Combating Adverse Childhood Experiences

By Veronica Earlene Wilson

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in Partial Fulfillment of the Bachelors Degree with Honors in

Nursing

The University of Arizona College of Nursing

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Approved by:

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Dr. Penny Morgan Overgaard

ABSTRACT

Purpose: The purpose of this service project was to design educational interventions to implement at community food bank in Sunnyslope, Arizona to aid in building community resilience to overcome the adverse health events associated by the high prevalence of Adverse Childhood Experiences (ACEs).

Methods: This project utilized The Model for Quality Improvement framework to design and assess the efficacy of trauma-informed educational interventions for staff and volunteers at a local food bank. The project involved a collaborative effort to enhance the interactions between clients and staff by promoting understanding and recognition of ACEs and fostering an environment of trust.

Results: A pre-recorded lecture and educational pre and post evaluation was designed and will be offered to all staff and volunteers beginning in December of 2022. The food bank partners plan to utilize an abbreviated version of the activity to be shown on a closed-captioned television system in the food bank to help clients recognize adverse childhood events and encourage them to ask about available resources at the food bank.

Discussion: Food banks attempt to treat the root causes of food insecurity and are increasingly recognizing the value of moving toward trauma informed approaches aiming to decrease the stigma frequently experienced by the clients served. Food banks are better served developing a trauma informed framework in order to acquire deeper understanding of ACE's prevalence in order to implement screenings and appropriate referral. The impact of implementing trauma informed trainings for employees and volunteers at food banks, such a Desert Mission, allow for person centered communication and promote optimal patient health outcomes with a holistic view of the social determinants of health.

Keywords: adverse childhood events, food insecurity, food bank, trauma informed care, resilience, nutrition, social determinants of health

Introduction

Currently, there is a global public health crisis surrounding the incidence of childhood trauma and the negative social, behavioral, and health contributions made to this population throughout their lives. Adverse childhood experiences (ACEs) have been defined as events of stress or trauma including abuse, neglect, and sub-optimal household environments (Dube, 2018). Since the coining of the term ACEs by Kaiser Permanente researchers and the Centers for Disease Control, there has been a clear linkage between ACEs and poor health outcomes demonstrated by a multitude of studies though the use of an ACEs screening tool that numerically assesses an individual's ACEs and compares the grading of scores to various modifiers of health (Clark & Jones, 2021).

Frequently, researchers have established the existence of a graded and cyclic relationship between health outcomes and ACEs scores. Negative psychosocial and behavioral health outcomes have been linked with ACEs scores, where higher assessment scores revealing greater incidences of ACEs resulted in a higher incidence of poor health outcomes, psychosocially and behaviorally (Petruccelli et al., 2019). Parents' ACE scores are predictive of the continued development of ACEs amongst their kin and the likelihood of behavioral issues, hyperactivity, and emotional disturbances is heightened. Comprehensive relationships between disease etiologies and ACEs have been further established by numerous studies. One study identified that ACEs scores of three and four have been linked with 1.6-1.7 times increased risk for developing ischemic heart disease (Kia-Keating et al., 2019). The multitude of evidence demonstrating the linkage between poor health outcomes prompts response, however, secondary preventative measures, such as ACEs screenings, leading to early identification, are not routine in medical practice (Clark & Jones, 2021).

Seemingly, assessment would be routine for ACEs in a clinical setting considering the poor health implications that are associated. The vast majority of pediatric care facilities, however, have yet to adopt universal assessment or utilize a validated screening tool. In fact, a national survey found that only 4% of pediatricians ask about ACEs, and 32% do not include ACEs in the assessment at all (Kia-Keating et al., 2019). Barriers for assessment that have been identified include education in the impact of trauma, lack of time, lack of training on assessment, fear of re-traumatizing the patient, and lack of processes in place to refer the patient appropriately (Clark & Jones, 2021). Lack of assessment leading to lack of identification deters mitigation of ACE associated poor health outcomes and starves the population from potential healing from trauma through building resilience and managing stress. However, early screening and identification of ACEs supports early intervention which can promote preventative efforts and assist with family wellbeing (Bethell et al., 2017). Further, screening can help improve the relationship between practitioners and families (Kia-Keating et al., 2019).

Chapter 1

Background of Issue Importance

Adverse childhood experiences were first identified by Kaiser Permanente researchers (1995–1997) suggesting that over two-thirds of their population of 17,000 patients had experienced at least one adverse childhood event (Centers for Disease Control, 2021). Recent data suggests that 62% of US adults report experiencing at least 1 ACE, and nearly 1 in every 4 US adults report experiencing three or more ACEs (Collins & Lanier, 2021). Experiencing ACEs has been demonstrated to have a cumulative effect on health outcomes, where higher ACEs comes with a higher risk for poor health outcomes (Racine, 2021). The high prevalence of ACEs and the subsequent negative impact on health outcomes has sparked increases in research, policy, and debate surrounding the best approaches to this public health crisis.

Furthermore, adverse childhood events are measured and scored based upon the number of adversities experienced by an individual during childhood. The inclusion list consists of abuse (physical, emotional, and sexual), neglect (physical and emotional), and household challenges (Kia-Keating et al., 2019). Household challenges include substance abuse, mental illness, domestic violence, family-member incarceration, and parental separation. A common assessment tool, the CDC-Kaiser ACEs scale, was created by Kaiser Permanente and the Centers for Disease Control and Prevention. This tool measures these psychosocial early life experiences and allows for numeric representation (Petruccelli et al., 2019).

Currently, attempts to mitigate the negative effects of ACEs on health and development have begun in the forms of policy and standard practice. Mandated assessment of ACEs is being implemented and debated throughout the United States. Concerns have been raised surrounding the acceptability of implementing widespread ACE screenings, primarily due to the lack of a universally accepted screening and lack evidence-based interventions (Dube, 2018). It is evident, however, without the ability to identify ACEs, this health crisis will continue. In fact, it has been shown to be an intergenerational cycle in that children with parents experiencing ACEs are more likely to experience ACEs in their lifetime (Merrick, 2017). The action in healthcare settings could be a potential stimulus for change.

It is evident, however, that screening alone will not be sufficient in modifying this issue, but screening can aid in transforming the culture of healthcare to developing trauma-informed approaches to care. Healthcare providers, albeit pivotal, are not alone capable of changing the variety of poor psychosocial, behavioral, and medical outcomes experienced by this population (Petruccelli et al., 2017). Physicians reported a lack of time and resources as a common barrier to doing the ACEs screening (Clark & Jones, 2021). It seems that a multi-system approach is a more effective way to gather the resources necessary to reduce the toxic stress experienced by the population experiencing ACEs to improve health outcomes. Two conceptual frameworks have experimented with a community approach to combating, recognizing, and researching ACEs. One such collaborative model, Building Community Resilience (BCR), joined physicians, social services, and other research experts using continuous quality improvement methods. Following thorough education on ACEs, a collaborative framework created a community response system (Ellis & Dietz, 2017). Collaborative approaches were further demonstrated by the Philadelphia ACE Task Force (PATF) where collaboration led to additional research and community approaches to addressing ACEs (Pachter et al., 2017).

It is the duty and responsibility of healthcare professionals to promote the health of those in which they serve. ACEs is important to the field of nursing not only due to the multitude of research illustrating the variety of poor health outcomes associated with childhood adversity, but more importantly to gain a more holistic and informed approach to treating patients. Ignoring ACEs would limit a nurse’s ability to gain an entire picture of the contributors to the patient's health, whereas the recognition and assessment for ACEs optimizes nursing care to focus on the whole system (Kreitzer & Koithan, 2019).

Purpose of Project

The objectives of the project were to improve the knowledge of staff and volunteers on the evidenced-based practices of therapeutic communication and to implement mindfulness environmental stimuli in efforts to provide education resilience amongst the served population. outcomes will be evaluated on an ongoing basis.

Community Agency

In order to acknowledge the detrimental effects of ACEs, numerous organizations have implemented trauma-informed education and approaches to patient communication (Pachter et al., 2017). In fact, organizations can become certified in the trauma-informed approach to care by meeting educational, environmental, and application of the tenants of the trauma-informed approaches to care (Leah's Pantry, 2021). Desert Mission Food Bank, located in Phoenix, Arizona, is currently reforming their nutritional approaches to care in efforts to obtain gold certification in trauma-informed nutrition. This is the community agency partner for the proposed service-learning project.

Project and Implementation Model

The project will focus on implementing training on ACEs identification in addition to the negative impacts on patient health outcomes, trauma-informed communication, and examination of current community resources for differential referrals for clients with positive ACEs screenings. Instead of screening for ACEs, trauma-informed communication skill enhancement was identified as a superior modality to identify patient's health needs following the social determinants of health model with subsequent appropriate referral of other community resources that meet the needs of clients. A learning contract was drafted through collaboration with Desert Mission stakeholders to provide a framework of the service-learning project (see APPENDIX A).

The Model for Quality Improvement framework was utilized to identify the strengths and weaknesses within the community to inform a viable intervention to implement at Desert Mission. Baseline data was subjectively collected from stakeholders demonstrating a lack of client centered communication during interactions with staff. Intake questionnaires were analyzed and evaluated for the ability to be revised to better support the trauma informed approach to care.

Chapter 2

Synthesis of Evidence

The following section will address the literature review that aims to analyze the current practices in screening for ACEs and evidence on current community-based approaches in combating ACEs. A PICO questions was identified to guide the analysis of literature: (a) In clients at DM, would identification of ACEs increase the ability of employees to appropriately provide referral for additional assistance? A search strategy was designed to address these questions and synthesized demonstrating current best-practices, facilitators, and barriers to inform the project in support of each objective.

Further, the literature search was conducted through the University of Arizona Library using the following databases: PubMed, Embase, and Cumulative Index of Nursing and Allied Health Literature. Filters were applied to include only articles published in the last 5 years, written in English, and full text available online. The following search terms were used: *ACEs, Screening, Assessment, Public Health, and Nurse**. The literature synthesis included eight articles with the following study designs: (a) two systematic reviews, one without meta-analysis and one with meta-analysis (b) one case study, (c) one cross-sectional study, (d) three retrospective studies, and (e) one meta-analysis. A table was created using these studies (See TABLE 1).

Article #1

The investigators Bethell et al. (2017) conducted a literature synthesis without meta-analysis to examine the various assessment strategies for adverse childhood events (ACEs). The investigators conducted a literature search to locate 14 various assessment tools that met the inclusion criteria. Comparison of the subsequent tools through the 14 assessment tools identified were compared through structured searches of published literature, review of online resources at various levels of systems, and key informant interviews. The strengths of this study were validation of the use of cumulative risk scores and finding consistency amongst assessment methods. The limitations of this study were lack of identifying the most effective method and implementation indications. This study is relevant to the PICO question through examination of the common assessments for ACEs providing a potential for ACEs assessment implementation at Desert Mission Food Bank (See TABLE 1).

Article #2

The investigators Pachter et al., (2017) conducted a case report and series study to examine the expansion of The Philadelphia ACE Task Force and implications for evolving community action to support ACEs. A regional sampling of the organizations involved with the task force (2 Philadelphia Hospitals, Drexel University, The Scattergood Foundation, and Stoneleigh Foundation) provided data via community-based qualitative research, reviews of literature, and survey sampling. The results of this study highlighted the positive outcomes of a multi discipline, multiinstitutional, collaborative approach to addressing and researching childhood adversity and trauma. The case-study approach is ranked as Level VII evidence (MeInyk & Fineout-Overholt, 2019). The strengths of this study were the length of the study and demonstrating an effective, community- based approach. The limitations of this study were the lack of identified standardized trauma-informed training and limitation to a single city. This study relates to the PICO questions by identifying community-based approaches and strategies to combat ACEs (see TABLE 1).

Article #3

The investigators Secginli et al., (2020) conducted a cross-sectional study to examine the correlation between ACEs and nutrition and physical activity behaviors. A recruited population of 227 female seminar participants provided data via survey questionnaires and nutrition/physical rating system by a trained Omaha System expert. Data were analyzed using SPSS version 25.0. The results of this study include average ACEs reported =1.45 events, 50% response of at least 1 ACE, 14.5% reported a history of four or more ACEs, and emotional abuse as the most common ACE reported. This study ranks as level IV evidence (MeInyk & Fineout-Overholt, 2019). The strengths of this study were the use of standardized terminology in the Omaha system and inclusion of an extensive range of ages. The limitations of this study were limitation of sample size, inclusion of a single population type, and self-reported ACE measurements. This study is relevant to the PICO question by identifying negative health outcomes associated with ACEs (see TABLE 1).

Article #4

The investigators Racine et al., (2021), conducted a case-control study to examine the effect that a trauma-informed approach to pregnancy had on maternal and infant health outcomes. A non-probabilistic convenience sample of 601 women receiving prenatal care provided data via retrospective file review. Data were analyzed using SPSS statistic version 25. The results of this study include: 32.1% of patients reporting at least 1 ACE and a modest association between ACEs and infant health outcomes. The study ranks as level IV evidence (MeInyk & Fineout-Overholt, 2019). The strengths of this study were inclusion of an ethnically diverse population, but lack of diversification regarding socioeconomic status. The limitations of this study were observational and retrospective analysis of data and inclusion limited to low-risk pregnancies. This study is relevant to the PICO question because it demonstrates that assessing for history of ACEs alone is an insufficient method to improving maternal health outcomes (see TABLE 1).

Article #5

The investigators Harada et al. (2021), conducted a case-control study to examine how adverse childhood experiences relate to healthy weight behaviors in children. A population-based, cross-sectional survey sample of 35,528 provided data via retrospective survey reviews. Data were analyzed using STATA software, version 15.0. The results of this study include health behaviors were more likely in children experiencing 0 ACEs and a decreased likelihood of participating in healthy weight behaviors with experience of ACEs. The study ranks as level IV evidence (MeInyk & Fineout-Overholt, 2019). The strengths of this study were having a large sample size from diverse backgrounds and an extensive range of ages. The limitations of this study were the survey being-self reported and completion of selected households being 42%. This study is relevant to the PICO question because it demonstrates the relationship between children's health behaviors and ACEs (see TABLE 1).

Article #6

The investigators Merrick et al. (2017), conducted a case-control study to examine how adverse childhood experiences relate to adult mental health. A population-based, cross-sectional survey sample of 7,465 outpatient clients provided data via retrospective survey reviews. Data were analyzed using multiple logistic regression models. The results of this study include: a positive correlation between ACE score and experience of drug and alcohol use, suicide attempts, and depression. The study ranks as level IV evidence (MeInyk & Fineout-Overholt, 2019). The strengths of this study were having a large sample size from diverse backgrounds and an extensive range of ages. The limitations of this study were the survey being-self reported and use of retrospectively collected data. This study is relevant to the PICO question because it demonstrates the relationship between adverse childhood experiences and adult health outcomes (see TABLE 1).

Article #7

The investigators Petruccelli et al. (2019), conducted a meta-analysis study to examine the impact of ACEs on health outcomes. A systematic review of English language articles published through September 30, 2016, yielded a sample of 96 articles provided data directly reported in included articles. Data were analyzed using unadjusted and adjusted odds ratios for each identified health outcome. The results of this study include: five significant medical outcomes associated with an ACE level of 1: gastrointestinal disease, respiratory disease, sleep disturbance, and fracture, most major causes of death in the US had a strong correlation with ACE score, and the potential cumulative effective of ACEs on health outcome. The meta-analysis is ranked as Level I evidence (MeInyk & Fineout-Overholt, 2019). The strengths of this study were large sample size and various settings The limitations of this study were the retrospective collection of data, use of self-reported data, and assumption that each individual ACE had equal contribution to health outcomes (see TABLE 1).

Synthesis of Evidence

Regardless of region, gender, and socio-economic status, the prevalence of ACEs is high across the United States and has been determined to be a public health issue (Centers for Disease Control, 2021). Self-reported surveys of parents in the United States revealed a 40% incidence of at least one reported ACE (Harada et al., 2021). In low-risk obstetric pregnancies, 32.1% of patients reported having at least 1 ACE (Racine et al., 2021). Nearly 50% of children in the US have ACE exposure (Bethell et al., 2017). High incidence of ACEs supports the necessity of identification.

It is evident that there is a strong association between ACEs and poor health outcomes. Psychosocial and behavioral health outcomes demonstrate a clear graded relationship with ACEs, along with risk-to-health behaviors including tobacco use, alcohol problem, risky sexual behavior, depressive affect, illicit drug use, obesity and many more. Similarly, an ACE score of 1 showed a significant association for poor medical outcomes including: Gi disease, respiratory disease, somatic pain, sleep disturbance, and fracture; with a graded relationship for respiratory disease and somatic pain. Other chronic health conditions associated with the experience of childhood adversity include type 2 diabetes and asthma (Petruccelli et al., 2019). Behaviors of children that are known to have association with unhealthy weight were shown to have a strong relationship with ACEs (Harada et al., 2021).

Even with the strong evidentiary data that demonstrates the links between ACEs and diversity of poor health outcomes, screening in clinical or community settings are not routinely performed, and there is a lack of a standardized assessment system to be applied. The large effect of ACEs has demonstrated the relevance of ACEs to many fields of profession (Petruccelli et al., 2019). Clinicians report barriers such as lack of sufficient knowledge on assessment, discomfort with discussion on the topic, and uncertainty on appropriate resources to refer patients with positive ACE screenings (Bethell et al., 2017). Certainly, screening alone is not sufficient alone, however, assessing for ACEs are important for professionals to gain awareness of the potential impacts on their population (Petruccelli et al., 2019), and can further establish a positive dialogue between the professional and person experiencing adversity. The intention of ACE assessment is to cultivate an engaging environment centered around healing, awareness, resources, and building the population's strength in resilience (Bethell et al., 2017).

Contrary to most assessment tools, assessing for ACEs is not for the purpose of diagnosis and alone does not provide adequate information for intervention (Bethell et al., 2017). The diversity of associated health problems across many subfields necessitates a collaborative approach to overcoming adversity to support positive health outcomes. The community wide approach initiated by The Philadelphia ACE Task Force (PATF) demonstrates a promising approach to applying the science of ACEs to effectively better the outcomes. The PAFT organized a cross-disciplinary coalition of professionals and organizations that serve children and families with goals to create research and develop a multidimensional approach to addressing ACEs. The resulting effects included enhanced communication making better use of the multi-sector community of persons dedicated to addressing ACEs and creating standardized curriculum for a better understanding of childhood adversity, healing from trauma, and promoting resilience (Pachter et al., 2017). Building connections within the community seems to be the best way to embrace the ACEs framework, rather than continuing a hyper-focus on a single strategy for improvement.

Chapter 3

Project Implementation

The intervention was to implement training on trauma-informed approaches to care for the staff and volunteers at Desert Mission through The Model for Improvement framework (Institute for Healthcare Improvement [IHI], 2019). Weekly check-ins with stakeholders were planned to further progress the project implementation. Each participant completed surveys to establish baseline knowledge to retrospectively be compared with the follow-up survey. Subjective qualitative data collected included the participants prior and final sentiment towards trauma-informed communication and self-rated client interaction. Education and discussion were presented virtually during a staff meeting. Preliminary data were analyzed for effectiveness in improving staff and volunteer trauma-informed approaches to client interaction. Data will continuously be collected and analyzed by stakeholders through 2023.

Scholarly Reflections

Following the synthesis of literature, collaborative meetings with the stakeholders at Desert Mission (DM) were held to see where ACEs affected their serviced population. DM works with people in urgent or emergent need of nutrition to support themselves and their families. This relates to adverse childhood experiences through the toxic stress experienced when access to food is not guaranteed. People are unable to meet their higher ordered needs when their basic physiological needs are unmet, such as food being insecure.

One aspect that was considered was the viability of implementing an ACEs screening to the clients at DM. While screening is an excellent preventative strategy that allows for early identification of the at-risk population, this measure was found to be ineffective in meeting the needs of DM's population. Some of the barriers that were identified were the insufficient number of resources available to provide follow-up referrals to each client that has screened positively for one or more ACEs. An evidence informed approach to nursing supports a best practice approach that includes follow up with positive screenings by referral.

Another strategy that was proposed was to provide education to the clients at DM on ACEs and the impact that ACEs play on health. Education can be an effective modality to empower individuals to make life-style changes that promote better health, however, educating on the reasons that may have contributed to their current situation may ultimately not serve the intended function of building the community toward resilience nor follow evidence-based practices.

Following the first few interprofessional meetings, it was found that DM was aiming to become Gold-Certified in trauma-informed approaches to nutrition through an organization called Leah's Pantry (Leah's Pantry, 2021). The Trauma Informed Nutrition Training sponsored by Leah's Pantry is in process of being completed. This project focused on one aspect of the certification which is acknowledging the importance of one's relationship to food on emotional and physical well-being was better understood in order to apply the evidence to a specific population seeking nutritional support. Individuals that lack access to food at points in their life develop poor eating habits based on a feast and famine cycling. Food insecurity also damages the biological mechanisms of metabolism and causes dysfunction in the homeostatic balance between the gastrointestinal system and the neurological system predisposing individuals to increased body fat and chronic health conditions. Yet in this same system, individuals are shamed when asking for aid due to the negative stigma associated with food “handouts” or shamed against the size and shape of their body unfitting in the current culture of beauty standards (Leah’s Pantry, 2021).

The poor outcomes experienced by the population facing food insecurity are not simply behavior based; it is ingrained in the disenfranchised structures of society and the lack of control over one’s circumstance. SAMHSA's trauma informed approach to breaking the barriers of stigma and shame include the “5 R’s” of the trauma informed approach to care: Realize, Recognize, Respond, Resist, Restate, and Resilience. Implementing these strategies counteracts the barriers and promotes dignity, joy, and positive experiences when interacting with the population that is served. Realizing and recognizing the potential trauma of every individual and understanding the vast impact that nutrition can make refocus establishments. Instead of the simplistic connotation of providing a service the trauma informed approach is interaction based and focuses on implementing responses that resist judgment and empower the population through empathetic interaction (Leah’s Pantry, 2021).

Upon completion of the training, subsequent collaborative meetings with the stakeholders were initiated to assess their current stage status of becoming Gold-Certified for trauma-informed nutrition and to identify where contributions could be made to achieve this approach. This work is ongoing. Some of the goals identified were to implement training on the trauma-informed approaches to care for the staff and volunteers at DM, to increase the identification of client needs beyond nutrition in order to best provide referral to community resources, and to empower the individuals that DM serves to promote health. These aspects of trauma-informed care are deeply rooted in the ways that ACEs have been approached within the community-based model.

The general situation of a typical DM client was analyzed through the plan, do, study, act model. A concept map was created of the social determinants as contributors to an individual's health (see APPENDIX B, FIGURE 1) (IHI, 2019). It was discovered that an ideal system exists through multi-dimensional approaches to promote community resilience and meet all social determinants of health. An analysis of cause-and-effect was conducted of the structured environment contributing to the overall poor health outcomes of the general DM client (see APPENDIX B, FIGURE 2). This analysis led to the discovery of how adding trauma-informed training can lead to bigger impacts on individual resilience. The impact of resilience was identified through the analysis of toxic stress and its impact on individuals (see APPENDIX B, FIGURE 3). It was determined that better coping measures improve resilience to combat chronic stress to disrupt the occurrence of toxic stress.

Conclusion

Community resources, such as the Desert Mission Food Bank, can benefit by adopting trauma informed approaches to better serve individuals through the simple attempt to evoke comfortable interactions and create a safe space to fulfill each person's needs. Beginning conversations about past trauma opens increased opportunities to identify a person's needs and increase the supplemental referrals that have the potential to enhance health equity. The benefit of adopting trauma informed approaches to care is relevant to ACEs because unlike other chronic health conditions, obvious signs of the negative health impact may not be obvious nor objectively associated with ACEs. Instead, creating environments that allow open conversations and de-stigmatization of food insecurity provide opportunities to promote optimal health outcomes through wider assessment of individualized needs.

Through approximately 46 hours of collaboration with stakeholders, the resultant staff education will be implemented throughout Desert Mission Food Bank staff to enhance their understanding and adoption of trauma informed approaches to client interaction. Screening intake questions have been revised to demonstrate client centered language and expand screening for secondary health concerns using the literature synthesis (see TABLE 1). Trauma Informed Care approaches to client interaction were implemented at Desert Mission to further their vision of becoming a GoldCertified Food Bank in trauma-informed nutrition. Fostering an environment that builds trust allows clients to feel better supported and effectively builds individual resiliency through the increased opportunity for supportive community resources.

APPENDIX A: SERVICE-LEARNING CONTRACT

THE UNIVERSITY OF ARIZONA.

College of Nursing

BSN/BSN-IH HONORS SERVICE-LEARNING THESIS CONTRACT

Name of Partnering Organization Desert Mission

Address: 9229 N Fourth St Phoenix, AZ 85020

Site Supervisor's Name Anne Costa

Phone 602-786-1155 E-Mail acosta@honorhealth.com

Student's Name Veronica Wilson

Phone 618-640-8733 E-Mail veronicawilson@email.arizona.edu

Section I: Student

Below, please describe the identified problem and planned interventions. Describe aspirations for your experience and development by participating in this service-learning project.

1. Client interactions - non-trauma informed - staff education
2. wholistic + integrative client education - Mindfulness + Cognitive Reframing
3. I aspire to aid Desert Mission in becoming Gold certified in trauma informed Nutrition.

Below, please list proposed dates and times of the visits and service you plan at the site with the total number of hours expected. Be sure these are approved by your site supervisor, and that they meet the requirements of your Honors faculty.

Thursday, June 16 (2 hours) July 2022 (hours)
August 2022 (hours)

Section II: Site Supervisor

Below, please describe the volunteer work that the student will be doing while at your site. It is agreed that all interventions will be population focused and that students will complete no individual patient assessments and no clinical interventions or treatments during the service-learning experience.

Student Signature Veronica Wilson Date 6-17-22

Site Supervisor Signature Anne Costa Date 6/23/22

Course Instructor's Signature [signature] Date 7-1-22

APPENDIX C: FIGURES

FIGURE 1: *Concept Map*

FIGURE 2: *Cause-and-Effect*

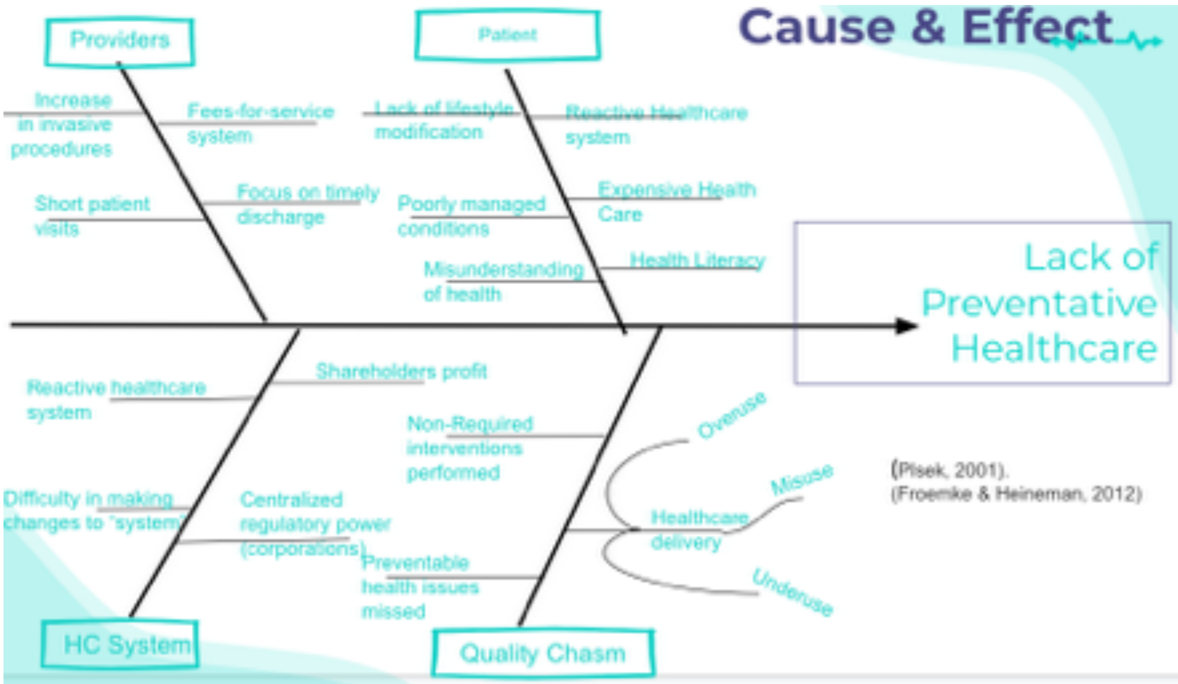

FIGURE 3: *Pathophysiology of Toxic Stress*

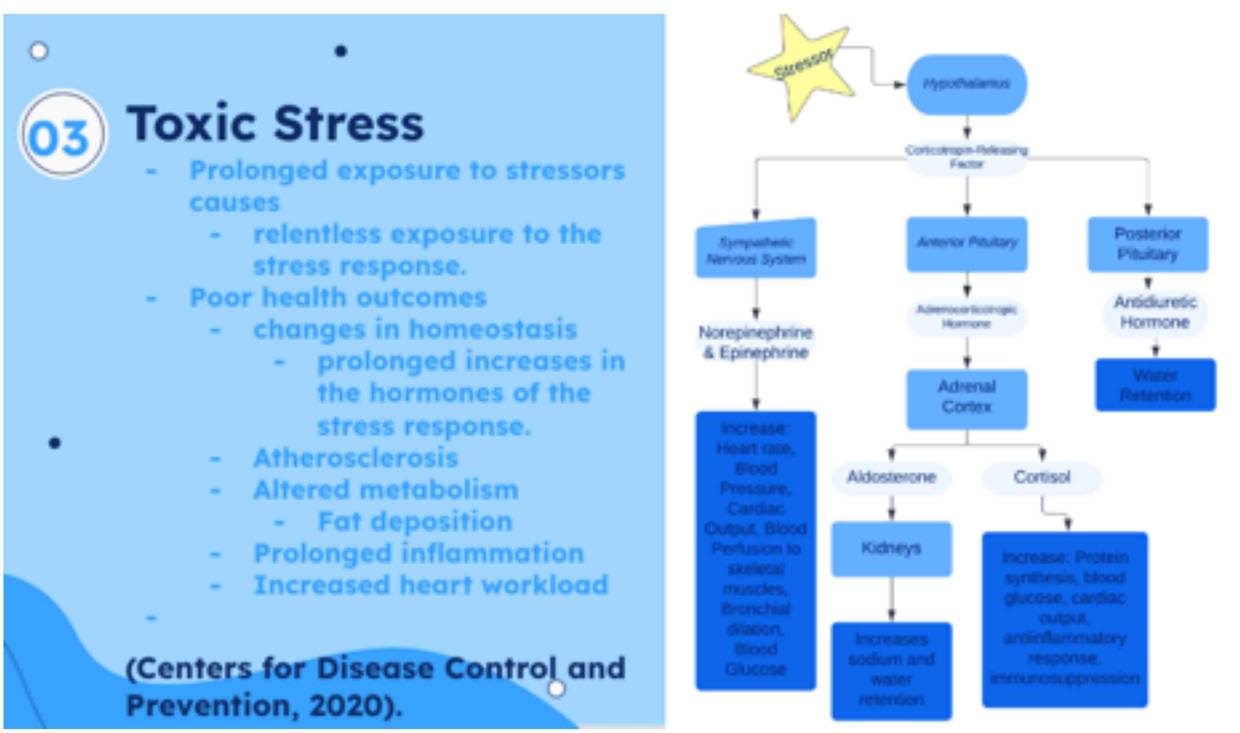

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TABLE 1: *Table of evidence.*

Author & Title	Study Design	Setting	Sample Size	Key Findings
Bethell (2017) Methods to Assess Adverse Childhood Experiences of Children and Families:	Systematic review	.	14 assessment tools	5 assessment methods for ACEs have been used in clinical setting 1 of these used in clinical does not require self/ parent report each assessment included: parental incarceration, domestic violence, household mental illness/ suicide, household alcohol/substance abuse other common assessment inclusion: neighborhood violence, bullying, discrimination, parent death All used numeric, cumulative risk score household income/socioeconomic status showed to be population-wide, but lower socioeconomic status was shown to increase risk
Pachter (2017) Developing a Community-Wide Initiative to Address Childhood Adversity and Toxic Stress: A Case Study of the Philadelphia ACE Task Force	Case Study	Philadelphia, PA, USA	2 hospitals Drexel University The Scattergood Foundation & Stoneleigh Foundation	expansion of the Philadelphia ACE Task Force to include community-based approaches to addressing childhood adversity in increasing sectors and regions of Philadelphia identification: community-based approach, developing research topic: improving identification recommendations: Trauma-Informed Professional Training, Financial and Personnel support are necessary, neutrality aids in establishing community involvement/buy in

Selda (2022) Investigating Adverse Childhood Experiences and Nutrition and Physical Activity Behaviors Using the Omaha System	cross-sectional	Istanbul, Turkey: 3 vocational institutes	n = 227 women	Average ACEs = 1.45 Range = 0 - 7 >50% had at least 1 ACE 14.5% had a history of four or more ACEs Emotional Abuse was the most commonly reported ACE score was significantly associated with poorer nutrition

Racine (2021) Maternal-Child Health Outcomes from Pre- to Post-Implementation of a Trauma-Informed Care Initiative in the Prenatal Care Setting: A Retrospective Study	Retrospective Study	Low-risk maternity clinic in a large, urban center of Western Canada	n = 601 338 TIC approach 263 pre-TIC approach	16.0% reported one ACE 10.0% reported 2 ACEs 2.4% reported 3 ACEs 3.8% reported 4 or more ACEs (32.3% reported at least 1) 37% in TIC group had 1 no difference in maternal pregnancy health, modest association of TIC implementation to better infant birth outcomes

Harada (2021) The Relationship Between Adverse Childhood Experiences and Weight-Related Health Behaviors in a National Sample of Children	Retrospective Study	United States	n = 32,528	0 ACEs: two times likelihood of 2 hours of the following per day: TV, electronics 0 ACEs were more likely to share 4 meals per week with their family, getting enough sleep 0 ACEs, 13-17 years old: increased odds of 60 minutes per day exercise Decreased likelihood of participating in health weight behaviors with the increase in the incidence of ACEs
Merrick (2017) Unpacking the Impact of Adverse Childhood Experiences on Adult Mental Health	Retrospective	Southern California: adults seeking routine health checkups	n = 7465	80% of the sample reported at least one ACE ACE score increases, odds of experiencing drug and alcohol use, suicide attempts, and depressed affect in adulthood increase abuse, household mental illness, and household substance abuse increase incidence of lifetime drug use emotional abuse, emotional neglect, and household mental illness were the greatest risk factors for depressive affect & suicide attempt

Petruccelli (2019) Adverse childhood experiences and associated health outcomes: A systematic review and meta-analysis	meta-analysis	United States Europe Canada Philippines Australia	n = 96 articles	Exposure to ACEs has a wide variety of negative health outcomes. ACE level of 1: GI disease, respiratory disease, pain/headache, sleep disturbance, fracture Respiratory disease was the most strongly associated health outcome with ACE ACE exposure of only 1 reported by the teacher was shown to be associated with an overall lower school performance