25.45$, $p < .001$. SERI family was a stronger

predictor and explained more variance than any trauma score but explained less variance that

SERI full scale or SERI individual. In a simple linear regression SERI community significantly

predicted college adjustment, Beta = .18, $t(600) = 4.52$, $p < .001$. SERI community explained a significant, though again smaller, proportion of variance in college adjustment, $R^2 = .033$, $F(1, 600) = 20.44$, $p < .001$. SERI community was a stronger predictor and explained more variance than any trauma score but explained less variance than SERI full scale, SERI individual, or SERI family.

In a multiple linear regression with SERI individual and neglect, SERI individual significantly predicted college adjustment even more strongly than SERI full scale, while neglect was near significance. This model explained more variance in college adjustment than any model with SERI full scale (Table 4). In a multiple linear regression with SERI individual and emotional abuse, SERI individual predicted college adjustment similarly to the previous model, while emotional abuse did not significantly predict college adjustment. This model explained a similar amount of variance as the previous model (Table 5). In a multiple linear regression with SERI individual and sexual abuse, SERI individual predicted college adjustment similarly to the previous models, while sexual abuse did not significantly predict college adjustment. This model explained a similar amount of variance as the previous models (Table 6). Descriptive statistics for SERI full scale, SERI Individual, SERI

Table 4

SERI_Individual and Neglect Multiple Linear Regression on CAQ

	SERI_IND	N
Beta	.30	-.07
df	599	599
t	7.47	-1.86
p	.000**	.064
F	35.41	35.41
R²	.106	.106

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 5

SERI_Individual and Emotional Abuse Multiple Linear Regression on CAQ

	SERI_IND	EA
Beta	.30	-.06
df	599	599
t	7.63	-1.44
p	.000**	.149
F	34.65	34.65
R²	.104	.104

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 6

SERI_Individual and Sexual Abuse Multiple Linear Regression on CAQ

	SERI_IND	SA
Beta	.31	-.04
df	599	599
t	7.95	-1.10
p	.000**	.272
F	34.16	34.16
R²	.102	.102

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

      In a multiple linear regression with SERI family and neglect, SERI family predicted college adjustment less strongly than SERI individual, while neglect did not significantly predict college adjustment. This model explained about half as much variance as the models involving SERI individual (Table 7). In a multiple linear regression with SERI family and emotional abuse, SERI family predicted college adjustment similarly to the previous model, while emotional abuse did not significantly predict college adjustment. This model explained a similar amount of variance as the previous model (Table 8). In a multiple linear regression with SERI family and sexual abuse, SERI family predicted college adjustment similarly to the previous models, while sexual abuse did not significantly predict college adjustment. This model explained a similar amount of variance as the previous models (Table 9).

Table 7

SERI_Familial and Neglect Multiple Linear Regression on CAQ

	SERI_FAM	N
Beta	.17	-.06
df	599	599
t	3.64	-1.36
p	.000**	.175
F	13.77	13.77
R^2	.044	.044

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 8

SERI_Familial and Emotional Abuse Multiple Linear Regression on CAQ

	SERI_FAM	EA
Beta	.18	-.05
df	599	599
t	4.01	-1.03
p	.000**	.304
F	13.26	13.26
R^2	.042	.042

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 9

SERI_Familial and Sexual Abuse Multiple Linear Regression on CAQ

	SERI_FAM	SA
Beta	.19	-.05
df	599	599
t	4.70	-1.21
p	.000**	.227
F	13.47	13.47
R^2	.043	.043

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

In a multiple linear regression with SERI community and neglect, SERI community predicted college adjustment less strongly than SERI individual or SERI family, while neglect did significantly predict college adjustment, though less strongly than without SERI community in the model. This model explained a similar amount of variance as the models involving SERI family (Table 10). In a multiple linear regression with SERI community and emotional abuse, SERI community predicted college adjustment similarly to the previous model. Emotional abuse also significantly predicted college adjustment, though less strongly than without SERI community in the model. This model explained a similar amount of variance as the previous model (Table 11). In a multiple linear regression with SERI community and sexual abuse, SERI community predicted college adjustment similarly to the previous model. Sexual abuse did not significantly predict college adjustment, though it was approaching significance. This model explained a similar amount of variance as the previous models (Table 12).

Table 10

SERI_Communal and Neglect Multiple Linear Regression on CAQ

	SERI_COM	N
Beta	.16	-.12
df	599	599
t	3.80	-2.80
p	.000**	.005**
F	14.27	14.27
R^2	.045	.045

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 11

SERI_Communal and Emotional Abuse Multiple Linear Regression on CAQ

	SERI_COM	EA
Beta	.16	-.10
df	599	599
t	3.98	-2.37
p	.000**	.018*
F	13.11	13.11
R^2	.042	.042

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 12

SERI_Communal and Sexual Abuse Multiple Linear Regression on CAQ

	SERI_COM	SA
Beta	.17	-.07
df	599	599
t	4.31	-1.71
p	.000**	.088
F	11.72	11.72
R²	.038	.038

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Specific Protective Factors

In a multiple linear regression with SERI prosocial adults and neglect, SERI prosocial adults predicted college adjustment less strongly than SERI individual but similarly to SERI family and SERI community. Neglect also significantly predicted college adjustment. This model explained slightly more variance than models involving SERI family and SERI community (Table 13). In a multiple linear regression with SERI prosocial adults and physical abuse, SERI prosocial adults predicted college adjustment slightly more strongly than in the previous model, while physical abuse did not significantly predict college adjustment. This model explained less variance than the previous model (Table 14). In a multiple linear regression with SERI prosocial adults and emotional abuse, SERI prosocial adults predicted college adjustment similarly to the model with neglect. Emotional abuse also significantly predicted college adjustment, though less strongly than without SERI prosocial adults in the model. This model explained a similar amount of variance as the model with neglect (Table 15). In a multiple linear regression with SERI prosocial adults and sexual abuse, SERI prosocial adults predicted

college adjustment similarly to the models with neglect and emotional abuse, while sexual abuse

no longer significantly predicted college adjustment. This model explained less variance than the

model with neglect but more than the model with physical abuse (Table 16).

Table 13

SERI_Prosocial Adults and Neglect Multiple Linear Regression on CAQ

	SERI_PA	N
Beta	.17	-.11
df	599	599
t	4.20	-2.68
p	.000**	.008**
F	15.89	15.89
R²	.050	.050

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 14

SERI_Prosocial Adults and Physical Abuse Multiple Linear Regression on CAQ

	SERI_PA	PA
Beta	.20	-.02
df	599	599
t	4.80	-.38
p	.000**	.708
F	12.23	12.23
R²	.039	.039

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 15

SERI_Prosocial Adults and Emotional Abuse Multiple Linear Regression on CAQ

	SERI_PA	EA
Beta	.18	-.10
df	599	599
t	4.43	-2.36
p	.000**	.019*
F	15.06	15.06
R²	.048	.048

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 16

SERI_Prosocial Adults and Sexual Abuse Multiple Linear Regression on CAQ

	SERI_PA	SA
Beta	.19	-.06
df	599	599
t	4.70	-1.58
p	.000**	.114
F	13.46	13.46
R²	.043	.043

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

In a multiple linear regression with SERI parent connections and neglect, SERI parent connections predicted college adjustment slightly less strongly than SERI prosocial adults. Neglect did not significantly predict college adjustment. This model explained less variance than models using SERI prosocial adults (Table 17). In a multiple linear regression with SERI parent connections and physical abuse, SERI prosocial adults predicted college adjustment slightly more strongly than in the previous model, while physical abuse did not significantly predict

college adjustment. This model explained less variance than the previous model (Table 18). In a multiple linear regression with SERI prosocial adults and emotional abuse, SERI prosocial adults predicted college adjustment similarly to the model with neglect. Emotional abuse did not significantly predict college adjustment. This model explained a similar amount of variance as the model with neglect (Table 19). In a multiple linear regression with SERI prosocial adults and sexual abuse, SERI prosocial adults predicted college adjustment similarly to the models with neglect and emotional abuse, while sexual abuse no longer significantly predicted college adjustment. This model explained slightly less variance than the model with neglect but slightly more than the model with physical abuse (Table 20).

Table 17

SERI_Parent Connections and Neglect Multiple Linear Regression on CAQ

	SERI_PC	N
Beta	.15	-.08
df	599	599
t	3.11	-1.64
p	.002**	.101
F	11.81	11.81
R²	.038	.038

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 18

SERI_Parent Connections and Physical Abuse Multiple Linear Regression on CAQ

	SERI_PC	PA
Beta	.19	.03
df	599	599
t	4.45	.64
p	.000**	.520
F	10.64	10.64
R²	.031	.031

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 19

SERI_Parent Connections and Emotional Abuse Multiple Linear Regression on CAQ

	SERI_PC	EA
Beta	.16	-.06
df	599	599
t	3.47	-1.22
p	.001**	.225
F	11.19	11.19
R²	.036	.036

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Table 20

SERI_Parent Connections and Sexual Abuse Multiple Linear Regression on CAQ

	SERI_PC	SA
Beta	.17	-.05
df	599	599
t	4.20	-1.24
p	.000**	.215
F	11.22	11.22
R²	.036	.036

*. Beta is significant at the 0.05 level (2-tailed).

**. Beta is significant at the 0.01 level (2-tailed).

Among all the SERI subscales, the most variance in college adjustment seemed to be explained by self-esteem, $R^2 = .088$, $F(1, 600) = 57.87$, $p < .001$; optimism, $R^2 = .087$, $F(1, 600) = 56.97$, $p < .001$; and parent connections, $R^2 = .034$, $F(1, 600) = 20.89$, $p < .001$. The least variance in college adjustment seemed to be explained by access to healthcare, $R^2 = .017$, $F(1, 600) = 10.13$, $p = .002$; prosocial organizations, $R^2 = .016$, $F(1, 600) = 9.75$, $p = .002$; and good schools, $R^2 = .013$, $F(1, 600) = 8.03$, $p = .005$. Table 21 show the means and standard deviations for all the SERI scales, the maltreatment measures, and college adjustment. Table 22 shows the correlations between all the SERI scales and all the maltreatment measures and college adjustment.

Table 21

Descriptive Statistics for SERI, CMQ_N, CMQ_A, and CAQ

	Mean	Standard Deviation
SERI_Full Scale	208.63	36.29
SERI_Individual	95.78	19.36
SERI_Family	73.63	14.90
SERI_Community	28.69	5.54
SERI_Perceived Intelligence	16.64	3.06
SERI_Positive Parenting Practices	16.81	3.94
SERI_Self Esteem	13.21	4.29
SERI_Financial Resources	12.42	3.00
SERI_Faith	16.89	8.09
SERI_Perceived Talent	23.26	5.77
SERI_Good Schools	16.88	3.35
SERI_Prosocial Adults	11.81	3.14
SERI_Kin Connections	14.78	4.65
SERI_Prosocial Organizations	10.54	3.52
SERI_Parent Connections	16.40	4.15
SERI_Access to Healthcare	13.23	2.67
SERI_Coping	10.64	2.61
SERI_Optimism	15.15	3.83
CMQ_A Sexual Abuse	5.65	2.42
CMQ_A Physical Abuse	6.10	2.76
CMQ_A Emotional Abuse	6.59	3.89
CMQ_N Neglect	19.57	9.24
CAQ_College Adjustment	46.46	9.51

Table 22

SERI Correlations with Sexual Abuse, Physical Abuse. Emotional Abuse, Neglect, and CAQ

	Sexual Abuse	Physical Abuse	Emotional Abuse	Neglect	College Adjustment
SERI_FS	-.19**	-.27**	-.35**	-.39	.29**
SERI_IND	-.15**	-.14**	-.24**	-.25**	.32**
SERI_FAM	-.20**	-.40**	-.46**	-.51**	.20**
SERI_COM	-.11**	-.18**	-.20**	-.22**	.18**
SERI_PI	-.10*	-.09*	-.06	-.08*	.13**
SERI_PPP	-.21**	-.45**	-.55**	-.58**	.15**
SERI_SE	-.17**	-.12**	-.28**	-.27**	.30**
SERI_FR	-.09*	-.23**	-.25**	-.29**	.16**
SERI_F	-.06	-.06	-.13**	-.14**	.16**
SERI_PT	-.12**	-.15**	-.15**	-.19**	.22**
SERI_GS	-.06	-.13**	-.16**	-.15**	.12**
SERI_PA	-.13**	-.17**	-.19**	-.23**	.20**
SERI_KC	-.19**	-.26**	-.32**	-.39**	.17**
SERI_PO	-.08	-.05	-.08*	-.11**	.13**
SERI_PC	-.22**	-.39**	-.47**	-.51**	.18**
SERI_ATC	-.06	-.23**	-.18**	-.21**	.13**
SERI_C	-.06	-.03	-.15**	-.12**	.32**
SERI_O	-.11**	-.12**	-.24**	-.24**	.29**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Chapter 4: Discussion

The purpose of this study was to fill gaps in the trauma and resilience literature by comparing amounts and severity of trauma reported and by comparing specific categories of maltreatment with specific categories of protective factors in the college population. It also aimed to provide further evidence supporting the SERI as a useful tool for administrators, researchers, and clinicians. This study built on Oberdorfer, Mohr, and Rosén (2019) which provided validity and reliability evidence for this administration of the SERI. The current study also built on research showing trauma to be important in the college population (i.e., Read et al., 2014), showing protective factors to be important in the college population (i.e., Robbins, Kaye, & Catling, 2018), and showing the relationships between trauma and protective factors to be important (i.e., Ozer et al., 2017). This study focused on specific categorizations of maltreatment and specific categorizations of protective factors in an attempt to bring clarity and structure to a research field marked by high levels of definitional ambiguity. The results of this study provide new insight into how these categorizations of maltreatment relate to categorizations of protective factors in the college population.

Hypothesis 1, that trauma severity would be more related to college adjustment than number of traumatic events experienced, was not supported. Both the number of traumatic events endorsed by participants and the cumulative severity ratings they gave the traumatic events they experienced predicted almost the exact same amount of college adjustment. Both of them predicted a very slight decrease in overall college adjustment score. These results suggest that neither variable measures anything significant above and beyond the other variable. This is important news for clinicians hoping to use empirically supported trauma rating scales and researchers trying to make sense of the literature on the effects of trauma. Often, number of

traumas and severity of cumulative traumas experienced are used interchangeably in the research literature as ways of measuring the vague construct of "trauma." Since both of these methods of measuring trauma predicted college adjustment similarly in this study, it is likely that this lack of consistency in method of measuring trauma in the literature is not a major issue. This study provides some initial evidence that it is acceptable to directly compare the results of studies that used either number or severity of traumatic events experienced as a means of measuring trauma.

Hypothesis 2, that sexual abuse and neglect would predict lower levels of college adjustment than physical or emotional abuse, was partially supported. Sexual abuse and neglect did predict lower levels of college adjustment than physical abuse. However, neglect explained more variance in college adjustment than any other category of maltreatment. Sexual abuse explained much less variance than emotional abuse or neglect. This is possibly due to many more individuals endorsing emotional abuse and neglect than sexual abuse. However, this also clearly speaks to the long-term impacts of emotional abuse and neglect. Sexual abuse and physical abuse are much more visible, and more likely to be reported than emotional abuse (Child Trends, 2019). Additionally, while neglect is much more highly reported than any type of abuse (61% of reports) reports of neglect are much less likely to be investigated (8% of investigations) than sexual abuse (65% of investigations) or physical abuse (21% of investigations) (National Children's Alliance, 2019). However, in this study, emotional abuse and neglect were found to be much more prevalent and more impactful on later functioning in college than sexual abuse of physical abuse. This highlights the importance of considering emotional abuse and neglect seriously when working with children and later when working with survivors of these types of maltreatment.

Hypothesis 3, that the cumulative number of childhood protective factors endorsed would predict higher levels of college adjustment in individuals who endorsed any of the types of maltreatment history, was supported. Each type of maltreatment that originally significantly predicted college adjustment no longer significantly predicted college adjustment once cumulative protective factors were controlled for. It is possible that the same contexts that created maltreatment also reduced protective factors, or that maltreatment itself reduces protective factors, however these findings indicate that it is a lack of protective factors, instead of the experience of maltreatment, that has a direct effect on college adjustment. How much more variance cumulative protective factors predicted than cumulative traumas reinforced the emphasis that this paper, and the field, have put on protective factors. For researchers and clinicians, these results highlight that it is not nearly enough to focus solely on the traumas children have experienced. Understanding the protective factors present in their lives appears to be an even bigger part of the picture, especially when attempting to predict or improve the likelihood of future success in college.

Research question 4 explored how childhood individual, familial, or communal protective factors would impact college adjustment for college students who have experienced physical abuse, sexual abuse, emotional abuse, and neglect. The results indicated that individual protective factors were the strongest predictors of later college adjustment across all types of maltreatment. No type of maltreatment maintained a significant relationship with college adjustment when controlling for either individual or familial protective factors. When controlling for communal protective factors, both neglect and emotional abuse maintained significant relationships with college adjustment, though communal protective factors did seem to reduce the impact of all types of maltreatment on college adjustment. Independent of maltreatment, each

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category of protective factors had a positive relationship with college adjustment. The results suggest that each category of protective factors is important in understanding college adjustment, but that individual protective factors may be the most important to consider. These results make sense given the separation of many individuals from their family and community networks in college. This may represent the first point in their lives for many individuals where they are completely separated from these networks. It seems that, regardless of type of maltreatment experienced, building individual protective factors is an effective way to promote successful adjustment to college. These results also suggest that increasing communal protective factors alone may not be enough to ameliorate the effects of maltreatment on later adjustment to college.

Hypothesis 5, that prosocial adults and parent connections would improve college adjustment for individuals who have experienced childhood sexual and physical abuse while only prosocial adults would improve college adjustment for individuals who have experienced neglect was partially supported. Sexual abuse was no longer significantly related to college adjustment when controlling for prosocial adults. Controlling for prosocial adults also weakened the already non-significant relationship between physical abuse and college adjustment. Both neglect and emotional abuse continued to have significant relationships with college adjustment when controlling for prosocial adults. However, neglect actually had the largest beta change when prosocial adults were included in the model, highlighting that prosocial adults are still important for this population, just not enough to completely negate the relatively strong relationship between neglect and college adjustment.

Sexual abuse was no longer significantly related to college adjustment when controlling for parent connections. Controlling for parent connections also weakened the already non-significant relationship between physical abuse and college adjustment. However, contrary to the

hypothesis, controlling for parent connections also led to non-significant relationships between emotional abuse and college adjustment and neglect and college adjustment. Parent connections was, as expected, a strong predictor of college adjustment, however several other protective factors were unexpectedly stronger than parent connections. Self-Esteem and Optimism emerged as strong predictors of college adjustment across types of maltreatment. Coping was also found to be highly correlated with college adjustment. These results further highlight the importance of individual protective factors for college adjustment. Though these results differ from the consensus in the literature that having a prosocial adult in the community and having a strong connection with one or more parents are the most important protective factors in the face of childhood maltreatment (Strolin-Goltzman, 2016), they align with research on college students that tends to find decreased importance of family protective factors and increased importance of individual and peer protective factors for this population (Howell & Miller-Graff, 2014). It makes sense that important protective factors for college students with a history of maltreatment are different than important protective factors for children currently experiencing maltreatment. The continued importance of connection with parents, the diminished importance of prosocial mentors in the community, and increased importance of individual protective factors such as self-esteem, coping, and optimism seem to highlight the transition to independence in college. These findings provide important areas of focus for clinicians and researchers trying to foster resiliency in the college population.

Hypothesis 6, that those with histories of trauma who scored high on the SERI would score higher on college adjustment than individuals with trauma histories and low scores on the SERI, was supported. Both the SERI full scale and SERI subscales were significantly associated with higher college adjustment. Additionally, the SERI full scale was a much stronger correlate

of college adjustment than measures of trauma. Furthermore, controlling for SERI full scale caused relationships between trauma and college adjustment to lose significance. These results provide evidence supporting the potential clinical utility of this administration of the SERI.

Limitations

One limitation of this study was a range restriction in terms of protective factors. Admittance to college typically represents a base level of resilience and socioeconomic status that is higher than the general population. Individuals who have experienced trauma are less likely to attend college than their peers who have not (Hardner, Wolf, & Rinfrette, 2018). Individuals who experienced significant trauma and were not able to attend college were not captured in this study. Thus, the results, and relative importance of protective factors vs. trauma history found in this study, should not be applied to non-college populations without future research. However, given this restriction in range of protective factor scores, it is surprising that protective factors still had such a significant impact on college adjustment. This further highlights the importance of protective factors in this population.

Another limitation was that this study did not examine current traumas being experienced or protective factors present in a college environment. The focus on this study was on childhood history of trauma and protective factors. This means that important current traumas and protective factors that no doubt had an impact on college adjustment were not accounted for by this study. However, examining current stressors and traumas and protective factors in college students is a topic that has been relatively well covered in other studies (i.e. Liu, Kia-Keating & Modir, 2017). Given the lack of focus on anything currently happening for students in college, it is not surprising that R^2 values in this study were somewhat low (tending to be below .10). The finding that protective factors in childhood could account for up to 10% of variance in college

adjustment scores is quite surprising given the small amount of attention given to childhood protective factors in the college population.

A related limitation was that data were all collected at one time and were collected retrospectively. This study design limited the ability to understand the predictive power of the SERI and prevented the study from being able to definitively determine the directionality of the relationships between trauma and protective factors. The retrospective, cross-sectional design of the study also introduced the possibility that people's recollections of trauma and protective factors were inaccurate or that their opinions about their experiences with trauma and protective factors change over time. While an ideal design for such a study would be to measure trauma and protective factors at multiple points in childhood, and then to measure college adjustment and retrospective impression of trauma and protective factors at multiple points in college, such a design was beyond the scope of this study.

A final major limitation of this study is that clinical utility evidence was established using the same sample that the scale was finalized with. While it is not a methodological concern that clinical utility evidence is also being initially established on this administration, it does highlight the need for further research on the validity, reliability and utility of other administrations of this scale. This study only provided the initial evidence that the scale may be useful for researchers and clinicians working with the college population.

Clinical Implications

There are several important clinical implications of the findings of this study. Firstly, the results of this study and the results of Oberdorfer, Mohr, and Rosén (2019) together suggest that the SERI can be a useful measure of protective factors for the college population. A scale that

includes individual, familial, and communal protective factors is useful for capturing aspects of resilience missed by most measures of protective factors. It has the potential to even be used as a screening tool for incoming students as part of a battery for predicting likelihood of successful adjustment to college. Those lacking in coping, optimism, self-esteem, and other key protective factors could be offered additional support early in their college career.

More broadly, the results of this study highlight the importance of acknowledging childhood trauma and, particularly, childhood protective factors in the college population. If college counselors were trained to look for trauma and to identify and build protective factors in their clients, it is possible they could help build the resilience necessary to succeed and thrive in a college environment. At the very least it could help shift the lens of counselors and university administrators to a more trauma-informed, strengths-based understanding of their population.

Finally, this study also has implications for those working with children, especially those who are the victims of maltreatment. The study again highlights that a strengths-based, resilience-focused lens is likely to have a positive long-term impact when working with children who have experienced trauma. This study also promotes incorporating an ecological systems perspective when working with children, looking for risk and protective factors within the child, their family, and their community. Alongside the traditional approaches of improving connections with parents and mentors in the community, these results also suggest that working with children on building their coping, optimism and self-esteem may benefit them later on in their lives as they transition to independence.

Directions for Future Research

A multiple linear regression involving all types of maltreatment found that no type, except neglect, remained a significant predictor of college adjustment when accounting for other types of maltreatment. Probing these relationships was outside of the narrow scope of the present study. There is a dearth of research examining relationships between different categories of maltreatment. It would be useful for future studies to focus on how different types of maltreatment relate to each other. Questions of this nature would be best answered by a study that took care to select sample participants that reported only experiencing one type of maltreatment, to prevent the overlap between categories that made interpretation difficult in this study.

Protective factors had a significantly larger impact on college adjustment than trauma in this study. This finding highlights the importance of protective factors in the college population. This also highlights the need for more studies examining the effects of protective factors in this population. Further research is needed to understand which protective factors are most important in this population, the impacts of these protective factors, and how to increase their presence in the college population. Such research will provide invaluable direction to clinicians working with the college population.

Given that all research on the current version of the SERI (this study and Oberdorfer, Mohr, and Rosén, 2019) has used the same sample. It is important for future research to administer the SERI to new samples. Future studies should re-examine reliability and validity of new administrations of the SERI on new samples. Future studies should also examine research questions related to the impact of protective factors using the SERI on new samples. This will be

the best way to establish the SERI as a useful measure of protective factors for researchers and clinicians focusing on the college population.

Conclusion

Overall, these results provide important new insight into protective factors in the college population. These results highlight the importance of good connections with parents and strong individual protective factors such as coping, optimism, and self-esteem for students trying to adjust to college. These results emphasize viewing college students through a strengths-based lens as their protective factor history seems to be a much larger predictor of college adjustment than their trauma history. While these results did not find any major differences between specific types of maltreatment and how they related to specific types of protective factors, they did highlight that emotional abuse and neglect seem to be the strongest predictors of college adjustment, and that not all protective factors removed the significance of this relationship. These findings highlight the importance of considering these types of maltreatment in the college population alongside the more commonly considered sexual abuse and physical abuse.

References

Abrahams, L. (2009). Treating Traumatized Children: Risk, Resilience and Recovery. *Journal of Child & Adolescent Mental Health*, *21*(1), 81–82.

https://doi.org/10.2989/JCAMH.2009.21.1.12.814

Alisic, E., Zalta, A. K., van Wesel, F., Larsen, S. E., Hafstad, G. S., Hassanpour, K., & Smid, G. E. (2014). Rates of post-traumatic stress disorder in trauma-exposed children and adolescents: Meta-analysis. *The British Journal of Psychiatry*, *204*(5), 335–340.

https://doi.org/10.1192/bjp.bp.113.131227

Álvarez, M.-J., Masramon, H., Peña, C., Pont, M., Gourdier, C., Roura-Poch, P., & Arrufat, F. (2015). Cumulative Effects of Childhood Traumas: Polytraumatization, Dissociation, and Schizophrenia. *Community Mental Health Journal*, *51*(1), 54–62. https://doi.org/10.1007/s10597-014-9755-2

Anand, A., Koller, D. L., Lawson, W. B., Gershon, E. S., & Nurnberger, J. I. (2015). Genetic and childhood trauma interaction effect on age of onset in bipolar disorder: An exploratory analysis. *Journal of Affective Disorders*, *179*, 1–5. https://doi.org/10.1016/j.jad.2015.02.029

Ballard, E. D., Van Eck, K., Musci, R. J., Hart, S. R., Storr, C. L., Breslau, N., & Wilcox, H. C. (2015). Latent classes of childhood trauma exposure predict the development of behavioral health outcomes in adolescence and young adulthood. *Psychological Medicine*, *45*(15), 3305–3316. https://doi.org/10.1017/S0033291715001300

Banyard, V. L., & Cantor, E. N. (2004). Adjustment to College Among Trauma Survivors: An Exploratory Study of Resilience. *Journal of College Student Development*, *45*(2), 207–221.

https://doi.org/10.1353/csd.2004.0017

Barnett, D., Manly, J. T., & Cicchetti, D. (1993). Defining child maltreatment: The interface between policy and research. In D. Cicchetti & S. L. Toth (Eds.), Advances in Applied Developmental

Psychology: Child Abuse, Child Development and Social Policy (pp. 7-73). Norwood, NJ: Ablex

Publishing Corp.

Becker-Lausen, E., Sanders, B., & Chinsky, J. M. (1995). Mediation of abusive childhood

experiences: Depression, dissociation, and negative life outcomes. *American Journal of*

Orthopsychiatry, *65*(4), 560–573. https://doi.org/10.1037/h0079670

Ben-David, V. (2016). A focus on neglect: Comparing the characteristics of children and parents in

cases of neglect, abuse, and non-CAN (child abuse and neglect) in Israeli rulings on termination

of parental rights. *Journal of Aggression, Maltreatment & Trauma,* 25(7), 721–740. https://doi-

org.ezproxy2.library.colostate.edu/10.1080/10926771.2016.1153549

Bronfenbrenner, U., & Morris, P. A. (2006). The Bioecological Model of Human Development. In R.

M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Theoretical models of human*

development., Vol. 1, 6th ed. (Pp. 793–828). Hoboken, NJ: John Wiley & Sons Inc. Retrieved

from

http://search.ebscohost.com.ezproxy2.library.colostate.edu/login.aspx?direct=true&AuthType=c

ookie,ip,url,cpid&custid=s4640792&db=psyh&AN=2006-08774-014&site=ehost-live.

Bulathwatta, A. D. N., Witruk, E., & Reschke, K. (2017). Effect of emotional intelligence and

resilience on trauma coping among university students. *Health Psychology Report*, *1*, 12–19.

https://doi.org/10.5114/hpr.2017.61786

Carliner, H., Keyes, K. M., McLaughlin, K. A., Meyers, J. L., Dunn, E. C., & Martins, S. S. (2016).

Childhood Trauma and Illicit Drug Use in Adolescence: A Population-Based National

Comorbidity Survey Replication–Adolescent Supplement Study. *Journal of the American*

Academy of Child & Adolescent Psychiatry, *55*(8), 701–708.

https://doi.org/10.1016/j.jaac.2016.05.010

Castro, S. A., Infurna, F. J., Lemery-Chalfant, K., Waldron, V., & Zautra, E. (2019). Can an online curriculum improve the daily socio-emotional lives of middle-aged adults exposed to childhood Trauma? *Behaviour Research and Therapy*, *118*, 65–76. https://doi.org/10.1016/j.brat.2019.03.012

Chalavi, S., Vissia, E. M., Giesen, M. E., Nijenhuis, E. R. S., Draijer, N., Cole, J. H., Dazzan, P., Pariante, C. M., Madsen, S. K., Rajagopalan, P., Thompson, P. M., Toga, A. W., Veltman, D. J., & Reinders, A. A. T. S. (2015). Abnormal hippocampal morphology in dissociative identity disorder and post-traumatic stress disorder correlates with childhood trauma and dissociative symptoms: Hippocampal morphology in DID and PTSD. *Human Brain Mapping*, *36*(5), 1692–1704. https://doi.org/10.1002/hbm.22730

Child Trends (2019). Child Maltreatment. Retrieved November, 2020, from https://www.childtrends.org/indicators/child-maltreatment

Child Welfare Information Gateway. (2019). Long-term consequences of child abuse and neglect. Retrieved from https://www.childwelfare.gov/pubPDFs/long_term_consequences.pdf.

Collishaw, S., Pickles, A., Messer, J., Rutter, M., Shearer, C., & Maughan, B. (2007). Resilience to adult psychopathology following childhood maltreatment: Evidence from a community sample. *Child Abuse & Neglect*, *31*(3), 211–229. https://doi.org/10.1016/j.chiabu.2007.02.004

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76–82. https://doi.org/10.1002/da.10113

Dale, L. P., Shaikh, S. K., Fasciano, L. C., Watorek, V. D., Heilman, K. J., & Porges, S. W. (2018). College females with maltreatment histories have atypical autonomic regulation and poor

psychological wellbeing. *Psychological Trauma: Theory, Research, Practice, and Policy*, *10*(4), 427–434. https://doi.org/10.1037/tra0000342

Deković, M. (1999). Risk and Protective Factors in the Development of Problem Behavior During Adolescence. *Journal of Youth and Adolescence*, *28*(6), 667–685. https://doi.org/10.1023/A:1021635516758

Dworkin, E. R., Ojalehto, H., Bedard-Gilligan, M. A., Cadigan, J. M., & Kaysen, D. (2018). Social support predicts reductions in PTSD symptoms when substances are not used to cope: A longitudinal study of sexual assault survivors. *Journal of Affective Disorders*, *229*, 135–140. https://doi.org/10.1016/j.jad.2017.12.042

Elliott, A. N., Alexander, A. A., Pierce, T. W., Aspelmeier, J. E., & Richmond, J. M. (2009). Childhood Victimization, Poly-Victimization, and Adjustment to College in Women. *Child Maltreatment*, *14*(4), 330–343. https://doi.org/10.1177/1077559509332262

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine, 14*(4), 245–258. https://doi.org/10.1016/S0749-3797(98)00017-8

First, J., First, N. L., & Houston, J. B. (2018). Resilience and Coping Intervention (RCI): A Group Intervention to Foster College Student Resilience. *Social Work with Groups*, *41*(3), 198–210. https://doi.org/10.1080/01609513.2016.1272032

Font, S. A., & Maguire-Jack, K. (2020). It's not "Just poverty": Educational, social, and economic functioning among young adults exposed to childhood neglect, abuse, and poverty. *Child Abuse & Neglect*, 101. https://doi-org.ezproxy2.library.colostate.edu/10.1016/j.chiabu.2020.104356

Ford, D. C., Merrick, M. T., Parks, S. E., Breiding, M. J., Gilbert, L. K., Edwards, V. J., Dhingra, S. S., Barile, J. P., & Thompson, W. W. (2014). Examination of the factorial structure of adverse childhood experiences and recommendations for three subscale scores. *Psychology of Violence, 4*(4), 432–444. https://doi.org/10.1037/a0037723

Gardner, D. L., Huber, C. H., Steiner, R., Vazquez, L. A., & Savage, T. A. (2008). The Development and Validation of the Inventory of Family Protective Factors: A Brief Assessment for Family Counseling. *The Family Journal*, *16*(2), 107–117. https://doi.org/10.1177/1066480708314259

Hardner, K., Wolf, M. R., & Rinfrette, E. S. (2018). Examining the relationship between higher educational attainment, trauma symptoms, and internalizing behaviors in child sexual abuse survivors. *Child Abuse & Neglect*, *86*, 375–383. https://doi.org/10.1016/j.chiabu.2017.10.007

Howell, K. H., & Miller-Graff, L. E. (2014). Protective factors associated with resilient functioning in young adulthood after childhood exposure to violence. *Child Abuse & Neglect*, *38*(12), 1985–1994. https://doi.org/10.1016/j.chiabu.2014.10.010

Jaffee, S. R., & Maikovich-Fong, A. K. (2011). Effects of chronic maltreatment and maltreatment timing on children's behavior and cognitive abilities: Effects of chronic maltreatment. *Journal of Child Psychology and Psychiatry*, *52*(2), 184–194. https://doi.org/10.1111/j.1469-7610.2010.02304.x

Kashdan, T. B., & Kane, J. Q. (2011). Post-traumatic distress and the presence of post-traumatic growth and meaning in life: Experiential avoidance as a moderator. *Personality and Individual Differences*, *50*(1), 84–89. https://doi.org/10.1016/j.paid.2010.08.028

Kira, I. A., Fawzi, M. H., & Fawzi, M. M. (2013). The dynamics of cumulative trauma and trauma types in adults patients with psychiatric disorders: Two cross-cultural studies. *Traumatology*, *19*(3), 179–195. https://doi.org/10.1177/1534765612459892

Kira, I. , Templin, T. , Lewandowski, L. , Ashby, J. , Oladele, A. & Odenat, L. (2012). Cumulative

    Trauma Disorder Scale (CTD): Two Studies. *Psychology, 3,* 643-656. doi:

    10.4236/psych.2012.39099.

Liu, S. R., Kia-Keating, M., & Modir, S. (2017). Hope and adjustment to college in the context of

    collective trauma. *Journal of American College Health*, *65*(5), 323–330.

    https://doi.org/10.1080/07448481.2017.1312412

Luke, N., & Banerjee, R. (2013). Differentiated associations between childhood maltreatment

    experiences and social understanding: A meta-analysis and systematic review. *Developmental*

    Review, *33*(1), 1–28. https://doi.org/10.1016/j.dr.2012.10.001

Maples, L. A., Park, S. S., Nolen, J. P., & Rosén, L. A. (2014). Resilience to Childhood Abuse and

    Neglect in College Students. *Journal of Aggression, Maltreatment & Trauma*, *23*(10), 1001–

    1019. https://doi.org/10.1080/10926771.2014.964435

Masten, A. S. (2014). *Ordinary magic: Resilience in development*. New York, NY, US: Guilford

    Press.

Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from

    the study of children who overcome adversity. *Development and Psychopathology*, *2*(4), 425–

    444. https://doi.org/10.1017/S0954579400005812

Mohr, D, L. (2012). The Social and Emotional Resources Inventory: A Comprehensive Measure of

    Protective Factors. (Unpublished Master's thesis). Colorado State University, Fort Collins, CO.

Mohr, D., & Rosén, L. A. (2017). The Impact of Protective Factors on Posttraumatic Growth for

    College Student Survivors of Childhood Maltreatment. *Journal of Aggression, Maltreatment &*

    Trauma, *26*(7), 756–771. https://doi.org/10.1080/10926771.2017.1304478

Moore, S. M., Welsh, M. C., & Peterson, E. (2019). History of Childhood Maltreatment: Associations

    with Aggression and College Outcomes. *Journal of Aggression, Maltreatment & Trauma*, 1–18.

    https://doi.org/10.1080/10926771.2019.1637989

National Children's Alliance. (2020). National Child Abuse Statistics. Retrieved from

    https://www.nationalchildrensalliance.org/media-room/national-statistics-on-child-abuse/

Nock, M. K., & Kessler, R. C. (2006). Prevalence of and risk factors for suicide attempts versus

    suicide gestures: Analysis of the National Comorbidity Survey. *Journal of Abnormal*

    Psychology, *115*(3), 616–623. https://doi.org/10.1037/0021-843X.115.3.616

Oberdorfer, M., Mohr, D., & Rosén, L. A. (2019). The Social and Emotional Resources Inventory:

    Further Development of a Comprehensive Self-Report Measure of Protective Factors. *Journal of*

    Aggression, Maltreatment & Trauma, 1–17. https://doi.org/10.1080/10926771.2019.1685045

Ozer, E. J., Lavi, I., Douglas, L., & Wolf, J. P. (2017). Protective Factors for Youth Exposed to

    Violence in Their Communities: A Review of Family, School, and Community Moderators.

    Journal of Clinical Child & Adolescent Psychology, *46*(3), 353–378.

    https://doi.org/10.1080/15374416.2015.1046178

Paivio, S. C., & Pascual-Leone, A. (2010). Trauma and its effects. In S. C. Paivio & A. Pascual-

    Leone, *Emotion-focused therapy for complex trauma: An integrative approach.* (pp. 13–32).

    American Psychological Association. https://doi.org/10.1037/12077-001

Parker, M. M., Hergenrather, K., Smelser, Q., & Kelly, C. T. (2020). Exploring child-centered play

    therapy and trauma: A systematic review of literature. *International Journal of Play Therapy*.

    https://doi.org/10.1037/pla0000136.supp (Supplemental)

Petruccelli, K., Davis, J., & Berman, T. (2019). Adverse childhood experiences and associated health outcomes: A systematic review and meta-analysis. *Child Abuse & Neglect*, *97*. https://doi.org/10.1016/j.chiabu.2019.104127

Portnoy, G. A., Relyea, M. R., Decker, S., Shamaskin☐Garroway, A., Driscoll, M., Brandt, C. A., & Haskell, S. G. (2018). Understanding Gender Differences in Resilience Among Veterans: Trauma History and Social Ecology. *Journal of Traumatic Stress*, *31*(6), 845–855. https://doi.org/10.1002/jts.22341

Read, J. P., Griffin, M. J., Wardell, J. D., & Ouimette, P. (2014). Coping, PTSD symptoms, and alcohol involvement in trauma-exposed college students in the first three years of college. *Psychology of Addictive Behaviors*, *28*(4), 1052–1064. https://doi.org/10.1037/a0038348

Rich, D. J., Gingerich, K. J., & Rosen, L. A. (1997). Childhood Emotional Abuse and Associated Psychopathology in College Students. *Journal of College Student Psychotherapy*, *11*(3), 13–28. https://doi.org/10.1300/J035v11n03_04

Robbins, A., Kaye, E., & Catling, J. C. (2018). Predictors of Student Resilience in Higher Education. *Psychology Teaching Review*, 24(1), 44-52.

Ross, J., Waterhouse-Bradley, B., Contractor, A. A., & Armour, C. (2018). Typologies of adverse childhood experiences and their relationship to incarceration in U.S. military veterans. *Child Abuse & Neglect*, *79*, 74–84. https://doi.org/10.1016/j.chiabu.2018.01.023

Ross, L., & Arsenault, S. (2018). Problem Analysis in Community Violence Assessment: Revealing Early Childhood Trauma as a Driver of Youth and Gang Violence. *International Journal of Offender Therapy and Comparative Criminology*, *62*(9), 2726–2741. https://doi.org/10.1177/0306624X17734798

Schultz, D., Jaycox, L. H., Hickman, L. J., Setodji, C., Kofner, A., Harris, R., & Barnes, D. (2013). The Relationship Between Protective Factors and Outcomes for Children Exposed to Violence. *Violence and Victims*, *28*(4), 697–714. https://doi.org/10.1891/0886-6708.VV-D-12-00005

Schwartz, A. J. (2006). Four Eras of Study of College Student Suicide in the United States: 1920-2004. *Journal of American College Health*, *54*(6), 353–366. https://doi.org/10.3200/JACH.54.6.353-366

Sheline, K. T., & Rosén, L. A. (2017). Posttraumatic Growth Moderates Suicide Risk Among Trauma Exposed Undergraduates. *Journal of College Student Development*, *58*(3), 402–412. https://doi.org/10.1353/csd.2017.0030

Slack, K. S., Berger, L. M., DuMont, K., Yang, M.-Y., Kim, B., Ehrhard-Dietzel, S., & Holl, J. L. (2011). Risk and protective factors for child neglect during early childhood: A cross-study comparison. *Children and Youth Services Review*, 33(8), 1354–1363. https://doi-org.ezproxy2.library.colostate.edu/10.1016/j.childyouth.2011.04.024

Slone, M., & Shoshani, A. (2017). Children Affected by War and Armed Conflict: Parental Protective Factors and Resistance to Mental Health Symptoms. *Frontiers in Psychology*, *8*, 1397. https://doi.org/10.3389/fpsyg.2017.01397

Sonu, S., Post, S., & Feinglass, J. (2019). Adverse childhood experiences and the onset of chronic disease in young adulthood. *Preventive Medicine*, *123*, 163–170. https://doi.org/10.1016/j.ypmed.2019.03.032

Springer, J.F. and Philips, J.L. (1995). Individual Protective Factors Index: A Measure of Adolescent Resiliency. Folsom, CA: EMT Associates.

Stainton, A., Chisholm, K., Kaiser, N., Rosen, M., Upthegrove, R., Ruhrmann, S., & Wood, S. J. (2019). Resilience as a multimodal dynamic process. *Early Intervention in Psychiatry*, *13*(4), 725–732. https://doi.org/10.1111/eip.12726

Stone, S., & Zibulsky, J. (2015). Maltreatment, Academic Difficulty, and Systems-Involved Youth: Current Evidence and Opportunities: Academic Difficulty. *Psychology in the Schools*, *52*(1), 22–39. https://doi.org/10.1002/pits.21812

Strolin-Goltzman, J., Woodhouse, V., Suter, J., & Werrbach, M. (2016). A mixed method study on educational well-being and resilience among youth in foster care. *Children and Youth Services Review*, *70*, 30–36. https://doi.org/10.1016/j.childyouth.2016.08.014

Supplemental Material for Coping Self-Efficacy and Trauma-Related Shame Mediate the Association Between Negative Social Reactions to Sexual Assault and PTSD Symptoms. (2019). *Psychological Trauma: Theory, Research, Practice, and Policy*, tra0000379.supp. https://doi.org/10.1037/tra0000379.supp

Tamannaeifar, M., & Shahmirzaei, S. (2019). Prediction of Academic Resilience Based on Coping Styles and Personality Traits. *Practice in Clinical Psychology*, 1–10. https://doi.org/10.32598/jpcp.7.1.1

Turner, H. A., Vanderminden, J., Finkelhor, D., & Hamby, S. (2019). Child neglect and the broader context of child victimization*. Child Maltreatment,* 24(3), 265–274. https://doi-org.ezproxy2.library.colostate.edu/10.1177/1077559518825312

U.S. Department of Education, National Center for Education Statistics. (2018). The Condition of Education 2018 (NCES 2018-144), Annual Earnings of Young Adults.

U.S. Department of Education, National Center for Education Statistics. (2019). The Condition of Education 2019 (NCES 2019-144), Undergraduate Retention and Graduation Rates.

Van Breda, A. (2018). A Critical Review of Resilience Theory and its Relevance for Social Work. *Social Work*, *54*(1). https://doi.org/10.15270/54-1-611

Wamser-Nanney, R., Nanney, J. T., Conrad, E., & Constans, J. I. (2019). Childhood trauma exposure and gun violence risk factors among victims of gun violence. *Psychological Trauma: Theory, Research, Practice, and Policy*, *11*(1), 99–106. https://doi.org/10.1037/tra0000410

Weltz, S. M., Armeli, S., Ford, J. D., & Tennen, H. (2016). A daily process examination of the relationship between childhood trauma and stress-reactivity. *Child Abuse & Neglect*, *60*, 1–9. https://doi.org/10.1016/j.chiabu.2016.08.005

Woodford, M. R., Weber, G., Nicolazzo, Z., Hunt, R., Kulick, A., Coleman, T., Coulombe, S., & Renn, K. A. (2018). Depression and Attempted Suicide among LGBTQ College Students: Fostering Resilience to the Effects of Heterosexism and Cisgenderism on Campus. *Journal of College Student Development*, *59*(4), 421–438. https://doi.org/10.1353/csd.2018.0040

Xiong, P.-D., Yang, L., & Zhu, Z.-H. (2015). Relation of posttraumatic growth to meaning of life and experiential avoidance in adolescents. *Chinese Mental Health Journal, 29*(1), 40–46. Retrieved from http://search.ebscohost.com.ezproxy2.library.colostate.edu/login.aspx?direct=true&AuthType=cookie,ip,url,cpid&custid=s4640792&db=psyh&AN=2015-06620-007&site=ehost-live.

Yoshimura, C. G., & Campbell, K. B. (2016). Interpersonal Violence and Sexual Assault: Trauma-Informed Communication Approaches in University Counseling Centers. *Journal of College Student Psychotherapy*, *30*(4), 300–312. https://doi.org/10.1080/87568225.2016.1221720

Zimmerman, M. A., Stoddard, S. A., Eisman, A. B., Caldwell, C. H., Aiyer, S. M., & Miller, A. (2013). Adolescent Resilience: Promotive Factors That Inform Prevention. *Child Development Perspectives*, *7*(4), 215–220. https://doi.org/10.1111/cdep.12042