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Research Article

Intergenerational Associations of Adverse Childhood Experiences and Adolescent Engagement in High-Risk Behaviors

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Abstract

Purpose: While the association between Adverse Childhood Experiences (ACEs) and negative health outcomes in adulthood is well established, very few studies have examined the cumulative impact of ACEs across generations (intergenerational ACEs – caregiver and youth) on health outcomes in adolescence. The purpose of this study is to examine whether intergenerational ACEs are associated with an increased likelihood of participation by youth in high-risk behaviors including tobacco use, vaping, alcohol use, engagement in sexual activity, or result in higher rates of affective disorders such as depression.

Methods: 234 caregiver-youth dyads were recruited via a convenience sample from pediatric clinics at East Tennessee State University and Western Michigan University Homer Stryker M.D. School of Medicine. Participant dyads completed a survey assessing both caregiver and youth ACEs, youth depression, and youth participation in high-risk behaviors. Caregiver-youth dyads were sorted into an ACEs matrix with the following groups: Low Caregiver-Low Youth ACEs (LC-LY), Low Caregiver-High Youth ACEs (LC-HY), High Caregiver-Low Youth ACEs (HC-LY), and High Caregiver-High Youth ACEs (HC-HY).

Results: HC-HY dyads were 11.4 times more likely to report moderate to severe depression compared to LC-LY dyads ($p<0.01$). HC-HY dyads were 4.5, 3.3, and 7.5 times more likely to have youth participate in alcohol use ($p<0.05$), vaping ($p<0.05$), and sexual activity ($p<0.01$), respectively, compared to LC-LY dyads.

Conclusions: Intergenerational ACEs exposure was related to greater youth engagement in high-risk behaviors and risk of depression. Assessing both caregiver and youth ACEs would better identify youth at risk for alcohol use, vaping, sexual debut, and depression.

Keywords: Adverse childhood experiences; Alcohol use; Tobacco use; Sexual activity; Depression

Abbreviations: ACEs: Adverse Childhood Experiences; LC-LY ACEs: Low Caregiver – Low Youth Adverse Childhood Experiences; LC-HY ACEs: Low Caregiver – High Youth Adverse Childhood Experiences; HC-LY ACEs: High Caregiver – Low Youth Adverse Childhood Experiences; HC-HY ACEs: High Caregiver – High Youth Adverse Childhood Experiences

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Introduction

Reduction of adolescent drug, alcohol, and electronic-cigarette (e-cig) use and improvement of sexual health practices among youth are identified as key health objectives in *Healthy People 2030* [1]. Therefore, it is essential for clinicians to ascertain the best approach in screening and identifying youth engaged in or at risk for engagement in high-risk behaviors. It is well established that Adverse Childhood Experiences (ACEs) negatively impact the mental and physical health outcomes over one's lifetime [2]. Extensive research on adults shows a strong correlation between adult ACE scores and many health risk behaviors such as alcohol abuse, smoking, obesity, drug use, depression, and risky sexual practices [2-10]. Some studies have examined the impact of parental ACE scores on child health outcomes and development; however, very few have looked at the cumulative impact of high parental and high childhood ACEs on youth health outcomes referred to as intergenerational ACEs. High parental ACEs have been found to predict high child ACEs in the categories of child maltreatment or family dysfunction [11,12]. Despite recognizing that parental ACEs have a significant influence on a child's upbringing and developmental trajectory, most pediatricians do not routinely screen for parental ACE scores [13].

While the literature on ACE exposure and adult health outcomes and behaviors is extensive, only a handful of studies have looked at the relationship between adolescent ACEs and engagement in high-risk behaviors during adolescence. Youth onset of alcohol use/abuse, tobacco or smokeless tobacco use, and higher rates of violence such as delinquency, bullying, physical fighting, dating violence, and suicidal ideation have all been linked to higher youth ACE scores [14-17]. Further, young adolescents (9-11 years old) in the foster care system had a significant association between ACEs and engagement in violence and substance use [18].

Few studies capture more than one generation (parents or adolescents) to look at the cumulative impact of ACEs across generations on adolescent outcomes such as health risk behaviors. Knowing that individual parental ACE scores and individual youth ACE scores are predictive of engagement in these risky behaviors, it is plausible that high intergenerational (parent and youth) ACE exposure may have a compounding effect on the likelihood of youth engaging in risky behaviors [2,5,9,19-23].

The current study had two primary objectives: (1) to determine whether caregivers with high ACE scores predict youths with higher ACE scores; and 2) to examine whether intergenerational ACEs are associated with increased likelihood of engagement by youth in high-risk behaviors including tobacco use, e-cig use or vaping, alcohol use, engagement in sexual activity or result in higher rates of affective disorders such as depression. By screening caregivers and youth for ACEs, an "intergenerational ACE count" can be obtained. Because this two-generation approach has not been utilized previously for predicting adolescent engagement in risky behaviors, this study provides important new information that could be used to identify youth who are at increased risk of engaging in high-risk behaviors or reporting symptoms of affective disorders and target them for preventative or mitigating interventions.

Methods

A convenience sample of 234 caregiver-youth dyads were recruited from pediatric clinics at East Tennessee State University Quillen College of Medicine and Western Michigan University Homer Stryker M.D. School of Medicine. Data were collected via a survey during regular healthcare visits. Caregiver consent and youth assent were required for participation. Caregiver and youth ACEs were assessed using the Center for Youth Wellness' Adverse Childhood Experiences Questionnaire [24]. Questions assessing youth engagement in high-risk behaviors (ie. tobacco use, e-cig use or vaping, alcohol use, engagement in sexual activity) were adapted from the Center for Disease Control's Youth Risk Behavior Survey [25]. Youth depression was assessed using responses to the Patient Health Questionnaire-9 (PHQ-9), a nine-item questionnaire developed at Columbia University [26]. General demographic information including age, gender, race, and insurance status were included as well. Caregivers and youth were informed that if affirmative responses to the two PHQ-9 questions related to suicide or the two ACE questionnaires that indicated past abuse were recorded, further clinical assessment would be performed.

Outcome variables included depression assessed by the PHQ-9 score and engagement in high-risk behaviors. Individual PHQ-9 scores were coded into "no depression" (0-4) and "mild to severe depression" (5+). Risky behaviors questions were adapted from the CDC's Youth Risk Behavior Survey and included alcohol use, tobacco use, vaping, and sexual activity, with all coded as "ever used/ever engaged" or "not used/never engaged" [25]. Co-variants of age, gender, race, and insurance status were included for regression analyses. Age was kept as a continuous variable (12-17 years old). Gender included male and female. Due to the small number of participants who identified as 'non-binary' or 'prefer not to say,' those participants were removed from the regression analyses. Race was coded into "White" and "Non-White" (Black or African American, Hispanic or Latinx, Native American or American Indian, Asian/Pacific Islander, or Other). Insurance status, used as proxy for low income, was coded as "Medicaid" or "not Medicaid."

Survey data were entered into REDCap. All analyses were completed using SPSS version 26. Variables were recorded to include categories of responses based on clinical characteristics and sample sizes. Individual ACE scores were determined for both the caregiver and the youth in each dyad. ACE scores were coded into low (0-2) and high (3+). Finally, the caregiver-youth dyads were sorted into an ACEs matrix with the following groups: low caregiver-low youth ACEs (LC-LY), Low Caregiver-High Youth ACEs (LC-HY), High Caregiver-Low Youth ACEs (HC-LY), and High Caregiver-High Youth ACEs (HC-HY). For example, a caregiver-youth dyad with caregiver ACEs of 7 and youth ACEs of 2 would be placed in the High Caregiver-Low Youth (HC-LY) ACEs group.

Descriptive statistics were conducted and included frequencies, percentages, means, and standard deviations, where appropriate, for each variable. To better understand the ACEs experienced in the LC-LY and HC-HY ACEs groups, the frequency of each individual ACE was determined. These two groups were of particular interest because of their lowest and highest intergenerational ACEs. The breakdown of specific ACEs can provide a greater sense of which ACEs are experienced by each group. Chi-square analyses between the ACEs matrix and the dependent variables were completed and p-values reported. A series of regression analyses were completed to determine if high vs. low caregiver-youth ACEs were predictive of youth health risk behaviors and health outcomes. First, simple binomial logistic regressions were completed between the ACEs matrix and each of the dependent variables. Next, multiple logistic regressions

using 'enter' method were completed between the ACEs matrix, each dependent variable, and the covariates. Finally, multiple logistic regressions using the backwards-stepwise regression method were completed to determine the most predictive model of the ACEs matrix, the covariates, and each dependent variable. Odds ratios, corresponding 95% confidence intervals, and p-values were reported.

Results

Demographic Information

Frequencies of demographic information of youth participants are presented in *Table 1*. Majority of participating youth (78.6%) were high-school aged (14-17 years old). There was almost equal participation of male and female youth, with predominantly White participants (73.6%), followed by Hispanic or Latinx participants (12.1%) and Black or African American participants (8.2%). The remaining categories of race made up smaller percentages: Native American or American Indian (2.2%), Asian/Pacific Islander (1.3%), other (2.6%).

Variable Frequencies

(Table 1) also shows the frequency of the independent and dependent variables. Within the ACEs matrix, 54.1% of caregiver-youth dyads fell into the LC-LY ACEs group. The other three groups were evenly split: LC-HY ACEs (16.5%), HC-LY ACEs (14.9%), and HC-HY ACEs (14.4%). For PHQ-9, 60.9% of participants had low scores (0-4). For the high-risk behaviors, 17.8%, 17.0%, 23.5%, and 22.0% reported any alcohol use, tobacco use, vaping, and sexual activity, respectively.

Table 1: Demographic Information and Frequency of Independent and Dependent Variables (n = 234).

Variable	n (%)	Variable	n (%)
Gender		ACEs Matrix	
Male	114 (48.7%)	LC-LY[a]	126 (54.1%)
Female	120 (51.3%)	LC-HY[b]	39 (16.5%)
Race		HC-LY[c]	35 (14.9%)
White	172 (73.6%)	HC-HY[d]	34 (14.4%)
Black or African American	19 (8.2%)	PHQ-9	
Hispanic or Latinx	29 (12.1%)	Low (0-4)	143 (60.9%)
Native American or American Indian	5 (2.2%)	High (5+)	91 (39.1%)
Asian/Pacific Islander	3 (1.3%)	Alcohol Use	
Other	6 (2.6%)	None	192 (82.2%)
Age		Any	42 (17.8%)
12 years old	17 (7.3%)	Tobacco Use	
13 years old	33 (14.2%)	None	194 (83.0%)
14 years old	48 (20.3%)	Any	40 (17.0%)
15 years old	52 (22.0%)	Vaping	
16 years old	43 (18.5%)	None	179 (76.5%)
17 years old	41 (17.7%)	Any	55 (23.5%)
Insurance Status		Sexual Activity	
Medicaid	172 (73.7%)	None	183 (78.0%)
Non-Medicaid	62 (26.3%)	Any	51 (22.0%)

[a]LC-LY = low caregiver-low youth ACEs
[b]LC-HY= low caregiver-high youth ACEs
[c]HC-LY = high caregiver-low youth ACEs
[d] HC-HY = high caregiver-high youth ACEs

Breakdown of Individual ACEs

(Figure 1) presents a breakdown of the individual ACEs experienced by the youth in the LC-LY ACEs dyads and the HC-HY ACEs dyads. Among LC-LY ACEs dyads, the most frequently experienced ACE by youth was separation or divorce of parents (33%) followed by living with a household member who spent time in jail (14.3%), living with a household member who was depressed/mentally ill (7.6%), and living with someone who had a drinking problem (6.7%).

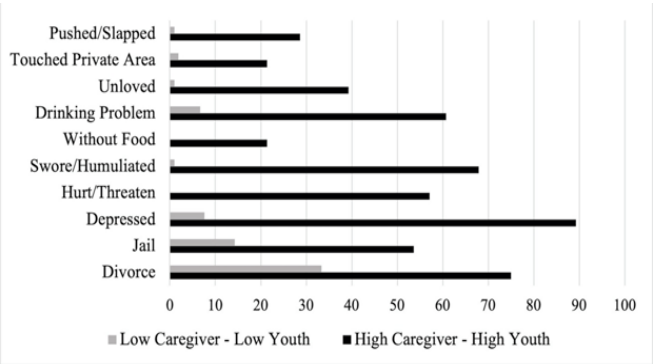

Figure 1: Proportional distribution of individual ACEs experienced by youth in LC-LY and HC-HY groups.

Among HC-HY ACEs dyads, living with a household member who was depressed/mentally ill was the most common ACE experienced by youth (89.3%) followed by separation or divorce of parents (75%), having a household member who swore, insulted, humiliated, or put you down (67.9%), and living with someone who had a drinking problem (60.7%). All but three of the individual ACEs were experienced by more than 50% of the youth in the HC-HY ACEs dyads. Every single individual ACE was experienced by higher proportion of youth in the HC-HY ACEs dyads compared to the LC-LY ACEs dyads.

Correlation Analysis

In looking at the association between caregiver ACEs and youth ACEs, a correlational analysis found the r-value to be 0.309. This shows a weakly positive relationship between caregiver and youth ACEs, meaning a higher care giver ACE score is associated with a higher youth ACE score. The correlation is significant with a p-value of p=0.000.

Simple Logistic Regression Analyses

Bivariate logistic regression analyses between the ACEs matrix and health outcomes (PHQ-9 and high-risk behaviors) are presented in (Table 2). Compared to the LC-LY ACEs dyads, the HC-HY ACEs dyads are 7.4 times more likely to have youth with a high PHQ-9 score (p=0.000). With alcohol use, any high youth ACE group was more likely to report alcohol use. The LC-HY ACEs dyads and HC-HY ACEs dyads being 6.0 and 4.2 times more likely to report alcohol use than the LC-LY ACEs dyads (p=0.001 and p=0.013). With tobacco use, only the LC-HY ACEs dyad was significantly associated being 6.5 times more likely to report tobacco use than the LC-LY ACEs dyad (p=0.000). With vaping, any high youth ACE group was more likely to report use. The LC-HY ACEs dyads and HC-HY ACEs dyads were 5.0 and 3.1 times more likely to report vaping than the LC-LY ACEs dyads (p=0.001 and p=0.022). With sexual activity, any high youth ACE group was more likely to positively report. The LC-HY ACEs dyads and HC-HY ACEs dyads being 3.2 and 4.8 times more likely to report sexual activity than the LC-LY ACEs dyads (p=0.022 and p=0.001).

Table 2: Bivariate logistic regression analyses between the ACEs matrix and health outcomes (PHQ-9 and adolescent high-risk behaviors).

Dependent Variable	ACEs Matrix	Odds Ratio	Lower Confidence Interval	Upper Confidence Interval
PHQ-9	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	2.63	0.97	7.11
	High Caregiver – Low Youth	2.27	0.92	5.61
	High Caregiver – High Youth	7.39**	2.90	18.84
Alcohol Use	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	6.02**	2.03	17.85
	High Caregiver – Low Youth	1.37	0.33	5.70
	High Caregiver – High Youth	4.16*	1.36	12.72
Tobacco Use	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	6.50**	2.32	18.23
	High Caregiver – Low Youth	1.56	0.43	5.62
	High Caregiver – High Youth	2.34	0.74	7.39
Vaping	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	4.97**	1.93	12.77
	High Caregiver – Low Youth	1.77	0.60	5.26
	High Caregiver – High Youth	3.10*	1.18	8.15
Sexual Activity	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	3.20*	1.18	8.68
	High Caregiver – Low Youth	1.13	0.33	3.81
	High Caregiver – High Youth	4.77**	1.83	12.39
*** p <0.05 ; ** p < 0.01**				

Table 3: Final multiple logistic regression analyses between the ACEs matrix and health outcomes controlling by age, gender, race and insurance status.

Dependent Variable	Independent Variables and Co-Variates	Odds Ratio	Lower Confidence Interval	Upper Confidence Interval
PHQ-9	Gender (ref: male)	5.11**	2.31	11.28
	Age	0.80	0.62	1.03
	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	2.69	0.92	7.84
	High Caregiver – Low Youth	2.37	0.89	6.34
	High- Caregiver – High Youth	11.45**	3.94	33.31
Alcohol Use	Age	1.44*	1.06	1.97
	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	5.92**	1.88	18.63
	High Caregiver – Low Youth	1.75	0.41	7.58
	High- Caregiver – High Youth	4.49*	1.43	14.15
Tobacco Use	Age	1.55**	1.14	2.11
	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	6.96**	2.31	20.98
	High Caregiver – Low Youth	2.04	0.54	7.72
	High- Caregiver – High Youth	2.49	0.77	8.11
Vaping	Age	1.47**	1.13	1.91
	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	5.21**	1.90	14.31
	High Caregiver – Low Youth	2.27	0.73	7.04
	High- Caregiver – High Youth	3.27*	1.20	8.88

Sexual Activity	Gender (ref: male)	2.15	0.88	5.22
	Age	2.52**	1.72	3.69
	Low Caregiver – Low Youth	Reference		
	Low Caregiver – High Youth	2.84	0.87	9.24
	High Caregiver – Low Youth	1.70	0.43	6.73
	High- Caregiver – High Youth	7.48**	2.37	23.66
* p <0.05 ; ** p < 0.01				

Multiple Logistic Regression Analyses

Multiple logistic regression analyses between the ACEs matrix and health outcomes (PHQ-9 and high-risk behaviors), controlling for age, gender, race and insurance status, are presented in (Table 3). Using the backwards-stepwise method, the strongest model for each dependent variable was created. Race and insurance status were removed from each model and not included in the final models.

With PHQ-9 scores (0-4 vs 5+) as the dependent variable, and with, the ACEs matrix, age and gender as the predictor variables, the HC-HY ACEs dyads were 11.4 times more likely to report a high PHQ-9 compared to the LC-LY ACEs dyads (p=0.000) and youth identifying as females being 5.1 times more likely to report a high PHQ-9 compared to youth identifying as males (p=0.000).

For the high-risk behaviors, age was included in all four models and significantly associated with alcohol use, tobacco use, vaping, and sexual activity (p=0.020, p=0.006, p=0.004, and p=0.000). With alcohol use, any high youth ACE group continued to be more likely to report alcohol use when controlling for co-variates. The LC-HY ACEs dyads and HC-HY ACEs dyads being 5.9 and 4.5 times more likely to report alcohol use than the LC-LY ACEs dyads (p=0.002 and p=0.010). With tobacco use, the LC-HY ACEs dyad continued to be significantly associated while controlling for co-variates being 7.0 times more likely to report tobacco use than the LC-LY ACEs dyad (p=0.001). With vaping, any high youth ACE group continued to be more likely to report use while controlling for co-variates. The LC-HY ACEs dyads and HC-HY ACEs dyads were 5.2 and 3.3 times more likely to report vaping than the LC-LY ACEs dyads (p=0.001 and p=0.020). With sexual activity, only the HC-HY ACEs dyads remained significant while controlling for co-variates, being 7.5 times more likely to report sexual activity than the LC-LY ACEs dyads (p=0.001).

Discussion

Among 234 caregiver-youth dyads from 2 adolescent clinics, higher caregiver ACE score was significantly correlated with a higher youth ACE score (r = .31, P = .000). Furthermore, intergenerational ACEs exposure -- high caregiver and high youth ACE scores -- was associated with greater youth engagement in high-risk behaviors (alcohol use, tobacco use, vaping, and sexual activity) and risk of depression when compared to low caregiver and low youth ACE scores. We did see a mixed picture when comparing high intergenerational ACEs (HC-HY) versus other categories, particularly the Low Caregiver-High Youth ACEs. High intergenerational ACE scores were strongly predictive of depression (O.R. = 11.4) and initiation of sexual activity (O.R. = 7.5). Therefore, for these two outcomes, measuring both caregiver and youth ACE scores would provide much more accurate risk assessment in youth for these outcomes. For the other outcomes of alcohol use, tobacco use, and vaping, the models show that the youth ACE scores give important information on risk, but do not tell the whole story. In the models for alcohol use and vaping, adding the caregiver high ACEs contributed significantly to the predictive model of risk for these behaviors. Caregiver risk does contribute *independent of youth ACEs* to the predictive power of our models for 4 out of 5 of the outcomes we measured. We interpret this to mean that caregiver ACEs contribute substantially to the assessment of youth risk in addition their own experience of ACEs.

What does this study contribute to the literature on ACES?

Assessing both caregiver and youth ACEs would better identify youth at risk for alcohol use, vaping, sexual debut, and depression. Considering that caregiver ACEs have occurred prior to their own child going through adolescence and many youth ACEs occur in early childhood, measuring both caregiver and youth ACEs at an age prior to adolescence could help clinicians target families and children for interventions to better support their development and reduce the likelihood of poor outcomes during adolescence.

While the relationship of ACEs in caregivers and their children is fairly strongly correlated (r = 0.309, p = .000), the future for youth whose parents have high ACES is more complex and not without hope. Our population was predominantly poor or low income (75% on Medicaid); however, 54% of the dyads both had low ACEs. In addition, nearly 15% of our samples were caregivers with high ACEs who did not pass on the ACEs to their children. Even more encouraging, this group (HC-LY ACEs) did not have significant relationships with any of the negative outcomes we measured. This should give us as clinicians hope that, if caregiver/parent ACEs are measured early on in the child's life, families can be supported for potential prevention of ACEs for their children, thus breaking the cycle of violence, addictions, and relationship disruptions that occur with ACE exposure. The two-generational approach to screening may be a worthwhile tool for clinicians to consider for multiple reasons. A growing body of literature suggests that high parental ACE scores negatively impact children's development mentally, physically, behaviorally, and emotionally [20-23,27]. Starting before birth, mothers-to-be with high ACE scores were associated with greater engagement in risky behaviors during pregnancy, which in turn can affect fetal development leading to long-term postnatal health consequences [28]. High ACEs in mothers is associated with infant maladaptive social emotional symptoms, and internalizing/externalizing symptoms in older children [29-31]. Furthermore, parents with high ACEs have an increased likelihood that they will engage in substance abuse or have depression, further compromising the child's environment [5,9]. High caregiver ACE scores are incrementally associated with higher odds in their children having poor overall health status, asthma, and excessive television watching [32]. These studies argue strongly that pediatricians and other child services providers should screen parents for ACEs, in order to provide appropriate supports for the family and optimize the children's environment.

Our research was focused on specific youth outcomes and suggests that screening both the youth and their caregiver for ACEs substantially improves to the predictive power of the model and helps clinicians identify families that should receive more intensive assessments and supports. High intergenerational ACEs were strongly predictive of high PHQ-9 scores in youth (O.R. = 11.4). As pediatric care providers, diagnosing and treating depression is standard component of adolescent care. Therefore, normalizing the treatment of depression and supporting youth with depression can help provide support to youth and their families and assist in creating a healthier environment for the child's upbringing. Higher intergenerational ACEs were also strongly predictive of youth engagement in sexual activity (O.R. = 7.5). ACEs have been correlated with earlier sexual debut, increased risk of teen pregnancy, higher engagement in unprotected sex, and increased likelihood of having multiple sex partners [33,34]. Therefore, caregivers and youth with high ACEs should prompt practices to intervene in the family and child's life early to provide comprehensive sexual health education, regular STD screenings for sexually active youth and early provision of contraception.

By screening both caregiver/parent ACEs and youth ACEs (prior to adolescence), clinicians can promote more intensive assessments to guide support efforts, improve family dynamics, and prevent poor youth health outcomes.[35] Given the evidence of the independent impact of caregiver ACEs on child and adolescent health and development, pediatricians, obstetricians, family medicine and other health care providers caring for women and children pre- and post-conception should consider screening for caregiver/parental ACEs. Perhaps screening should be part of every individual's wellness care during early adulthood, prenatal visits, and early childhood care. Screening prospective parents or current parents for ACEs at these points in their lives would help providers identify women who could benefit from more comprehensive assessments and bring in support to help prevent the circle of violence or disruptions from repeating itself.

This study has several strengths such as the caregiver and youth ACE data, the use of validated ACE surveys, and a large pediatric sample size from two rural clinics which increases the generalize ability to other rural pediatric populations. We identified several limitations as well. First, the study utilized a convenience sampling technique; however, the refusal rate was low, reducing the likelihood of selection bias. Second, due to the cross-sectional nature of the study, a causal relationship cannot be established. However, the temporal relationship between caregiver and youth ACEs supports the potential for a causal relationship. In addition, the reporting of youth ACEs is likely to have occurred in the past, further supporting the potential for a causal relationship. Finally, once individuals were categorized into the ACEs matrix, the sample sizes of the groups were quite small. This explains why some of the confidence intervals for the odds ratios are quite wide. Additional research with larger samples is needed to further explore the relationships found in the current study.

Conclusion

In summary, the current study builds on the ACEs literature to suggest that screening both parents and youth for ACEs greatly enhances the ability to identify youth at risk for a wide range of poor outcomes such as depression, alcohol use, and engagement in tobacco, vaping and sexual activity. Future studies should investigate the value of early adult ACEs screening and the effectiveness of interventions prior to becoming parents to prevent repetition of ACEs for future generations.

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