

Florida State University Libraries

2019

A Trauma-Informed Approach to Building College Students' Resilience

Karen Oehme, Ann Perko, James Clark, Elizabeth C Ray, Laura Arpan
and Lyndi Bradley



A Trauma-Informed Approach to Building College Students' Resilience

Karen Oehme, Ann Perko, James Clark, Elizabeth C. Ray, Laura Arpan, and Lyndi Bradley
Florida State University

Author Note

Karen Oehme is the Director of the Institute for Family Violence Studies at Florida State University's College of Social Work. Ann Perko is the Director of Policy and Special Projects for the Institute for Family Violence Studies at Florida State University's College of Social Work. James Clark is the Dean of Florida State University's College of Social Work. Elizabeth Ray is a PhD student at Florida State University's College of Communication and Information. Laura Arpan is a professor in Florida State University's College of Communication and Information. Lyndi Bradley is the Project Coordinator of the Institute for Family Violence Studies at Florida State University's College of Social Work.

Correspondence should be sent to Karen Oehme at Florida State University, 296
Champions Way, Tallahassee FL (Mail Code: 52-70). Email: koehme@fsu.edu

Abstract

Resilience is a dynamic process of positive adaptation within the context of significant adversity. As colleges grapple with high rates of depression, anxiety, and suicide among students, many seek new ways to improve students' resilience. This paper describes the development of a new psychoeducational universal prevention resilience program (<https://strong.fsu.edu>) designed to complement existing mental health services at a large public university. Serving a diverse population of 42,000 students, the new online program is designed to strengthen student coping skills, to inform students how trauma can affect mental and behavioral health, and to increase students' connections to each other and to campus resources. It uses an iterative applied science approach grounded in the theory of resilience and stress research. It also adapts empirical information and data to a broader social work perspective in a manner responsive to trauma, media usage of Generation Z and young millennials, and the realities of campus environmental stressors.

A Trauma-Informed Approach to Building College Students' Resilience

Although there have been many definitions of resilience (Calitz, 2018), the term suggests a dynamic process of positive adaptation within the context of significant adversity (Luthar et al., 2000). The perception that college students lack adequate resilience skills stems at least in part from studies indicating that these students experience high rates of mental illness (Eisenberg, Lipson, Ceglarek, Kern, & Phillips, 2018), substance abuse, (Pedrelli, Nyer, Yeung, Zulaf, & Wilens, 2015) and suicide (Dvorak, Lamis, & Malone, 2013). Students may experience mental health symptoms for the first time at college; 75% of mental health disorders first emerge by age 24 (Kessler et al., 2005). One study indicated that about 35% of young adults enter college with a diagnosed mental health issue (Bruffaerts et al., 2018), while other studies of current students indicate that nearly half are affected by a diagnosable mental health issue (Blanco, Okuda, & Wright, 2008). The numbers and severity of the disorders are increasing (Hunt & Eisenberg, 2010). Transfer students may be at even higher risk for these issues (Liu, Stevens, Wong, Yasui, & Chen, 2018), perhaps because of challenges related to forming new relationships on a new campus when their peers have already made those transitions successfully. Additionally, more than 45% of college students engage in binge drinking (Blanco et al., 2008), and 20% experience an alcohol use disorder (Wechsler & Kowalik, 2005) -- these rates are higher than those among their non-college peers (Hingson, Zha, & Weitzman, 2009). An American College Health Association survey found that suicide was the leading cause of student death, and alcohol-related traffic deaths and alcohol related non-traffic deaths are among the top four known causes of student deaths (Turner, Bauerle, & Keller, 2011). These statistics must be viewed in the context of the larger population, in which a high number of adults (18.1%) experience mental illness, and in which a significant rise in suicide rates has been noted (Centers for Disease Control and Prevention [CDC], 2018; Substance Abuse and Mental Health Services Administration

[SAMHSA], 2015). Suicide is now the tenth leading cause of death in the U.S. Interestingly, studies have found that college students, as young adults, have less developed coping skills than older adults (Blanco et al., 2008). The CDC report recommended that schools teach students coping and problem-solving skills.

Researchers who study college students have also noted that college is viewed as a time of significant transition to adulthood (Walters, Bulmer, Troiano, Obiaka, & Bonhomme, 2018). About three-quarters of the approximately twenty million students enrolled in college in the United States are under the age of twenty-five (National Center for Education Statistics [NCES], 2018). The transition from adolescence to young adulthood (age 14-25) creates potential vulnerability in students, while simultaneously presenting opportunities for building life skills (Alwin, Cohen, & Necomb, 1991; Elder, 1998; Anderson, 2003; Dahl, 2004; Harvard University Center on Developing Child, 2018). Contemporary neuroscience research has revealed that as the adolescent brain continues to develop during this critical period, the neural connections used most are strengthened, and less-used connections are winnowed down in a process sometimes known as pruning (Chung & Hudziak, 2017; Harvard Center on Developing Child, 2018). Thus, young adulthood is a period of extraordinary brain growth and change, when young adults develop strength and resilience (Chung & Hudziak, 2017). But it is also a period when these individuals are also at higher risk of suicide and accidental death (Dahl & Gunnar, 2009). Because the prefrontal cortex—the seat of executive functioning in the brain—is the last area of the brain to fully mature, skills like emotional regulation, impulse control, judgment, planning, and cognitive flexibility are still developing in young adults (Dahl, 2004). This recent neuroscience is consistent with earlier studies showing that young people are more likely to engage in poor decision making because they are not yet able to fully appreciate the risks

associated with their behavior. This especially holds true when they participate in high-risk group activities as they seek approval and acceptance by others. (Van Leijenhorst et al., 2010; Chung & Hudziak, 2017; Dahl, 2004). College fraternity members' high-risk behavior is only one example of this, if the most salient.

Those who seek to help students make a smooth transition into college life must also take into account the likelihood that many students have experienced early life stressors, including adverse childhood experiences. Referred to as ACEs by the CDC, adverse childhood experiences include physical abuse or neglect, sexual abuse, emotional abuse or neglect, parental mental illness, substance abuse in the home, parental separation or divorce, domestic violence in the home, community violence, and the incarceration of a household member (CDC, 2016). A landmark study on ACEs (Felitti et al., 1998), and an additional twenty years of research on diverse populations (Giovanelli, Reynolds, Mondì, & Ou, 2016; Goncalves Soares et al., 2016; Hughes et al., 2016; Benjet et al., 2016; Brockie, Dana-Sacco, Wallen, Wilcox, & Campbell, 2015) confirm that ACEs are common (Rothman, Edwards, Heeren, & Hingson, 2008; Mersky & Janczewski, 2018; Merrick, Ford, Ports, & Guinn, 2018), and have been found to be a major underreported source of adult health problems (Dong et al., 2004). Research has shown that ACEs are strongly associated with adult chronic health conditions (Shonkoff et al., 2012), mental illness (Merskey & Janczewski, 2018), health risk behaviors (Dube, Anda, Felitti, Edwards, & Croft, 2002), and even premature death (Merrick et al., 2017). The more ACEs reported by an individual, the more severe the risk for negative mental, physical, and behavioral outcomes. (Merrick et al., 2017). There is compelling evidence that shows a widespread prevalence of ACEs and trauma in young adult student populations (Wiehn, Hornberg, & Fischer, 2018; Read, Ouimette, White, Colder, & Farrow, 2011; Smyth, Hockemeyer, Heron, Wonderlich, &

Pennebaker, 2008) and that high prevalence of ACEs is associated with increased student vulnerability to physical and mental illness, drug and alcohol misuse (Felitti et al., 1998; Dube et al., 2001; Dube et al., 2003), health risk behaviors (Hingson et al., 2009) and victimization. High numbers of ACEs are also associated with intimate partner violence and suicide (Felitti et al., 1998; Choi, DiNitto, Marti, & Segal, 2017; Dube et al., 2001; Dube et al., 2003).

The impact of ACEs may be related to the complex circuitry of the developing brain, which is significantly impacted by biopsychosocial trauma and maltreatment (Shonkoff et al., 2012; Wilkins, Tsao, Hertz, Davis, & Klevens, 2014). When children are raised in safe and nurturing environments, they typically develop appropriate neural connections for empathy, emotional regulation, and problem-solving skills (Anda et al., 2006). On the other hand, stress hormones recurrently flood the developing brains of children who are suffering severe, sustained maltreatment or traumatic experiences (Heim & Nemeroff, 2001; Shonkoff et al., 2012). These recurrent and cascading hormonal stress responses can create compromised brain structures and interfere with the development of synaptic connections necessary for reasoned decision-making, impulse control, and anger management (De Bellis & Zisk, 2014; Davidson & McEwen, 2012).

College students who have experienced significant adversity are more likely to self-medicate to try to manage the anxiety and depression common to trauma survivors. Maladaptive coping behaviors include binge drinking and substance abuse, and studies have indicated that many young trauma survivors initiate alcohol use by age 12 (Rothman et al., 2008; Felitti et al., 1998; Wilkins et al., 2014; CDC, 2016). Research shows that between two-thirds to three-quarters of serious problematic alcoholism and IV drug usage can be attributed to ACEs (Children's Home Society of South Dakota; Dube et al., 2003). In addition, 64% of suicide attempts among adults and 80% of suicide attempts during childhood/adolescence were found to

be attributable to ACEs, statistics of a magnitude that researchers noted were rare in epidemiology and public health (Dube et al., 2001).

Despite the increased risks associated with adverse childhood experiences, advancements in neuroscience indicate that the brain has the ability to heal from the sequelae of trauma (Davidson & McEwen, 2012). The period when the brain is still developing and very “plastic” (Davidson & McEwen, 2012) presents an ideal time for “brain-building health promotion and illness prevention approaches” (Chung & Hudziak, 2017, p.166) for young adults. The overwhelming evidence for the impact of ACEs and the plasticity of the young adult brain point to the need for trauma-informed approaches to working with college students when seeking to address alcohol, substance abuse, and mental health challenges. A trauma-informed approach changes the common question “What is wrong with you?” to the more relevant “What happened to you?” in order to more validly explain why young adults abuse alcohol or substances (Reed, Wang, Shillington, Clapp, & Lange, 2017). Consequently, substance abuse interventions that do not address trauma have been shown to be less effective (Trent, Stander, Thomsen, & Merrill, 2007). In contrast, research indicates that people can be empowered by learning about how childhood trauma may have affected them (Davidson & McEwen, 2012), and specific therapeutic activities have been shown to positively impact the brain. In short, just as the brain can often be harmed by negative experiences, so too can it can often be subsequently healed through positive experiences.

Although the CDC data indicate that exposure to some ACEs is nearly universal, not all college students have suffered severe adverse childhood experiences. Nonetheless, even those who have not endured earlier traumatic experiences can experience significant social, economic, and academic pressures at college. The significant stress caused by student debt (Ulbrich & Kirk,

2017); the social stress related to living away from home, sharing living space, and juggling social demands (Sungkok et al., 2017); and rigorous academic expectations and pressures (Adams, 2012) are all stressors that can impact student wellbeing. Thus, all college students may benefit from learning new coping skills, effective stress management, and intentional emotional regulation approaches.

As university and college administrators grapple with how to build student resilience for diverse student bodies, multiple approaches have recently emerged and are currently under development. The Resilience Consortium, for example, is a large association of representatives from higher education who are interested in understanding and promoting student resilience (<https://resilienceconsortium.bsc.harvard.edu/about>), defined as “capacities for persistence, creativity, emotional intelligence, grit, cognitive flexibility, risk-taking, agency, adapting to change, delaying gratification, learning from failure, and questioning success.” Multiple approaches to build student resilience have been initiated, from the construction of a special residence hall and the WE program at the University of Vermont (Hudziak & Tiemeier, 2017), to the formation of trained peer groups that teach students how to identify and respond to signs of mental illness and substance abuse on campus, (Mental Health First Aid, 2018; Sontag-Padilla et al., 2018), to specific efforts to increase academic resilience (Stallman & Kavanagh, 2018), and the Cognitive Behavioral Therapy approach of the Penn Resilience Program (Seligman, Schulman, & Tryon, 2007). These efforts are typically seen not as a replacement for professional counseling resources on campus, but as a complement to existing resources, which are frequently stretched thin by high levels of student demand (Parcover, Mays, & McCarthy, 2015).

The Student Resilience Project

The Student Resilience Project (<https://strong.fsu.edu>) was developed by a large multidisciplinary design team as a psychoeducational resilience program to strengthen student coping with college stress. The building of strong cross-campus partnerships from twelve colleges within the university resulted in a diverse stakeholder group of administration, faculty, staff, and students who contributed to the development, initial testing, and dissemination of the project. The design of the project included an extensive literature review of the science of stress, trauma and resilience, as well as constant and ongoing testing and feedback from students. It is important to note that the university leadership committed to publicly and frankly acknowledging the real-life problems and struggles facing their students so that these could be effectively identified and addressed in the project design process.

Formative Research and Site Design

Launched in August 2018, the project serves a diverse campus population of 42,000 students (33% minority). Using an applied science approach (Teasdale & Barnard, 1993), the team gathered data and study findings published by developers of evidence-informed and evidence-based public health and mental health interventions and added a conceptual biopsychosocial framework acknowledging that individual mental health problems are embedded in developmental and environmental challenges. This approach uses the reality of college student mental and behavioral health issues as a starting point and then evaluates the application of theory, existing data, and the testing of hypotheses. It incorporates constant feedback from end-users to improve the content, test applications, and enhance theoretical frameworks. The project development and launch constitute only the initial steps in the applied science approach to the Resilience Project design, as the feedback loop through anonymous and voluntary instruments attached to the project provide opportunities to test experimental models and gather and analyze participant responses.

In addition to the extensive national literature review, the Resilience Team had the benefit of campus-specific epidemiological data to inform the project. Issues identified specially through student health surveys by the campus 2017 Health Report included data on FSU student responses to the American College Health Association's (ACHA) National College Health Assessment (NCHA), a survey of student behavior and attitudes toward health topics (Florida State University Healthy Campus, 2017). Among other things, the report identifies impediments to academic success. The top three impediments among FSU students were stress, anxiety, and sleep, with approximately 30%, 22%, 21%, of respondents reporting their academic performance was negatively impacted by these factors, respectively. The report also revealed that overall mental health and wellness were areas of concern among FSU students. For example, 47% of respondents reported having felt hopeless, 32% reported experiencing depression, and 57% of students reported feeling anxiety in the ACHA survey.

The conceptualization of the Resilience Project included a positive, strength-based approach (Hamby, Grych, & Banyard, 2017), that helps students to develop characteristics described in the resilience literature including optimism, active coping skills, pro-social behavior, and learning the value of cognitive reframing, mindfulness, and exercise (Wu et al., 2013). The team also developed ways to ensure that wellness and resilience information is presented in a manner consistent with how students typically access health information and services. Moreover, the project was created to be accessible to all students on a 24/7 basis, with content supported by existing and emerging research regarding young adults. Aware that Generation Z spends between six to nine hours online each day (D'Adamo, 2018), the team selected an online platform for the program. A recent study promotes the idea that students' use of technology use may be harnessed for health promotion (Rideout & Fox, 2018), utilizing

findings that 87% of teens and young adults had sought out health information online, and that young people are especially interested in their peers' experiences with health issues (Rideout & Fox, 2018). Additionally, the design team determined that online health-related information presents certain groups—such as LGBTQ youth—with opportunities to access wellness information in a privately viewable format.

After a literature review of adjustment challenges common to college students (Byrd & McKinney, 2012; Tao, Dong, Pratt, Hunsberger, & Pancer, 2000; Baker, 2004), the design team's undergraduate and graduate-level research assistants interviewed their peers on campus on busy "Market Wednesdays" on campus—a popular, typically very well-attended event at the center of campus. Asked what advice they would give to a younger sibling who was about to attend college, many students provided rich detail to the student interviewers about common challenges in adjusting to college (e.g. homesickness, culture shock, etc.), then described how they themselves overcame the challenges. Consistent with the principles of design thinking (Leidtka, 2018), the end users – students --- helped define the challenges they faced and solutions to those problems. Subsequently, a film crew recorded multiple mini-videos of students offering advice to their peers and created numerous videos of these testimonials. The design team then created detailed interactive charts of campus resources that provided a robust "Action Plan" to help students address the concerns expressed in the videos. Researchers have emphasized the critical importance of social support and relationships in the lives of young adults (Blanco et al., 2008) This program reminds students at multiple junctures about the benefits of a sense of belonging to the university (Walton & Cohen 2007) and feeling connected to other students (DeAndrea, Ellison, LaRose, Steinfield, & Fiore, 2012), while providing an

integrated, subject-driven, interactive charting of campus and community resources through the use of hyperlinks.

Consistent with the CDC's call for universal prevention regarding ACEs (CDC, 2016), the team chose to use a trauma-informed approach to tell students how trauma histories can affect mental and behavioral health. Scholars have suggested that colleges can help students with a primary prevention, public-health style education on mental health and resilience issues (Eisenberg et al., 2018) and that people may find even a basic discussion about ACEs to be empowering. The team decided to use animated videos with colorful and humorous characters to describe the response to and impact of trauma. Iconic campus scenes are rendered in animation in the project, and diverse animated characters dressed in FSU-branded clothing are easily identified as FSU students. A meta-analysis by Hoeffler and Leutner (2007) found that animated content can increase motivation in learning and help explain topics that may seem dull otherwise. In addition, using humorous characters may increase the positive response of users, because humor can provide an emotional and cognitive buffer, or a safe context in which to convey health messages that students may want to otherwise avoid (Hendricks & Janssen, 2018). These hypotheses are now being tested by the research team in the Resilience Project.

Another part of the project includes an introductory video with detailed research-informed information on developing resilience. It is constructed with licensed high-resolution photographs of diverse young people, along with photographs taken at FSU, with an upbeat musical background and the voice-over of an FSU student. The rationale for including videos on trauma and on resilience was that if students have experienced significant trauma and are struggling, they deserve a chance to understand why and an opportunity to build better coping skills. If students have not experienced trauma, they can still learn positive coping skills instead

of habitualizing poor coping behavior as a response to stress. Aware of the need for pro-social development as a protective factor the design team built in multiple references to opportunities for students to build connections with each other.

Interactive, dynamic online lessons in the project include a component that normalizes the experience of failure and demonstrates how persistence through adversity can create long-term positive outcomes. This is consistent with the work of Cohen and Sherman (2014), and is designed to help students respond constructively to failure. Undergraduate students consulted by the design team provided feedback on the design and navigability of the section, opting for an accessible and entertaining format.

Multiple lessons in using mindfulness are also included in the project, based on several studies suggesting that mindfulness is a beneficial intervention with college students—especially in reducing symptoms of stress, anxiety, and depression. Students who have experienced ACEs are more likely to use avoidant behavior in response to stress. Mindfulness can help increase their flexibility, often seen as a crucial component to resilience (Mills, 2016; Oman, Shapiro, Thoresen, Plante, & Flinders, 2008; Rogers, 2013). Students are offered several platforms for using mindfulness, and multiple designs should appeal to a wide variety of students. Core principles of mindfulness are also incorporated into the audio portions of the project to reinforce the lessons of relaxation activities. Students also have options for guided imagery, breathing instruction, and music therapy/relaxation.

Students are also provided with detailed information on the benefits of expressive writing interventions, which have been found to decrease stress hormone levels, decrease negative mood states, and increase post-traumatic growth (Pennebaker & Chung, 2011). Given multiple attractive options and prompts for participating, students are reminded that very brief

writing on a regular basis can help shift their perspectives and process their experiences to lessen distress (Cohen & Sherman, 2014). Students are invited to write in any language and without regard to formal rules of punctuation and grammar: The exercise is not a writing lesson, but a lesson in reflection and relaxation.

Other activities are designed to help students increase their distress tolerance and improve emotional self-regulation to build resiliency (Fetzner, Peluso, & Asmundson, 2014; Miller, Wyman, Huppert, Glassman, & Rathus, 2000; Denckla, Bailey, & Jackson, 2014). Students are invited to participate in online activities that help them think about and identify those strengths that promote resilience (Hamby et al., 2017). Types of strengths, drawn from the positive psychology literature in addition to established protective factors, include purpose, gratitude, optimism, religious involvement, emotional regulation, emotional awareness, psychological endurance, compassion, generativity, and community support (McCanlies, Mnatsakanova, Andrew, Burchfiel, & Violanti, 2014). In a separate section, students are encouraged to also think about their own values. Values affirmation is believed to help people regulate negative emotions and allowing them to focus on their goals (Cohen & Sherman, 2014). Resilient people are more likely to be good-natured and able to control their negative emotions, characteristics that subsequently attract the support of family, friends, and mentors. Interactive sections of the project explicitly remind students that these inherent qualities are protective factors that can help them overcome challenges. The exercises are based on the extensive evidence that values affirmation improves people's responses to health messaging (Arpan, Lee, & Wang, 2016). Students are free to navigate through the modules and choose the skills they want to learn; the design team wanted to allow students a significant sense of control over how they use the materials (Hoge, Austin, & Pollack, 2007). As students explore the content of the

project, they are provided additional motivation and affirmation through a virtual Resilience Card that tracks their progress and new skills learned.

The project also reviews lifestyle factors that can affect the brain and promote wellness (Lopresti, Hood, & Drummond, 2013). The problem of students getting insufficient sleep is national in scope (National Sleep Foundation, 2018), and the Resilience Project includes several components to help students relax and sleep. In addition, because yoga has been studied in the context of stress reduction (Karmalkar & Vaidya, 2017), the project contains an introduction to yoga, with a video and detailed information about where to find other free yoga resources.

To ensure that the Resilience Project is accessible to all students, the design team worked with the Student Disability Center and met the requirements of the Americans with Disabilities Act. This required, among other considerations, testing with the JAWS screen reader, and it affected design decisions throughout development of the project to enhance inclusivity. Attention was also given to ensuring a culturally inclusive, diverse student representation in the project. For example, content was created specifically for LGBTQ+ students, and content acknowledging historical racism and the challenges specific to students of color were tested and included in the project.

Faculty are encouraged to participate in the Resilience Project with a specially designed Faculty Implementation Guide that suggests multiple ways to incorporate the new project into class discussions, or to use as a referral guide for groups of students or individuals. Faculty were also provided with PowerPoint slides announcing and promoting the project to post on their screens in their classes. Multimedia materials that reinforce the lessons of the project include posters, buttons, t-shirts, handbills, and illustrated slides available at the Student Services Building, Student Cinema, Student Health and Wellness Center, in dorms, and on campus buses

announcing the project. The president of the university announced the project at convocation, and the main website of the university featured content about the project on multiple occasions. The project includes a peer-to-peer component, with diverse “student ambassadors” announcing and recommending the project across campus, within established student groups, in classrooms, and at campus events. It also involves a social media campaign that reinforces the messages of the project.

Implementation Research

Ongoing program implementation evaluation of the project began at launch. The first set of voluntary and anonymous surveys attached to the project were focused solely on program evaluation: for example, testing whether students find the information on the website credible, honest, and accurate, and determining which videos the students watched. Other data will indicate how long students watched the videos, which will help inform whether future videos should be shorter to accommodate student attention spans. Students are also offered open-ended sections to provide feedback to the research team about what additional information should be offered in the project. Heatmapping – a process that determines where users spend the most time on a website – will also be part of the data collection, along with basic analytics to determine such things as what kind of device students used to access the project (e.g., computer, cell phone, etc.). The design was created to be usable on any device, but in the testing phase, the research team quickly identified areas in which cell phone usage of the project involved more time than laptop usage: for example, long lists of counseling resources were shortened and placed behind buttons so that scrolling via cell phones could be minimized. As the team collects data through the remainder of 2018 and amends the project, new surveys will test empirical models of delivering resilience information. For example, the research team has created a model to test

whether the restorative narratives used throughout the videos in this project may be an effective way to deliver resilience information to this population. Such findings will be used to inform the higher education community and add to the knowledge base about student resilience.

A preliminary data analysis of survey data collected in conjunction with the project reveals how students are engaging with the initial online content. A campus technology unit called Student Solutions sent emails to all new students (freshmen and transfer students) announcing the project and inviting students to explore the site. After viewing the limited version of the training website, students were asked to voluntarily complete a questionnaire. The 10-minute long questionnaire assessed, among other variables, their: (a) beliefs, (b) evaluation of video messages, (c) perceptions of website credibility, (d) norms perceptions, and (e) behavioral intent. All items were measured on seven-point scales (e.g. 1 = strongly disagree, 7 = strongly agree; or 1 = extremely unlikely, 7 = extremely likely) or semantic differential scales (e.g. 1 = unhelpful, 7 = helpful; or 1 = unbelievable, 7 = believable), adapted from prior literature. Of the first approximately 1,000 people who viewed the online project, 229 students agreed to voluntarily complete the questionnaire. (Data were cleaned to omit all responses from staff and faculty.)

Initial descriptive data from the questionnaire indicate that students find the website to be useful to themselves and others. More than 80% of respondents ($n = 229$) agreed that many other students: have had struggles to overcome ($M = 6.11$, $SD = 1.00$), would find the website helpful ($M = 5.82$, $SD = 1.65$), and would probably use the resources described on the site ($M = 5.55$, $SD = 1.20$). Specifically, a large majority of respondents, 90%, believe the university resources would help themselves and others overcome struggles and challenges ($M = 6.05$, $SD = 1.01$). Beyond the available resources, the content itself was viewed positively. For example, 88% of

the students perceived the website to be credible, rating the website as believable ($M = 5.81$, $SD = 1.08$), trustworthy ($M = 5.90$, $SD = .972$), and accurate ($M = 5.82$, $SD = .935$).

In addition to these perceptions, respondents clearly indicated intentions to revisit and recommend the website to others. More than 80% specified they would likely return to the site to view additional content and resources ($M = 5.60$, $SD = 1.48$). Furthermore, more than 70% reported they would likely recommend the site to other students at the university ($M = 5.50$; $SD = 1.24$). A majority of respondents, 71%, indicated that they believed other students would probably use the website often ($M = 5.24$, $SD = 1.38$). Thus, these preliminary data reveal that the website and its content are perceived as beneficial by a student population.

That said, the authors point out that dissemination and testing are in the early stages on this project and are currently only focused on the content and delivery of the program. The next data and implementation steps include much more content usage analysis, in addition to other variables and assessments such as ACE questionnaires, resilience scales, and a variety of health and wellness instruments. These steps are consistent with the principles of implementation science (Weiner, n.d.), which involves the study of integrating evidence-based interventions, primarily health care practices, into specific real-world settings (Center for Research in Implementation Science and Prevention [CRISP], University of Colorado, 2018). Crucial information on whether the project is reaching the students it is designed to help and whether those students are engaging with the project are two essential elements in the monitoring data. That information is necessary to improve project content and plan for future expansions (Gugerty & Karlan, 2018). Before the research team embarks on impact evaluations, the messaging of the project is being tested to determine whether the emotions, images, and stories affirm students'

positive values and beliefs (Christiano & Neimand, 2018) so that they are receptive to learning the components of resilience.

Conclusion

Currently, U.S. colleges and universities provide a wide range of resources to meet the mental health needs of their students. Because the mandate for building resilience on college campuses is relatively new, it is important to note that there is currently no singular, validated approach to improving college mental health services (Downs, Alderman, Bhakta, & Greenwood, 2018). The Resilience Project described in this paper is a novel way to engage students with strategies to enhance their mental health by utilizing a public-health style, web-based outreach that destigmatizes help-seeking, encourages the use of existing campus services, and teaches new skills to cope with some of the most common impediments to college student wellness. In addition, the project is innovative in its fundamental use of ACEs and trauma-informed frameworks, including an applied science approach that utilizes contemporary research findings in the science of stress, trauma, and resilience. Ongoing and future program evaluation will help determine the level of its implementation success and outcome effectiveness.

References

- Adams, C. (2012). Research shows course rigor tops in college admissions. *Education Week*. Retrieved from http://blogs.edweek.org/edweek/college_bound/2012/11/high_school_students_in_search.html.
- Alwin, D.F., Cohen, R.L., & Necomb, T.M. (1991). *Political attitudes over the life span: The Bennington women after fifty years*. Madison: University of Wisconsin Press.
- Anda, R.F., Felitti, V.J., Bremner, J.D., Walker, J.D., Whitfield, C., Perry, B.D., Dube, S.R. & Giles, W.H. (2006). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience*, 256, 174-186.
- Anderson, S.L. (2003). Trajectories of brain development: Point of vulnerability or window of opportunity. *Neuroscience Biobehavior Review*, 27, 18.
- Arpan, L., Sun Lee, Y., & Wang, Z. (2016). Integrating self-affirmation with health risk messages: Effects on message evaluation and response. *Health Communication*, 32, 189-199. doi: 10.1080/10410236.2015.1113483.
- Baker, S.R. (2004). Intrinsic, extrinsic, and amotivational orientations: Their role in university adjustment, stress, well-being, and subsequent academic performance. *Current Psychology*, 23, 189-202.
- Benjet, C., Bromet, E., Karam, E.G., Kessler, R.C., McLaughlin, K.A., Ruscio, A.M.,... Koenen, K.C. (2016) The epidemiology of traumatic event exposure worldwide: Results from the World Health Survey Consortium. *Psychological Medicine*, 46, 327-343. doi: 10.1017/S0033291715001981.
- Berlin, S.B. (2002). *Clinical social work practice: A cognitive-interactive perspective*. Oxford, United Kingdom: Oxford University Press.

- Blanco, C., Okuda, M., & Wright, C. (2008). Mental health of college students and their non-college-attending peers: Results from the National Epidemiologic Study on Alcohol and Related Conditions. *Archives of General Psychiatry*, 65, 1429–1437.
doi:10.1001/archpsyc.65.12.1429.
- Brockie, T.N., Dana-Sacco, G., Wallen, G.R., Wilcox, H.C., & Campbell, J.C. (2015). The relationship of adverse childhood experiences to PTSD, depression, poly-drug use and suicide attempt in reservation-based Native American adolescents and young adults. *American Journal of Community Psychology*, 55, 411-421. doi: 10.1007/s10464-015-9721-3.
- Bruffaerts, R., Mortier, P., Kiekens, G., Auerbach, R.P., Cuijpers, P., Demyttenaere, K., Green, J.G., Nock, M.K., Kessler, R.C. (2018). Mental health problems in college freshmen: Prevalence and academic functioning. *Journal of Affective Disorders*, 225, 97-103.
- Byrd, D.R., & McKinney, K.J. (2012). Individual, interpersonal, and institutional level factors associated with the mental health of college students. *Journal of American College Health*, 60, 185-193.
- Calitz, C. (2018). Are resilience programs effective? *American Journal of Health Promotion*, 32, 822-826.
- Centers for Disease Control and Prevention (CDC). (2016, June 14). About the CDC-Kaiser ACE study. Retrieved from <https://www.cdc.gov/violenceprevention/acestudy/index.html>.
- Centers for Disease Control and Prevention (CDC). (2018, June 7). Suicide rates rising across the U.S. Retrieved from <https://www.cdc.gov/media/releases/2018/p0607-suicide-prevention.html>.

Center for Research in Implementation Science and Prevention (CRISP), University of Colorado.

(2018). Dissemination and implementation science. Retrieved

from <http://www.ucdenver.edu/academics/colleges/medicalschool/programs/crisp/about/Pages/About-Dissemination-and-Implementation-Science.aspx>.

Children's Home Society of South Dakota. (n.d.). ACEs: A guide to understanding adverse

childhood experiences. Retrieved from <https://chssd.org/pdfs/UnderstandingACEs.pdf>.

Choi, N.G., DiNitto, D.M., Marti, C.N., & Segal, S.P. (2017). Adverse childhood experiences and suicide attempts among those with mental and substance use disorders. *Child Abuse & Neglect*, 69, 252-262.

Christiano, A., & Neimand, A. (2018). The science of what makes people care. *Stanford Social Innovation Review*.

Retrieved from https://ssir.org/articles/entry/the_science_of_what_makes_people_care.

Chung, W.W., & Hudziak, J.J. (2017). The transitional age brain. *Child and*

Adolescent Psychiatric Clinics of North America, 26, 157-175.

Cohen, G.L. & Sherman, D.K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology*, 65, 333-71.

D'Adamo, A. (2018, March 27). Infographic: Where to find generation z on social media.

Women's Marketing. Retrieved from <http://www.womensmarketing.com/blog/favorite-social-media-platforms-generation-z-infographic>.

Dahl, R.E. (2004). Adolescent brain development: A period of vulnerabilities and opportunities.

Annals of the New York Academy of Sciences, 1021, 1-22.

Dahl, R.E. & Gunnar, M.R. (2009). Heightened stress responsiveness and emotional reactivity

- during pubertal maturation: Implications for psychopathology. *Development and Psychopathology*, 21, 1-6.
- Davidson, R. J., & McEwen, B. S. (2012). Social influences on neuroplasticity: Stress and interventions to promote well-being. *Nature Neuroscience*, 15, 689-695.
- DeAndrea, D.C., Ellison, N.B., LaRose, R., Steinfield, & Fiore, A. (2012). Serious social media: On the use of social media for improving students' adjustment to college. *Internet and Higher Education*, 15, 15-23.
- De Bellis, M.D., & Zisk, A. (2014). The biological effects of childhood trauma. *Child and Adolescent Psychiatric Clinics of North America*, 23, 185-222. doi: [10.1016/j.chc.2014.01.002](https://doi.org/10.1016/j.chc.2014.01.002).
- Denckla, C., Bailey, R.W., & Jackson, C. (2014). A novel adaptation of distress tolerance skills training among military veterans: Outcomes in suicide-related events. *Cognitive and Behavioral Practice*, 22, 1-8.
- Dong, M., Anda, R.F., Felitti, V.J., Dube, S.R., Williamson, D.F., Thompson, T.J., Loo, C.M., Giles, W.H. (2004). The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child Abuse & Neglect*, 28, 771-784. doi: [10.1016/j.chiabu.2004.01.008](https://doi.org/10.1016/j.chiabu.2004.01.008).
- Downs, N., Alderman, T., Bhakta, S., & Greenwood, T.A. (2018). Implementing a college mental health program – An overview of the first twelve months. *Journal of American College Health*, 1-5. doi: [10.1080/07448481.2018.1458032](https://doi.org/10.1080/07448481.2018.1458032).
- Dube, S.R., Anda, R.F., Felitti, V.J., Chapman, D.P., Williamson, D.F., & Giles, W.H. (2001).

- Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the Adverse Childhood Experiences Study. *JAMA*, 286(24), 3089-3096. doi: 10.1001/jama.286.24.3089.
- Dube, S.R., Anda, R.F., Felitti, V.J., Edwards, V.J., & Croft, J.B. (2002). Adverse childhood experiences and personal alcohol abuse as an adult. *Addictive Behaviors*, 27, 713-725.
- Dube, S., Felitti, V.J., Dong, M., Chapman, D.P., Giles, W.H., & Anda, R.F. (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The Adverse Childhood Experiences Study. *Pediatrics*, 111, 564-572. doi: 10.1542/peds.111.3.564.
- Dvorak, R. D., Lamis, D. A., & Malone, P. S. (2013). Research report: Alcohol use, depressive symptoms, and impulsivity as risk factors for suicide proneness among college students. *Journal of Affective Disorders*, 149, 326-334. doi:10.1016/j.jad.2013.01.046.
- Eisenberg, D., Lipson, S.K., Ceglarek, P., Kern, A., & Phillips, M.V. (2018). College student mental health: The national landscape. In M.D. Cimini & E.M. Rivero (Eds.), *Promoting behavioral health and reducing risk among college students: A comprehensive approach* (pp.1-280). Retrieved from <http://healthymindsnetwork.org/system/resources/W1siZiIsIjIwMTgvMDEvMjQvMTFfMjFfMzdfNDQ3X0hlYWx0aHlfTWluZHNfQm9va19DaGFwdGVyLnBkZiJdXQ/Healthy%20Minds%20--%20Book%20Chapter.pdf>.
- Elder, G.H. (1998). The life course as developmental theory. *Child Development*, 69(1), 1–12.
- 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. *American Journal of Preventative Medicine*, 14, 245-258.

- Fetzner, M. G., Peluso, D. L., & Asmundson, G. J. (2014). Tolerating distress after trauma: Differential associations between distress tolerance and posttraumatic stress symptoms. *Journal of Psychopathology and Behavioral Assessment*, 36, 475-484. doi:10.1007/s10862-014-9413-6.
- Healthy Campus at Florida State University (2017). 2017 Health Report: ACHA-NCHA-II Data [PDF file]. Retrieved from https://healthycampus.fsu.edu/sites/g/files/upcbnu1016/files/docs/reports/HealthReportCard_2013-17.pdf.
- Giovanelli, A., Reynolds, A.J., Mondri, C.F., & Ou, S. (2016). Adverse childhood experiences and adult well-being in a low-income, urban cohort. *Pediatrics*, 137, 1-11. doi: 10.1542/peds.2015-4016.
- Goncalves Soares, A.L., Howe, L.D., Matijasevich, A., Wehrmeister, F.C., Menezes, A.M.B., & Goncalves, H. (2016). Adverse childhood experiences: Prevalence and related factors in adolescents of a Brazilian birth cohort. *Child Abuse and Neglect*, 51, 21-30.
- Gugerty, M.K., & Karlan, D. (2018) Ten reasons not to measure impact-- And what to do instead. *Stanford Social Innovation Review*. Retrieved from https://ssir.org/articles/entry/ten_reasons_not_to_measure_impact_and_what_to_do_instead.
- Hamby, S., Grych, J., & Banyard, V. (2017). Resilience portfolios and poly-strengths: Identifying protective factors associated with thriving after adversity. *Psychology of Violence*, 8, 172-183. doi: [10.1037/vio0000135](https://doi.org/10.1037/vio0000135).
- Harvard University Center on the Developing Child. (2018). Brain architecture. Retrieved from <https://developingchild.harvard.edu/science/key-concepts/brain-architecture/>.

- Heim, C., & Nemeroff, C.B. (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: Preclinical and clinical studies. *Biological Psychiatry*, 49, 1023-1039. doi: [10.1016/S0006-3223\(01\)01157-X](https://doi.org/10.1016/S0006-3223(01)01157-X).
- Hendricks, H. & Janssen, L. (2018) Frightfully funny: Combining threat and humour in health messages for men and women. *Psychology & Health*, 33, 594-613.
- Hingson, R. W., Zha, W., & Weitzman, E. R. (2009). Magnitude of and trends in alcohol-related mortality and morbidity among U.S. college students ages 18–24, 1998–2005. *Journal of Studies on Alcohol and Drugs*, 16, 12–20.
- Höffler, T.N. & Leutner, D. (2007). Instructional animation versus static pictures: A meta-analysis. *Learning and Instruction*, 17, 722-738. doi: [10.1016/j.learninstruc.2007.09.013](https://doi.org/10.1016/j.learninstruc.2007.09.013).
- Hoge, E.A., Austin, E.D., & Pollack, M.H. (2007). Resilience: research evidence and conceptual considerations for posttraumatic stress disorder. *Depression and Anxiety*, 24, 139-152.
- Hudziak, J.J., & Tiemeier, G.L. (2017) Neuroscience-inspired, behavioral change program for university students. *Child and Adolescent Psychiatric Clinics of North America*, 26, 381-394.
- Hughes, K., Bellis, M.A., Hardcastle, K.A., Sethis, D., Butchart, A., Mikton, C., Jones, L., Dunne, M.P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *Lancet Public Health*, 2, 356-366.
- Hunt, J. & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of Adolescent Health*, 46, 3-10.
- Karmalkar, S. J., & Vaidya, A. (2017). Effects of classical yoga intervention on resilience of rural-to-urban migrant college students. *Indian Journal of Positive Psychology*, 8, 429-434.

- Kessler, B.P., Berglund, P., Demler O, Jin, R., Merikangas, K.R., & Walters, E.E. (2005). Lifetime prevalence and age-of-onset distribution of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 593–603.
- Khusid, M. A., & Vythilingam, M. (2016). The emerging role of mindfulness meditation as effective self-management strategy, part 1: Clinical implications for depression, post-traumatic stress disorder, and anxiety. *Military Medicine*, 181(9), 961-968.
doi:10.7205/MILMED-D-14-00677.
- Leidtka, J. (2018). Why design thinking works. *Harvard Business Review*. Retrieved from <https://hbr.org/2018/09/why-design-thinking-works>.
- Liu, C.H., Stevens, C., Wong, S.H.M., Yasui, M., & Chen, J.A. (2018). The prevalence and predictors of mental health diagnoses and suicide among U.S. college students: Implications for addressing disparities in service use. *Depression and Anxiety*, 0, 1-10.
doi: 10.1002/da.22830.
- Lopresti, A.L., Hood, S.D., & Drummond, P.D. (2013). A review of lifestyle factors that contribute to important pathways associated with major depression: Diet, sleep, and exercise. *Journal of Affective Disorders*, 148(1), 12-27. doi: [10.1016/j.jad.2013.01.014](https://doi.org/10.1016/j.jad.2013.01.014).
- Luthar, S.S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543-562.
- McCanlies, E. C., Mnatsakanova, A., Andrew, M. E., Burchfiel, C. M., & Violanti, J. M. (2014). Positive psychological factors are associated with lower PTSD symptoms among police officers: Post hurricane Katrina. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 30, 405–415. Retrieved from <http://doi.org/10.1002/smi.2615>.

Mental Health First Aid. (2018). Retrieved from <https://www.mentalhealthfirstaid.org/>.

Merrick, M.T., Ford, D.C., Ports, K.A., & Guinn, A.S. (2018). Prevalence of adverse childhood experiences from the 2011-2014 behavioral risk factor surveillance system in 23 states. *JAMA Pediatrics*, 1-7. doi:10.1001/jamapediatrics.2018.2537.

Merrick, M.T., Ports, K.A., Ford, D.C., Afifi, T.O., Gershoff, E.T., & Grogan-Kaylor, A. (2017). Unpacking the impact of adverse childhood experiences on adult mental health. *Child Abuse and Neglect*, 69, 10-19. doi: 10.1016/j.chiabu.2017.03.016.

Merrill, L.L., Newell, C.E., Thomsen, C.J., Gold., S.R., Milner, Koss, M.P., & Rosswork, S.G. (1999). Childhood abuse and sexual revictimization in a female Law enforcement community recruit sample. *Journal of Traumatic Stress*, 12, 211-225.

Mersky, J.P. & Janczewski, C.E. (2018). Racial and ethnic differences in the prevalence of adverse childhood experiences: Findings from a low-income sample of U.S. women. *Child Abuse & Neglect*, 76, 480-487.

Miller, A.L., Wyman, S.E., Huppert, J.D., Glassman, S.L., & Rathus, J.H. (2000). Analysis of behavioral skills utilized by suicidal adolescents receiving dialectal behavior therapy. *Cognitive and Behavioral Practice*, 7, 183-187.

Mills, L. (2016). The experience of university students in cultivating mindfulness: What helps and hinders (Doctoral thesis, University of British Columbia, Vancouver, British Columbia). Retrieved from <https://open.library.ubc.ca/cIRcle/collections/ubctheses/24/items/1.0314577>.

National Center for Education Statistics. (2018, April). Digest of education statistics. Retrieved from https://nces.ed.gov/programs/digest/d17/tables/dt17_303.40.asp.

National Sleep Foundation. (2018). Teens and sleep. Retrieved from

<https://sleepfoundation.org/sleep-topics/teens-and-sleep>.

Oman, D., Shapiro, S.L., Thoresen, C.E., Plante, T.G., & Flinders, T. (2008). Meditation lowers stress and supports forgiveness among college students: A randomized controlled trial. *Journal of American College Health, 56*, 569-578.

Parcover, J., Mays, S., & McCarthy, A. (2015). Implementing a public health approach to addressing mental health needs in a university setting: Lessons and challenges. *Journal of College Student Psychotherapy, 29*, 197-210.

Pedrelli, P., Nyer, M., Yeung, A., Zulauf, C., & Wilens, T. (2015). College students: Mental health problems and treatment considerations. *Academic Psychiatry, 39*, 503-511. doi: 10.1007/s40596-014-0205-9.

Pennebaker, J.W., & Chung, C.K. (2011). Expressive writing: Connections to mental and physical health. In Howard S. Friedman (Ed.), *Oxford Handbook of Health Psychology* (pp. 417-437). doi:10.1093/oxfordhb/9780195342819.013.0018.

Read, J.P., Ouimette, P., White, J., Colder, C. & Farrow, S. (2011). Rates of DSM-IV-TR trauma exposure and posttraumatic stress disorder among newly matriculated college students. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*, 148-156.

Reed, M.B., Wang, R., Shillington, A.M., Clapp, J.D., & Lange, J.E. (2007). The relationship between alcohol use and cigarette smoking in a sample of undergraduate college students. *Addictive Behaviors, 32*, 449-464. doi: 10.1016/j.addbeh.2006.05.016.

Rideout, V. & Fox, S. (2018). Digital health practices, social media use, and mental well-being

- among teens and young adults in the U.S. [PDF]. Retrieved from <https://www.hopelab.org/reports/pdf/a-national-survey-by-hopelab-and-well-being-trust-2018.pdf>.
- Rogers, H. B. (2013). Mindfulness meditation for increasing resilience in college students. *Psychiatric Annals*, 43, 545-548.
- Rothman, E.F., Edwards, E.M., Heeren, T., & Hingson, R.W. (2008) Adverse childhood experiences predict earlier age of drinking onset: Results from a representative U.S. sample of current or former drinkers. *Pediatrics*, 122, 298-304. doi: 10.1542/peds.2007-3412.
- Seligman, M.E.P., Schulman, P., & Tryon, A.M. (2007). Group prevention of depression and anxiety symptoms. *Behaviour Research and Therapy*, 45, 1111-1126.
- Shonkoff, J. P., Garner, A. S. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129, e232-e246. doi:10.1542/peds.2011-2663.
- Smyth, J.M., Hockemeyer, J.R., Heron, K.E., Wonderlich, S.A., & Pennebaker, J.W. (2008) Prevalence, type, disclosure, and severity of adverse life events in college students. *Journal of American College Health*, 57, 69-76.
- Sontag-Padilla, L., Dunbar, M.S., Ye, F., Kase, C., Fein, R., Abelson, S., Saleem, R., Stein, B.D. (2018). Strengthening college students' mental health knowledge, awareness, and helping behaviors: The impact of active minds, a peer mental health organization. *Journal of the American Academy of Child and Adolescent Psychiatry*, 57, 500-507.
- Stallman, H.M., & Kavanagh, D.J. (2018). Development of an internet intervention to promote wellbeing in college students. *Australian Psychologist*, 53, 60-67.
- Substance Abuse and Mental Health Services Administration (SAMHSA). (2015, September).

- Behavioral health trends in the United States: Results from the 2014 national survey on drug use and health. Retrieved from <https://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf>.
- Sungkok, S. S., Wang, C., Makara, K. A., Xiao-Guang, X., Li-Na, X., & Zhong, M. (2017). College students' social goals and psychological adjustment: Mediation via emotion regulation. *Journal of College Student Development*, 58, 1237-1255.
- Tao, S., Dong, Q., Pratt, M.W., Hunsberger, B., & Pancer, S.M. (2000). Social support: Relations to coping and adjustment during the transition to university in the People's Republic of China. *Journal of Adolescent Research*, 15, 123-144.
- Teasdale, J.D. and Barnard, P.J. (1993) *Affect, cognition and change: Remodeling depressive thought*. East Sussex, England: Psychology Press.
- Trent, L., Stander, V., Thomsen, C., & Merrill, L. (2007). Alcohol abuse among U.S. law enforcement community recruits who were maltreated in childhood. *Alcohol & Alcoholism*, 42, 370–375. doi:10.1093/alcalc/agm036.
- Turner, J., Bauerle, J., & Keller, A. (2011). Alcohol-related vehicular death rates for college students in the commonwealth of Virginia. *Journal of American College Health*, 59, 323-326.
- Ulbrich, T. R., & Kirk, L. M. (2017). It's time to broaden the conversation about the student debt crisis beyond rising tuition costs. *American Journal of Pharmaceutical Education*, 81(6), 1-5.
- Van Leijenhorst, L., Zanolie, K., Van Meel, C.S., Westenberg, P.M., Rombouts, A.A.R.B., Crone, E.A. (2010). What motivates the adolescent? Brain regions mediating reward sensitivity across adolescence. *Cerebral Cortex*, 20, 61-69. doi:10.1093/cercor/bhp078.

- Walters, K. S., Bulmer, S. M., Troiano, P. F., Obiaka, U., & Bonhomme, R. (2018). Substance use, anxiety, and depressive symptoms among college students. *Journal of Child & Adolescent Substance Abuse*, 27, 103-111. Retrieved from <http://dx.doi.org/10.1080/1067828X.2017.1420507>.
- Walton, G.M., & Cohen, G.L. (2007) A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, 92, 82-96.
- Wechsler, R. L., & Kowalik, S. C. (2005). Adolescent substance abuse treatment in the United States-exemplary models from a national evaluation study. *Journal of Child and Adolescent Psychopharmacology*, 15, 835-838.
- Weiner, B.J. (n.d.). What is implementation science? [PowerPoint Slides]. Retrieved from <https://www.fhi360.org/sites/default/files/media/documents/Weiner.pdf>.
- Wiehn, J., Hornberg, C., & Fischer, F. (2018). How adverse childhood experiences relate to single and multiple health risk behaviours in German public university students: A cross-sectional analysis. *BMC Public Health*, 18, 1-13.
- Wilkins, N., Tsao, B., Hertz, M., Davis, R., & Klevens, J. (2014). Connecting the dots: An overview of the links among multiple forms of violence. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention Oakland, CA: Prevention Institute.
- Wu, G., Feder, A., Cohen, H., Kim, J.J., Calderon, S., Charney, D.S., & Mathe, A.A. (2013). Understanding resilience. *Frontiers in Behavioral Neuroscience*, 7, 1-15.