ORIGINAL ARTICLE

Implementation of an adverse childhood experiences screening protocol for adults at an outpatient medical psychology practice

Jennifer Allain, Eileen Creel, Christy Perry*

School of Nursing, Southeastern Louisiana University, United States

Received: January 13, 2022 **Accepted:** March 18, 2022 **Online Published:** April 11, 2022
DOI: 10.5430/jha.v11n1p8 **URL:** https://doi.org/10.5430/jha.v11n1p8

ABSTRACT

Objective: Despite an abundance of evidence supporting screening adults for adverse childhood experiences (ACEs), the gap between this knowledge and screening persists. Evidence suggests that screening is warranted, feasible, and desired by patients. This feasibility study aimed to educate and train staff and providers on ACE screening and implement an ACE screening policy and protocol at an outpatient medical psychology practice. The two expected outcomes of this project, provider knowledge after ACE training and provider compliance with the ACE screening protocol, were measured to determine if a clinical practice change occurred.

Methods: A quasi-experimental design with a pre-test/post-test was used to determine increases in provider knowledge following an ACEs training intervention. Additionally, post-intervention only data collection was used to determine compliance with ACE screening protocol, to determine practice change and feasibility of continued protocol use.

Results: The project results indicated that the implementation of the ACE screening protocol was feasible. Thirty-three adult clients new to the practice completed the ACE screening. Of the 33 clients screened during the 12-week study, 26 clients had an ACE score of three or higher, and 14 (42%) received therapy referrals based on their ACE score after education and discussion by the intake therapist. Weekly chart checks revealed that 100% of clients screened received, at a minimum, the educational packet regarding the impact of ACEs on physical and mental health. The protocol encouraged providers to promote evidence-based interventions to mitigate the potential untoward outcomes associated with ACEs.

Conclusions: These findings reflected a change in knowledge-based on education and indicated that educational intervention was effective.

Key Words: Adverse childhood experiences, ACE education program, ACE screening protocol, feasibility

1. INTRODUCTION

The association between adult mental health disorders and childhood trauma is a growing epidemiological health concern. Early life stress (ELS) can generate life-long consequences. Adverse Childhood Experiences (ACEs) are traumatic events involving abuse or household dysfunction and are a significant determinant in lifestyle risk factors and chronic disease.[1] A dose-response relationship exists between the ACE score and the likelihood of depression and suicide. A patient with an ACE score of six or more is 24-time more likely to attempt suicide than a patient with an ACE score of zero.[2] The risk of depression, drug abuse, and alcohol use triples with ACE exposure.[3] A meta-analysis review of 184 studies concluded that adults who experienced

*Correspondence: Christy Perry; Email: christy.perry@selu.edu; Address: School of Nursing, Southeastern Louisiana University, United States.

childhood trauma were two and a half times more likely to develop depression, have an earlier onset of depression, and were more likely to have chronic and treatment-resistant forms of depression.[4] Depression is a leading contributor to morbidity and mortality and remains one of the most common types of mental illness.[2] ACEs affect not only the individual that experienced the trauma but the family, community, and society. Adults who have experienced ACEs are at risk of maltreating their children, and researchers have examined possible changes to DNA related to the effects of childhood trauma.[5] Many leading causes of chronic disease are related to lifestyle-related risk factors, such as those increased with ACE scores: smoking, obesity, alcohol abuse, substance abuse, and risky sexual behaviors.[6]

The concept of ACEs was first defined in a study funded by the CDC in collaboration with Kaiser Permanente to evaluate how various childhood adversities affected long-term physical and mental health.[7] The original ACE Study was conducted over two years and consisted of data collected from over 17,000 Health Maintenance Organization (HMO) members who had physical exams. Confidential surveys were then administered, asking questions related to childhood abuse and current health behaviors. The evidence from the ACE study demonstrated "a strong dose-response relationship between the breadth of exposure to abuse or household dysfunctions during childhood and multiple risk factors for several of the leading causes of death in adults".[7] Following this landmark study, many studies have been conducted to investigate further the extent of the ACE epidemic, including research regarding ACE screening practices. Recent authors have provided a significant amount of research demonstrating the lasting impact of ACEs on risk factors over the lifespan in terms of psychological emotional, and physical illness.[8]

Despite the clear evidence in the literature review regarding the need for ACE screenings, several of the studies reviewed showed a continued lack of screening. A sample of nurse practitioners in Massachusetts was surveyed regarding ACE screenings in primary care.[9] The researchers identified barriers to implementing routine screening that included lack of confidence in screening, concern about traumatizing patients, concerns for lack of resources or skills to support positive screening, and insufficient time for screening.[9] However, a feasibility study found that ACE screening only extended the office visit by five minutes or less.[10] Furthermore, a retrospective clinical note review of adult mental health clients found significant discrepancies between the traumas reported to investigators using a structured questionnaire and the traumas recorded by their clinicians in case files.[11] Maunder et al.[12] aimed to determine if ACE screening was related to knowledge or medical specialty and assessed perceived barriers via an anonymous online survey. Physicians' screenings of ACEs were related to both specialty and expertise of ACEs' health impact, screening for ACEs routine for most psychiatrists, and less frequent among family physicians.[12] Similarly, psychiatric-mental health nurse practitioners (NPs) were more knowledgeable about ACE screening and more confident in screening practices than other NP specialties.[13]

Despite the research available, healthcare provider knowledge and routine screening for ACEs are lacking. Improving education and shifting to trauma-informed care will lead providers to ask, "What happened to you?" instead of "What's wrong with you?"[3] Understanding the nature of a client's trauma can build trust and rapport while structuring interventions according to clients' needs.[14] Screening for ACEs allows for a more in-depth assessment of a client's situation and needs so that additional resources may be offered.[1] ACE screening also provides an opportunity for dialogue and education regarding the risk factors associated with ACEs. Due to low numbers of staff and clients in the small outpatient setting when the ACE screening protocol was implemented, this was a pilot study to determine feasibility of ACE screening.

Objectives

This feasibility study aimed to change clinical practice by implementing an ACE screening protocol. The protocol included provider education on ACEs and incorporated an ACE screening tool for new client intake processes. This clinical practice change aimed to: 1) increase provider awareness of ACEs and the ACE screening tool; 2) improve identification of those clients at high risk; and 3) ensure appropriate mental health referrals to build client resilience.

2. METHODS

2.1 Design

A quasi-experimental design with a pre-/post-test, as well as, a post-intervention only data collection method was followed. This study used a feasibility study approach to change clinical practice through the implementation of an ACE screening protocol A feasibility study utilizes simpler designs to assess outcomes.[15]

Provider education on ACEs to increase provider awareness and standardization of an ACE screening protocol which incorporated an ACE screening tool for new client intake was conducted to identify those clients at high risk and to ensure appropriate mental health referrals were made to build client resilience. Two post-intervention outcomes were measured to determine if a change in clinical practice occurred including: 1) provider knowledge after ACE training, and 2) provider compliance with the ACE screening protocol.

2.2 Sample

The staff and providers at the outpatient medical psychology clinic comprised the sample used to measure the feasibility of practice change compliance with the ACE screening protocol. All office staff were provided with ACE education - including administration staff, front office staff, therapists, nurse practitioners, psychologists, and psychiatrists. There was no control group in this study, and the process/workflow was adjusted based on participants' actions with the new screening protocol. Sixteen full and part-time support staff and healthcare providers were included in the study. This medical psychology practice cared for clients ages 5-85 presenting with mental health concerns such as anxiety, depression, insomnia, and ADHD. Many of the clients were referred from their primary care providers for treatment resistant mental health issues, particularly anxiety and depressive symptoms. The office did not accept insurance, so all clients were self-pay. All clients who met intact inclusion criteria (over 18 and new clients) were offered the screening protocol as the standard of care. Clients were given the written version of the screening questionnaire for completion before their scheduled appointment. The therapists verbally obtained the answers to the clients' ACE screening tool with telehealth appointments for intake. Written material was also provided to new clients at their intake appointment by staff to explain the significance of screening for ACEs.

2.3 Outcome measures

Two outcomes were measured to determine if a change in clinical practice occurred including, provider knowledge after ACE training and provider compliance with the ACE screening protocol. Provider outcome on knowledge of ACE was measured before and after the formal ACE education program. The staff's knowledge regarding ACEs and ACE screening was measured with a pre- and post-intervention test. Provider compliance with the implementation of the ACE screening protocol included determining the number of clients who completed the ACE screening protocol, provider documentation of education and distribution of pre-printed ACE educational material, and the number of referrals made for therapy based on the ACE score. These data were collected via weekly chart reviews.

2.4 Instrument reliability and validity

ACEs knowledge was measured with a pre- and post-intervention test developed by the faculty researcher trained in test item development. Before distributing the pre-test survey, content validity was tested by two certified ACE-trained educators and content experts. The test was a paper and pencil self-assessment questionnaire. Both the pre- and post-survey included a 5-point Likert scale with response options ranging from "0 = none" to "4 = very high" to obtain baseline knowledge of the provider's awareness of ACEs. The 6-question survey obtained data on provider knowledge of ACEs and the implications of ACE scores for their clients. Demographic data on providers were obtained at the time of the ACE education session.

The ACE, although not used as an outcome indicator, is an instrument relevant to the feasibility study. The ACE is a brief and economical screen for retrospective assessment of ACEs an individual experienced before 18 years. According to Murphy et al., Cronbach's coefficient alpha for the ACE screening tool was 0.88. Reliability is supported. Validity is supported by the widespread use of the tool in many large-scale studies.[8] The ACE questionnaire is not copyrighted, and there is no fee for use. However, if a researcher includes the ACE study questionnaires in research, a copy of the subsequent article is requested to be sent to `dvpinquiries@cdc.gov`.[1]

2.5 Intervention

The feasibility study was completed in two phases. Phase One entailed staff education and technology pre-paration. Phase Two consisted of implementing the ACE screening protocol and conducting chart reviews to determine if providers addressed the ACE score appropriately regarding clients' education and referral.

The study's first step consisted of formal education for all office staff and providers on ACEs' history and the ACE screening tool. The ACE questionnaire is a reliable and valid measure of childhood adversity that has been used extensively in large-scale ACE studies.[8] It was initially developed by Dr. Felitti and colleagues and assesses 10 types of childhood adversity in three different abuse areas, including emotional and physical abuse, physical neglect, and abuse associated with living in a dysfunctional household.[7]

Monthly staff meetings were utilized for the training. A qualified and trained Louisiana (LA) ACE Educator provided the staff training. The LA ACE Educator Program was created through a partnership between the LA Department of Health's Bureau of Family Health and the Tulane Institute of Infant and Early Childhood Mental Health, with the LA ACE Initiative's support. The ACE Educator Program's goals are to increase community awareness of ACEs via a network of trained educators to develop policies and practices that are informed by an understanding of the lifelong impact of childhood adversity and trauma.[16] ACE educators' presentations are designed to effectively reach audiences across Louisiana about the impact of childhood trauma and promote open, ongoing conversations about these issues.[16]

The PowerPoint presentation to educate clinic providers and the staff was approximately one hour and covered: introduction, objectives, fundamental concept overview, ACE examples, change in perception about ACEs, the pathophysiology of ACEs, the ACE concept pyramid, impact of ACEs, ACE-associated consequences, the differing effects of ACEs on individuals, families, and society, ACE statistics for Louisiana, current and recommended screening practices, screening benefit, and, screening tool example. The ACE educator provided ACE training material to the staff and providers to supplement the presentation. Demographic data were collected on each study participant. The provider's knowledge of ACEs and the screening tool at baseline was measured by a pre-test, and again after the educational intervention by a post-test.

Phase two of the feasibility study implemented the ACE screening protocol (see Appendix). At the time of project implementation, the LPC obtained the client's history verbally in a question-and-answer session. ACEs were not explicitly addressed in the intake evaluation. Copies of the ACE screening tool were inserted into the new client packet of paperwork for completion after check-in for their intake appointment while in the waiting room. Copies of the ACE screening tool were also provided to therapists completing intake via telehealth.

In phase two, new clients completed the ACE screening, and the licensed professional counselor (LPC) reviewed results during the intake evaluation. Per the protocol, the LPC discussed the significance of a positive ACE score with the client and provided education and recommendation for referral for therapy if appropriate. Manual weekly chart reviews were conducted on new intakes to determine the number of screening tools collected weekly, the percentage of providers addressing positive ACE scores with education, and the number of referrals deemed appropriate by the therapist. Weekly chart audits also identified potential low compliance with the protocol in the event informal interviews with staff and re-education were required to improve compliance and undercover issues with screening.

2.6 Ethic statement

The Institutional Review Board (IRB) of Southeastern Louisiana University approval was granted prior to study initiation with IRB Number 2020-110. Subjects were protected from the risk via an informed written consent process and use of aggregate only data.

3. RESULTS

The project addressed the feasibility of implementing a clinical practice change protocol in one outpatient medical psychology clinic utilizing an evidence-based ACE screening protocol by measuring staff knowledge and compliance with the protocol over three months. Inferential statistics demonstrated a statistically significant difference in the pre- and post-test scores. This reflected a change in study participant knowledge based on the effective educational intervention. Weekly chart reviews for ACE screening completed over 12 consecutive weeks reflected application to practice and measured compliance with the policy change. Compliance with the ACE screening protocol led to referrals for therapy based on ACE scores.

Outcome data included pre-/post-test scores from participants from the ACE training session, compliance with the use of the ACE screening policy, documented education and discussion on the ACE score, and the number of referrals made for therapy based on ACE score. These knowledge and compliance outcomes lead to the determination of the feasibility and sustainability of the clinical practice change. De-identified data were extracted from the electronic health record during weekly retrospective chart audits to collect data on the number of screenings completed, the percentage of clients that received the ACE educational packet, and the number of referrals made based on the ACE score.

Data analysis for outcome measures involved pre- and post-intervention scores on the knowledge of ACEs. The pre- and post-test included six questions recorded on a five-point Likert scale measuring the participants' knowledge. Four additional questions addressed the impact the ACE training would have on their interaction with clients and professional practice (see Appendix). The pre- and post-test scores to evaluate participant knowledge on ACEs were continuous variables ranging from 0 (none) to 4 (very high). Measurements were on an interval Likert scale.

Inferential statistics were run for each of the six questions to determine a change from pre- to post-test scores before and after the educational intervention. Sum scores were also performed to analyze the total scores of the provider's knowledge of ACEs and screening. The range of the summed scores was a pre-sum score of 0 to a post-sum score of 24. Statistical Package of the Social Sciences (SPSS) Version 27 was used to run frequencies to ensure variables were normally distributed. Assumptions included the following: variables were normally distributed with homogeneity, a continuous level of measurement, observations were independent of one another, and an absence of outliers (Polit & Beck, 2017). Those assumptions were met, so parametric testing was used, and the means of pre- and post-intervention scores were compared using dependent paired t-tests. Differences in ACE knowledge test scores were considered statistically significant when the p-value was $< .05$.

3.1 Sample/Consenting

The staff and providers at one outpatient medical psychology clinic were the convenience sample used to measure practice change with the ACE screening protocol. There was no control group in this study, and the process/workflow was adjusted based on participants' actions with the new screening protocol. All full and part-time support staff and healthcare providers (16) were included in the study. The protection of human subjects and ethical considerations were taken into full consideration. After Institutional Review Board approval from Southeastern Louisiana University, written consent was obtained from each study participant. No more than minimal risk to study participants was expected, including mild anxiety from completing the ACE education training and completing a pre- and post-test on ACE knowledge. Informed consent to participate in the feasibility study was obtained before the ACE presentation from the medical psychology practice. Study participants had the freedom to withdraw from the study at any time. The consent included a statement indicating the participant's decision to not participate would not affect their employment. Providers' compliance with the ACE screening protocol was the outcome, and any data from the client charts was aggregate only data. No individual client data was used in the study. The current therapist-client service agreement's clause regarding the use of protected information for quality assurance served as the individual client consent.

3.2 Demographics

Sixteen full and part-time employees at the facility were recruited to participate in the project. No staff members declined to participate, and all 16 signed consent forms, completed the ACE education, and fully completed the pre- and post-tests in the feasibility study. Descriptive statistics were used for participant demographics, including age, gender, race, and education (see Table 1). Participant age ranged from 23 to 62, with mean M = 39 and standard deviation *SD* = 11.516 One hundred percent of the study participants were female. The majority (87.5%) of participants were Caucasian, 6.3% were Hispanic, and 6.3% were African American regarding education.

3.3 Study effect on outcome "Provider Knowledge of ACEs"

Inferential statistics were run for each question on the pre- and post-test to determine a change from pre to post. A paired-samples *t*-test compared the participants' knowledge of ACEs before and after the ACE educational intervention. There was a significant difference in the pre-test scores (M = 9.8, *SD* = 6.0) and post-test scores (M = 21.43, *SD* = 2.5) conditions: t(15) = -9.44, $^{**}p$ = .000. These findings reflected a change in knowledge-based on education and indicated that educational intervention was effective. The null hypothesis and alternative hypothesis were as follows: H$\ddot{o}$: There is no difference in ACE knowledge scores after the intervention (ACE educator program). H$\grave{i}$: There is a difference in ACE knowledge scores after the intervention (ACE educator program). In the feasibility study, findings supported the acceptance of the alternative hypothesis.

Table 1. Participant demographics

Participant Demographics (*n* = 16)	Percentage
Age	*M* = 39, *SD* = 11.516
21-30	4%
31-40	4%
41-50	5%
51-60	2%
61-70	1%
Gender	
Female	100%
Male	0%
Race	
Caucasian	87.5%
African American	6.3%
Hispanic	6.3%
Educational Attainment	
High School Graduate	6.3%
Some College, No Degree	6.3%
Bachelor's Degree	12.5%
Master's Degree	56.3%
Doctoral Degree	18.8%

3.4 Project effect on outcome "Provider compliance with ACE Screening protocol"

ACE scores range from 0 to 10, with higher scores associated with increased risk of health problems.[7] The practice owner, a medical psychologist, provided expert opinion during the development of the screening protocol and determined that clients with an ACE score of three or higher should receive a discussion regarding referral for therapy by a therapist at intake. Weekly chart checks revealed that 100% of clients screened received, at a minimum, the educational packet regarding the impact of ACEs on physical and mental health. Of the 33 clients screened during the 12-week study, 26 clients had an ACE score of three or higher. Fourteen (42%) were referred to therapy based on their ACE score after education and discussion by the intake therapist (see Table 2).

Table 2. Weekly chart audit results

Week of chart audit	Screening criteria met	ACE Screening completed	ACE Screening not completed	ACE scores	Referrals for therapy based on ACE score
1	5	5	0	7, 0, 3, 9, 4	2
2	3	3	0	3, 2, 7	1
3	5	4	1	8, 0, 9, 5	3
4	3	3	0	7, 5, 3	2
5	1	1	0	3	0
6	6	5	1	3, 9, 0, 6, 4	2
7	3	3	0	8, 0, 3	1
8	4	3	1	8, 3, 1	1
9	4	1	3	3	0
10	1	1	0	1	0
11	2	2	0	8, 3	1
12	2	2	0	7, 3	1
Total = 12 weeks	39	33	6	0-7 (M = 4)	14

The intake therapist determined referrals for therapy after ACE training emphasized the importance of identifying those clients at high risk to ensure appropriate mental health referrals to build client resilience. The higher the ACE score, the greater the impact on physical and mental health.[2] Incorporating the ACE questionnaire to standard intake screening allowed clients to benefit from effective evidence-based interventions to reduce ACEs' impact on physical and mental health. Nineteen (58%) of clients screened received education only and were not referred for therapy based on the ACE score. Of those clients not referred, they were either deemed inappropriate for a therapy referral by the intake therapist or refused referral at this time and were referred for medication management only. Although not every client with an ACE score of three or higher required a therapy referral, chart reviews confirmed all clients received education and a discussion with the therapist of implications related to their ACE score. ACE educational materials were provided to 100% of screened clients, regardless of ACE score, per ACE screening protocol.

4. DISCUSSION

Of the 33 clients screened, 14 were referred to therapy based on their ACE score after education and discussion by the intake therapist. Nineteen clients screened received education only and were not referred for therapy based on their ACE score. They were either deemed inappropriate for a therapy referral by the intake therapist or refused referral at that time and were referred for medication management only. Although not every client in the study was receptive to a therapy referral after discussing ACE score, it is not unlikely that those clients returned later for therapy based on the intake therapist's recommendation and education provided on ACEs. Not every client with an ACE score of three or higher required a therapy referral. Chart reviews confirmed all clients received education and a discussion with the therapist of implications related to their ACE score. ACE educational materials were provided to 100% of screened clients, regardless of ACE score, per ACE screening protocol. This project's outcomes and the higher-than-average ACE scores in the study support the need for routine ACE screening at the practice.

The landmark Kaiser Permanente study by Felitti et al.,[7] and a tremendous body of research following, have determined that screening for childhood trauma by use of the ACE tool is not only feasible but crucial for best practice. Despite the evidence spanning over two decades that showed that ACE exposure is a precursor to poor adult health outcomes, screening for a history of ACEs is still not a routine practice in primary care.[5] There are currently no clinical guidelines for addressing ACEs in primary care.[9] The U.S. Preventive Services Task Force (USPSTF) has published recommendations for screening for child maltreatment in the pediatric population only.[9] As a result, rates of ACE screening and management of adult patients with a history of childhood abuse vary with the confidence, knowledge, and perceptions of individual providers.

By screening adult patients for ACEs, providers can better understand how past experiences have contributed to patients' current state of health and thus provide a more trauma-informed approach to care to mitigate the lasting effects of that trauma.[14] The literature review demonstrated the importance of addressing ACEs and providing interventions to

improve outcomes.

The Behavioral Risk Factor Surveillance System (BRFSS) has collected extensive data on ACEs in 32 states since 2009, and the results are similar to the Felitti ACE study of 1998.[1] The data showed that childhood trauma is shockingly pervasive. The clients screened in this research translation project provided insight into the prevalence of ACE and the feasibility of screening for assessing ACE in new clients in a medical psychology practice. Lack of screening in this population and the significant reports of ACEs supported the concern for lost opportunities to identify ACEs and their impact on physical and psychological disease in this care setting.

The results of the Felitti et al.'s study[7] showed that 61% of responders reported experiencing one or more ACEs, and 16% reported four or more ACEs. This also compares with the Behavioral Risk Factor Surveillance System (BRFSS) ACE data of a random national sample, in which 14.3% of respondents reported an ACE score of 4 or more.[1] The ACE scores collected at the feasibility study facility during the 12-week implementation demonstrated ACE scores higher than the national average. Study results at the medical psychology practice found 29 (87%) clients screened reporting one or more ACEs, and 16 (48%) of clients reported four or more ACEs. This difference in acuity of ACE scores between clients screened during this feasibility study and those obtained in the original ACE study by Felitti et al.[7] may be attributed to the study facility's nature as a psychology practice. Clients seeking intake evaluation at a psychology practice are more likely to be experiencing psychological distress, prompting them to seek care. Another possible explanation for higher ACE scores collected during in 2020 feasibility study time frame as compared to the original ACE study in 1998, is the overall increase in patients with mental health concerns.

Glowa et al.[10] found that 62% of patients screened positive for at least one ACE, and 22% reported four or more ACEs. These findings are consistent with the study conducted by Felitti et al.,[7] noting that over 50% of participants reported at least one ACE, and 25% reported two or more ACEs. The Behavioral Risk Factor Surveillance System (BRFSS) began collecting ACE data after completing the CDC-Kaiser ACE Study. A large cross-sectional study of data was collected through BRFSS and included 214,157 respondents in the sample. Similar to findings by Felitti et al. and Glowa et al., this study demonstrated 61.55% reporting at least one ACE and 24.64% reporting three or more ACEs.[17] These three studies showed the prevalence and burden of ACEs among the United States (U.S.) adult population.

Merrick et al.[2] conducted a cross-sectional retrospective study that analyzed the relationship between an expanded ACE score and adult mental health outcomes by examining each ACE separately to determine each ACE's contribution. Consistent with findings in the original ACE Study, results indicated a graded dose-response relationship between the expanded ACE score and the likelihood of moderate to heavy drinking, drug use, depression, and suicide attempts in adulthood.[7] The graded dose-response relationship predicts the higher the ACE score, the higher the risk of mental health issues.

Several of the studies reviewed investigated the association of ACE scores and mental health issues in later life with significant findings. A meta-analysis of 184 studies concluded that individuals who had experienced childhood maltreatment were more than two and a half times more likely to develop depression, had an earlier onset of depression, and were more likely to have a chronic and treatment-resistant form of depression.[4] Additionally, these patients were statistically significantly more likely to have treatment-resistant depression and earlier depression onset.[4] The International Study to Predict Optimized Treatment for Depression (iSPOT-D) was an RCT that evaluated the role of early-life trauma in predicting response outcomes to antidepressants in patients with Major Depressive Disorder (MDD).[18] The authors showed that 62.5% of MDD participants reported more than two traumatic events than 28.4% of controls.

Interestingly, the presence of one early-life traumatic event was not a significant predictor of change in symptom severity from pre- to post-treatment. Their study findings suggested that the greater the exposure to trauma, the less likely depressed clients were to respond to antidepressant therapy.[18] This finding was significant to the DNP project. It supported screening for childhood trauma to identify clients who may not benefit from standard first-line antidepressants and may require additional therapy to directly address the impact of trauma.[18]

Similarly, two cross-sectional studies also explored the association between ACE scores and adult mental illness.[8] Kealy and Lee[14] examined the prevalence of childhood maltreatment in adult mental health service users and analyzed the cumulative burden concerning psychiatric illness and suicidality. Choi et al.[8] examined the association between 10 ACEs and older adults with mental and substance use disorders (MSUDs). Both studies found consistently significant associations between ACEs and adult mental illness.[8] Kealy and Lee's study findings supported the higher incidence of suicidal ideation or past attempt found in Merrick et al.'s 2017 study. These findings highlighted the need for prevention strategies for individuals at risk for depression and suicide. Additionally, a history of multiple types of trauma

disclosed in ACE screening should prompt a careful suicide risk assessment and intervention since two studies reviewed found a higher risk in these clients.[14]

Goldstein et al.[19] completed a study testing the relationship between the ACE study questionnaire and the primary care PTSD screen score with patient preferences on screening. They concluded that screening was acceptable to most patients regardless of trauma exposure. These findings indicated that regular screening for ACEs and trauma might better serve trauma-exposed patients' health care needs.[19] Additionally, patient impact ratings were predictive of adult health outcomes above and beyond the events' experience. A meta-analysis concluded that perceived impact was a potentially vital variable to include when self-reported ACEs are addressed by providers.[20] While clinicians may express concerns about ACE screening in the office amid time constraints and fear of offending or distressing patients, multiple studies have demonstrated feasibility.[10]

Project results were significant in the practice setting, and the incorporation of staff education and ACE screening is now a priority for the medical psychology practice. The clinic did not have a specific trauma questionnaire or ACE screening protocol to identify childhood trauma prior to the project. History taking was left to each therapist's discretion at the intake appointment, and documentation and thoroughness of childhood history varied widely among providers. Based on an informal interview with study participants, the providers felt that the screening gave them new information about their clients. The 10 question ACE survey helped to normalize the conversation about childhood experiences and their potential impact. A review of their ACE score with clients, including education, discussion, and possible referral, did not significantly increase intake appointment time. This correlates with research findings that discussing screening results increased the clinic visit time by less than five minutes in 90% of encounters.[10] The ACE screening protocol standardized the client's intake history and provided consistent documentation of childhood trauma. The practice plans to continue the ACE screening protocol and discussion of providers' input of the integration of ACE screening into the practice.

Limitations

Limitations included a small number of new clients presenting to the facility for new client intake based on a comparison of new client intakes from September to November of 2019. Historically, the practice site saw an average of seven new clients per week during those particular three months of the year. However, the average was three new clients per week during the 12-week study period. The unexpected decrease in new clients was primarily attributed to the COVID pandemic.

The small sample size of 16 study participants was a study limitation. As COVID-19 lockdowns went into effect across Louisiana, several therapists and administrative staff left the medical psychology practice immediately prior to project implementation, which hindered project recruitment efforts. Despite the small sample size that completed the ACE training session, pre- and post-education knowledge scores were statistically significant in the study.

5. Conclusions

The study findings support the practice change to include an ACE screening protocol for new clients seeking care in a medical psychology practice was feasible. This further supports the need for an official policy change. Based on feasibility study results, the clinic has formally incorporated the ACE screening protocol into a policy for all new clients presenting for intake at the facility. The ACE training will be required orientation material to all new staff and providers hired post-project completion. While this project introduced ACE screening for all adults aged 18 and older, the updated office screening protocol includes all new clients, including children, supported by the evidence and CDC Guidelines.[1]

This feasibility study translated research evidence about ACEs' effect on health outcomes to practice with education on the impact of trauma (ACEs) and implementation of a screening protocol resulting in 33 screenings over the 12-week study. A positive effect was observed from the two project outcomes based on staff education and implementing an ACE screening protocol in a medical psychology practice. The project results indicated that the implementation of the ACE screening protocol was feasible. With education on ACEs and understanding how ACEs contribute towards adverse health outcomes, study participants viewed the ACE screening tool as a welcome addition to help new clients acknowledge a link between their past and present. Validating clients suffering from an objective ACE score invited clients to discuss childhood trauma and receive education on ACE scores' implications on physical and mental health. Implementation of an ACE screening protocol led to client education, referral to therapy when appropriate, and patient-centered care that will improve health and wellness. Future work could expand the study to other outpatient settings to determine if more study participants would affect outcomes.

Conflicts of Interest Disclosure

The authors declare they have no conflicts of interest.

REFERENCES

[1] Centers for Disease Control and Prevention. Adverse Childhood Experiences (ACEs). 2019. Retrieved October 4, 2020. Available from: https://www.cdc.gov/violenceprevention/aces/index.html

[2] Merrick MT, Ports KA, Ford DC, et al. Unpacking the impact of adverse childhood experiences on adult mental health. Child Abuse & Neglect. 2017; 69: 10-19. PMid: 28419887. https://doi.org/10.1016/j.chiabu.2017.03.016

[3] Bryan RH. Getting to why: Adverse childhood experiences' impact on adult health. Journal for Nurse Practitioners. 2019; 15(2): 153-157. https://doi.org/10.1016/j.nurpra.2018.09.012

[4] Nelson J, Klumparendt A, Doebler P, et al. Childhood maltreatment and characteristics of adult depression: Meta-analysis. The British Journal of Psychiatry. 2017; 201: 96-104. PMid: 27908895. https://doi.org/10.1192/bjp.bp.115.180752

[5] Esden JL. Adverse childhood experiences and implementing trauma-informed primary care. The Nurse Practitioner. 2018; 43(12): 10-21. PMid: 30379710. https://doi.org/10.1097/01.NPR.0000547550.48517.e9

[6] Zarnello L. The ACE effect: A case study of adverse childhood experiences. Nursing. 2018; 48(4): 50-54. PMid: 29561370. https://doi.org/10.1097/01.NURSE.0000530408.46074.64

[7] Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American Journal of Preventive Medicine. 1998; 14(4): 245-258. https://doi.org/10.1016/S0749-3797(98)00017-8

[8] Choi NG, DiNitto DM, Marti CN, et al. Association of adverse childhood experiences with lifetime mental and substance use disorders among men and women aged 50+ years. International Psychogeriatrics. 2017; 29(3): 359-372. PMid: 27780491. https://doi.org/10.1017/S1041610216001800

[9] Kalmakis KA, Chandler GE, Roberts SJ, et al. Nurse practitioner screening for childhood adversity among adult primary care patients: A mixed-method study. Journal of the American Association of Nurse Practitioners. 2017; 29(1): 35-45. PMid: 27221514. https://doi.org/10.1002/2327-6924.12378

[10] Glowa PT, Olson AL, Johnson DJ. Screening for adverse childhood experiences in a family medicine setting: a feasibility study. The Journal of the American Board of Family Medicine. 2016; 29(3): 303-307. PMid: 27170787. https://doi.org/10.3122/jabfm.2016.03.150310

[11] Rossiter A, Byrne F, Wota AP, et al. Childhood trauma levels in individuals attending adult mental health services: An evaluation of clinical records and structured measurement of childhood trauma. Child Abuse & Neglect. 2015; 44: 36-45. PMid: 25636522. https://doi.org/10.1016/j.chiabu.2015.01.001

[12] Maunder RG, Hunter JJ, Tannenbaum DW, et al. Physicians' knowledge and practices regarding screening adult patients for adverse childhood experiences: A survey. BMC Health Services Research. 2020; 20(1): 1-5. PMid: 32293444. https://doi.org/10.1186/s12913-020-05124-6

[13] Branstetter ML, Garrett-Wright D, Padgett B. Adverse childhood experiences: Missed opportunities by nurse practitioners to screen adult clients. Journal of Psychosocial Nursing & Mental Health Services. 2022; 53(3): 20-27. PMid: 31846047. https://doi.org/10.3928/02793695-20191118-01

[14] Kealy D, Lee E. Childhood trauma among adult clients in Canadian community mental health services: toward a trauma-informed approach. International Journal of Mental Health. 2018; 47(4): 284-297. https://doi.org/10.1080/00207411.2018.1521209

[15] Polit DF, Beck CT. Nursing research: Generating and assessing evidence for nursing practice (10th ed.). Wolters Kluwer; 2017.

[16] Partners for Family Health Louisiana. (n.d.). ACE Education Program. Retrieved December 31, 2018. Available from: https://partnersforfamilyhealth.org/aces/

[17] Merrick MT, Ford DC, Ports KA, et al. Prevalence of adverse childhood experiences from the 2011-2014 behavioral risk factor surveillance system in 23 states. JAMA Pediatrics. 2018; 172(11): 1038-1044. PMid: 30242348. https://doi.org/10.1001/jamapediatrics.2018.2537

[18] Williams LM, Debattista C, Duchemin AM, et al. Childhood trauma predicts antidepressant response in adults with major depression: data from the randomized international study to predict optimized treatment for depression. Translational Psychiatry. 2016; 6(5): e799-e799. PMid: 27138798. https://doi.org/10.1038/tp.2016.61

[19] Goldstein E, Athale N, Sciolla AF, et al. Patient preferences for discussing childhood trauma in primary care. Permanente Journal. 2017; 21(2): 119. PMid: 28333604. https://doi.org/10.7812/TPP/16-055

[20] LaNoue MD, Cunningham AT, Kenny LC, et al. What do adults think about their adverse childhood experiences (ACEs), and does it matter? Community Mental Health Journal. 2020; 57(6): 1255-1261. PMid: 32065317. https://doi.org/10.1007/s10597-020-00580-0