



## Editor's Choice

## Adverse Childhood Experiences and Pregnancy Intentions among Pregnant Women Seeking Prenatal Care



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### ABSTRACT

**Background:** This study examined whether adverse childhood experiences (ACEs) are associated with increased risk of having an unwanted or mistimed pregnancy.

**Methods:** Women in two medical centers within an integrated health system were screened for ACEs during standard prenatal care ( $N = 745$ ). Multinomial multivariable logistic regression analyses examined the associations of ACEs (count and type) with pregnancy intentions, adjusting for covariates.

**Results:** Overall, 58.3% of pregnant women reported no ACEs, 19.1% reported one ACE, and 22.7% reported two or more ACEs; 76.2% reported wanting to get pregnant, 18.5% reported wanting to get pregnant but not at this time (i.e., mistimed pregnancy), and 5.2% reported not wanting to get pregnant at all (i.e., unwanted pregnancy). Having two or more (vs. 0) ACEs was associated with higher odds of an unwanted pregnancy (odds ratio, 2.60; 95% confidence interval, 1.19–5.68). Further, childhood loss of parent (odds ratio, 2.20; 95% confidence interval, 1.03–4.71) and neglect (odds ratio, 5.67; 95% confidence interval, 1.72–18.72) were each associated with higher odds of an unwanted pregnancy in separate analyses. ACEs count and type were not significantly associated with having a mistimed pregnancy.

**Conclusions:** Among women screened for ACEs during standard prenatal care, ACEs were associated with increased odds of having an unwanted pregnancy, but not a mistimed pregnancy. Additional research is needed to better understand the mechanisms through which ACEs and other individual, social, and contextual factors impact pregnancy intentions to better support women and provide appropriate resources to help prevent unintended pregnancies.

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Adverse childhood experiences (ACEs)—including parental loss, family dysfunction, physical, sexual, or emotional abuse, and neglect—are common in the United States, with nearly two-thirds of children exposed to at least one ACE and nearly 40% exposed to two or more ACEs (Dube et al., 2001). Children exposed to ACEs before the age of 18 are at elevated risk for a variety of health problems including chronic diseases and psychiatric disorders in adulthood (Anda, Brown, Felitti, Dube, &

Giles, 2008; Anda et al., 2006; Brown et al., 2009; Centers for Disease Control and Prevention, 2019a; Chapman et al., 2004; Cuijpers et al., 2011; Dube et al., 2001; Dube, Anda, Felitti, Edwards, & Croft, 2002; Dube et al., 2003). Notably, ACEs are associated with higher odds of sexual risk factors, such as having a greater number of sexual partners, earlier age of first sexual intercourse, adolescent pregnancy, and sexually transmitted diseases (Anda et al., 2002; Dietz et al., 1999; Felitti et al., 1998; Hillis et al., 2010; Hillis et al., 2004; Hillis, Anda, Felitti, & Marchbanks, 2001; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000).

ACEs may also contribute to increased risk of having an unintended pregnancy, defined as a pregnancy that is either unwanted (i.e., the pregnancy occurred when it was not at all wanted) or mistimed (i.e., the pregnancy occurred sooner than

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desired). ACEs and unintended pregnancies are each associated with elevated risk for maternal mental health problems during pregnancy and adverse pregnancy outcomes (Agrati et al., 2015; Angerud, Annerback, Tyden, Boddeti, & Kristiansson, 2018; Buist, Gotman, & Yonkers, 2011; Chung, Mathew, Elo, Coyne, & Culhane, 2008; Chung et al., 2010; Farber, Herbert, & Reviere, 1996; Finer & Henshaw, 2006; Frankenberger, Clements-Nolle, & Yang, 2015; Gipson, Koenig, & Hindin, 2008; Hall et al., 2018; Leeners, Rath, Block, Gorres, & Tschudin, 2014; Madigan, Wade, Plamondon, Maguire, & Jenkins, 2017; McDonnell & Valentino, 2016; Nelson, Uscher-Pines, Staples, & Grisso, 2010; Olsen, 2018), and women with a history of ACEs may be at risk for having an unintended pregnancy, yet few studies have examined the relationship between history of ACEs and unintended pregnancy.

Limited research to date comes from a small number of national surveys with retrospectively assessed data on pregnancy intentions. A study of U.S. adult women in a large health care organization from 1995 to 1996 found that having a greater number of total ACE exposures, as well as frequent physical abuse of the mother by her partner, and frequent psychological, physical, or sexual abuse in childhood, were associated with greater odds of having a first unintended pregnancy (Dietz et al., 1999). Two surveys from the UK in 2012 and 2013 found a dose-response relationship between ACE count and risk of retrospectively self-reporting an unintentional pregnancy before age 18 (Bellis, Hughes, Leckenby, Perkins, & Lowey, 2014a; Bellis, Lowey, Leckenby, Hughes, & Harrison, 2014b). Data from the National Longitudinal Study of Adolescent to Adult Health from 1994 to 2009 also found that adverse life experiences in childhood and adolescence were associated with higher risk of having an unintended first pregnancy (Hall, Beauregard, Rentmeester, Livingston, & Harris, 2019).

However, these studies did not differentiate between unwantedness versus mistiming of pregnancy, which may mask important differences among subgroups of women with unintended pregnancies (D'Angelo, Gilbert, Rochat, Santelli, & Herold, 2004). This is a key gap in the literature as women with unwanted pregnancies are more likely than those with mistimed pregnancies to feel unhappy about the pregnancy, to report that their partner did not want the pregnancy, to experience physical abuse during pregnancy, and to engage in risky health behaviors during pregnancy; they may have elevated risk for poor infant outcomes (e.g., low offspring birth weight) and a lower likelihood of breastfeeding (D'Angelo et al., 2004; Joyce, Kaestner, & Korenman, 2000; Kost, Landry, & Darroch, 1998; Piccinino & Peterson, 1999; Santelli et al., 2003). In addition, prior studies assessed pregnancy intentions retrospectively after the birth occurred rather than during pregnancy, and reports of pregnancy intentions tend to become more positive after the baby is born. Finally, with increasing availability of effective birth control methods and use of long-acting reversible contraception among women of reproductive age in the United States in recent years, rates of unintended pregnancies are decreasing (Finer & Zolna, 2016; Kavanaugh & Jerman, 2018), and data from these older studies may not generalize to women today.

Building on prior research, we address key gaps in knowledge of the association between ACEs (number and type) and pregnancy intentions (wanted, mistimed, or unwanted) in a sample of pregnant women screened for ACEs and pregnancy intentions during standard prenatal care. Results will provide insights about whether exposure to a greater number of ACEs and individual types of ACE exposures are related to elevated risk of having an unwanted or mistimed pregnancy.

## Methods

### Study Site

Kaiser Permanente Northern California (KPNC) is a nonprofit, multispecialty health care delivery system that insures more than 40% of the region's commercially insured population; patients are diverse and representative of the population in Northern California (Gordon & Lin, 2016). KPNC provides health services to more than 4 million members (Terhune, 2013) and manages more than 40,000 pregnancies each year across 15 medical centers. This study received approval from the KPNC Institutional Review Board with a waiver of informed consent.

This study includes data from a pilot quality improvement project in two medical centers that screened English-speaking pregnant women aged 18 or older for ACEs as part of standard prenatal care at their second or third prenatal visit (typically between 14 and 20 weeks of gestation; range, 13–30 weeks) from April 1, 2018, to March 31, 2019. Patients were given the ACEs screening questionnaire by the medical assistant in the exam room while waiting for their medical provider. Similar to a prior pilot study by the research team, health care providers then reviewed the questionnaires with patients and provided referrals for behavioral health services, as needed, along with a resource handout with relevant mental health, community, and educational resources (Flanagan et al., 2018).

### Participants

The study included the 745 English-speaking pregnant women who completed the 10-item ACEs screening questionnaire and self-reported their pregnancy intentions during standard prenatal care. Women who did not complete the ACEs questionnaire ( $n = 14$ ) or the self-reported pregnancy intentions question ( $n = 19$ ) were excluded. These women were not significantly different from those who completed these questionnaires on age, race/ethnicity, or median neighborhood household income. An additional 41 women who completed an older eight-item version of the ACEs questionnaire that did not include two questions about neglect were also excluded. These 41 women did not differ significantly from those included on age, neighborhood median income, or race/ethnicity.

### Measures

ACEs before age 18 were assessed with a 10-item modified version of the Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2019b), developed by the study team to be appropriate for prenatal patients and easy to self-administer in a health care setting. ACEs response options were yes or no and possible scores ranged from 0 to 10. ACEs were categorized into number (0, 1, and  $\geq 2$ ) and type (loss of parent, sexual abuse, physical abuse, emotional abuse, neglect, and family dysfunction; Table 2 provides each ACE question and ACE type categories).

Pregnancy intentions (wanting to get pregnant, wanting to get pregnant but not at this time [mistimed pregnancy], and not wanting to get pregnant at all [unwanted pregnancy]) were obtained from a pregnancy circumstances questionnaire given at the first prenatal visit as part of standard prenatal care and recorded in the electronic health record. Demographic characteristics included women's age at ACEs screening, race/ethnicity (non-Hispanic White, Asian/Pacific Islander, Black, Hispanic,

Other/unknown), Medicaid status, and census-based neighborhood median household income from the electronic health record. Parity was based on the patient's obstetric history for the pregnancy in which they were surveyed (before delivery). Self-reported living situation (categorized as living with partner/baby's father or not) was based on a pregnancy circumstances questionnaire given at entry to prenatal care, and any use of cannabis in the year before pregnancy, any use of nicotine in the year before pregnancy, and at least weekly use of alcohol in the year before pregnancy were based on a self-reported prenatal substance use screening questionnaire given at the first prenatal visit as part of standard prenatal care.

### Analyses

Frequencies and percentages were used to describe the prevalence of sociodemographic characteristics (age, race/ethnicity, median neighborhood income, living situation, Medicaid status), parity, substance use in the year before pregnancy (any cannabis use, any nicotine use, at least weekly alcohol use), ACE count (0, 1,  $\geq 2$ ), and ACE type. Median and interquartile range (IQR) were used to describe the distribution of age and median neighborhood household income. The  $\chi^2$  and Fisher exact tests were used to compare categorical sociodemographic and clinical covariates, ACE count, and ACE type by pregnancy intentions. Multinomial multivariable logistic regression was used to calculate the odds of having an unwanted or mistimed pregnancy versus wanted pregnancy, by ACE count and type, adjusting for covariates. Covariates were chosen based on

reported associations in scientific literature and observed bivariate associations with pregnancy circumstances. The median neighborhood income and at least weekly use of alcohol in the year before pregnancy were not significantly associated with pregnancy intentions and were not included as covariates in the models. Model fit was assessed using the Hosmer-Lemeshow goodness of fit test. Although there were 39 women in the unwanted pregnancy group, we encountered no issues with convergence. A *p* value of less than .05 was considered statistically significant. All statistical analyses were performed in SAS 9.4 (SAS Institute, Cary, NC).

### Results

The sample (*N* = 745) was 43.6% non-Hispanic White, 21.7% Hispanic, 9.7% Black, 19.9% Asian/Pacific Islander, and 5.1% other/unknown race/ethnicity; 11.3% were aged 18 to 24, 65.6% were aged 25 to 34, and 23.1% were aged 35 or older, with a median age of 31 (IQR, 28–34). The median neighborhood household income was \$98,672 (IQR, \$72,667–\$117,917); 52.4% had a median neighborhood household income of less than \$100,000, and 8.9% of women had Medicaid (Table 1). Most women lived with their partner/baby's father (92.6%), and were primiparous or multiparous (62.0%), and few self-reported any nicotine use (7.8%), any cannabis use (12.1%), or weekly or more frequent alcohol use (20.3%) in the year before pregnancy.

Most women (76.2%) reported wanting to get pregnant, 18.5% reported wanting to get pregnant but not at this time (mistimed pregnancy), and 5.2% reported not wanting to get pregnant at all

**Table 1**  
Unadjusted Prevalence of Sociodemographic and Clinical Characteristics among Pregnant Women, by Pregnancy Intentions (*N* = 745)

Characteristics	Overall	Pregnancy Intentions			<i>p</i> Value
		Wanted Pregnancy ( <i>N</i> = 568 [76.2%])	Mistimed Pregnancy <i>N</i> = 138 [18.5%])	Unwanted Pregnancy ( <i>N</i> = 39 [5.2%])	
Age (y)					
18–25	84 (11.3)	42 (7.4)	34 (24.6)	8 (20.5)	<.01
26–35	489 (65.6)	393 (69.2)	80 (58.0)	16 (41.0)	
$\geq 36$	172 (23.1)	133 (23.4)	24 (17.4)	15 (38.5)	
Race/ethnicity					
Non-Hispanic White	325 (43.6)	125 (22.0)	19 (13.8)	4 (10.3)	<.01
Asian/Pacific Islander	148 (19.9)	45 (7.9)	23 (16.7)	4 (10.3)	
Black	72 (9.7)	113 (19.9)	32 (23.2)	17 (43.6)	
Hispanic	162 (21.7)	29 (5.1)	7 (5.1)	2 (5.1)	
Other/unknown	38 (5.1)	256 (45.1)	57 (41.3)	12 (30.8)	
Median neighborhood household income					
<\$100,000	389 (52.4)	293 (51.8)	77 (55.8)	19 (48.7)	.62
$\geq$ \$100,000	354 (47.6)	273 (48.2)	61 (44.2)	20 (51.3)	
Lives with partner/baby's father					
Yes	685 (92.6)	545 (96.8)	110 (79.7)	30 (76.9)	<.01
No	55 (7.4)	18 (3.2)	28 (20.3)	9 (23.1)	
Parity					
0	283 (38.0)	220 (38.7)	58 (42.0)	5 (12.8)	<.01
$\geq 1$	462 (62.0)	348 (61.3)	80 (58.0)	34 (87.2)	
Insurance status					
Medicaid	65 (8.9)	37 (6.6)	19 (14.4)	9 (23.1)	<.01
Other	665 (91.1)	522 (93.4)	113 (85.6)	30 (76.9)	
Any nicotine use in year before pregnancy					
Yes	57 (7.8)	33 (5.9)	20 (15.0)	4 (10.3)	<.01
No	671 (92.2)	523 (94.1)	113 (85.0)	35 (89.7)	
Any cannabis use in year before pregnancy					
Yes	88 (12.1)	49 (8.8)	35 (25.9)	4 (10.3)	<.01
No	641 (87.9)	506 (91.2)	100 (74.1)	35 (89.7)	
At least weekly alcohol use in year before pregnancy					
Yes	147 (20.3)	115 (20.8)	27 (20.0)	5 (12.8)	.48
No	579 (79.8)	437 (79.2)	108 (80.0)	34 (87.2)	

All *p* values computed using the  $\chi^2$  test. Values are number (%).

(unwanted pregnancy) (Table 1). Overall, 58.3% of pregnant women reported 0 ACEs, 19.1% reported 1 ACE, and 22.7% reported two or more ACEs (Table 2). The median ACE score was 0 (IQR, 0–1) and the mean ACE score was  $1.0 \pm 1.7$ . The most prevalent ACEs were family dysfunction (26.1%), loss of a parent (22.6%), and emotional abuse (14.6%). Compared with women who wanted to get pregnant (20.4%), women with a mistimed (27.5%) or unwanted pregnancy (38.5%) were significantly more likely to have two or more ACEs ( $p = .01$ ) (Table 2, Figure 1). In addition, women with a mistimed or unwanted pregnancy were significantly more likely to report family dysfunction ( $p = .03$ ) or childhood neglect ( $p < .01$ ) (Table 2).

Results from multivariable models examining associations between ACEs and pregnancy intentions adjusting for covariates found that compared with women with 0 ACEs, those with two or more ACEs (odds ratio [OR], 2.60; 95% confidence interval [CI], 1.19–5.68), but not one ACE (OR, 0.66; 95% CI, 0.22–1.96), had significantly greater odds of having an unwanted versus wanted pregnancy (Table 3). In addition, Hispanic ethnicity (compared with non-Hispanic White: OR, 3.07; 95% CI, 1.34–7.01), being primiparous or multiparous (compared with nulliparous: OR, 5.38; 95% CI, 1.80–16.09), and not living with a partner/the baby's father (OR, 10.31; 95% CI, 3.60–29.51) were associated with higher odds of an unwanted pregnancy, whereas older age (age 25–34 vs. 18–24: OR, 0.25; 95% CI, 0.09–0.72) was associated with a lower odds of an unwanted pregnancy (data not shown). In separate multivariable models that examined each ACE type and pregnancy intentions

adjusting for covariates, the odds of having an unwanted versus wanted pregnancy were significantly greater among women who reported childhood loss of a parent (OR, 2.20; 95% CI, 1.03–4.71) or childhood neglect (OR, 5.67; 95% CI, 1.72–18.72).

ACEs were not significantly associated with having a mistimed versus wanted pregnancy (Table 3); however, any versus no cannabis use in the year before pregnancy (OR, 1.99; 95% CI, 1.08–3.66) and not living with a partner/the baby's father (OR, 5.49; 95% CI, 2.71–11.13) were significantly associated with higher odds of a mistimed pregnancy, whereas older age (age 25–34 vs. 18–24: OR, 0.41; 95% CI, 0.22–0.75; age  $\geq 35$  vs. 18–24: OR, 0.28; 95% CI, 0.13–0.61) was associated with significantly lower odds of a mistimed pregnancy.

## Discussion

To our knowledge, this study is the first to examine the association between ACEs and mistimed or unwanted pregnancies in a sample of pregnant women screened for ACEs and pregnancy intentions during standard prenatal care. Results indicate that, compared with women without ACEs, those with two or more ACEs had more than two times greater odds of having an unwanted versus wanted pregnancy, even after adjusting for key sociodemographic and clinical characteristics. Moreover, unwanted pregnancies were elevated among women who reported childhood loss of a parent or childhood neglect. These findings build on prior studies that have retrospectively assessed

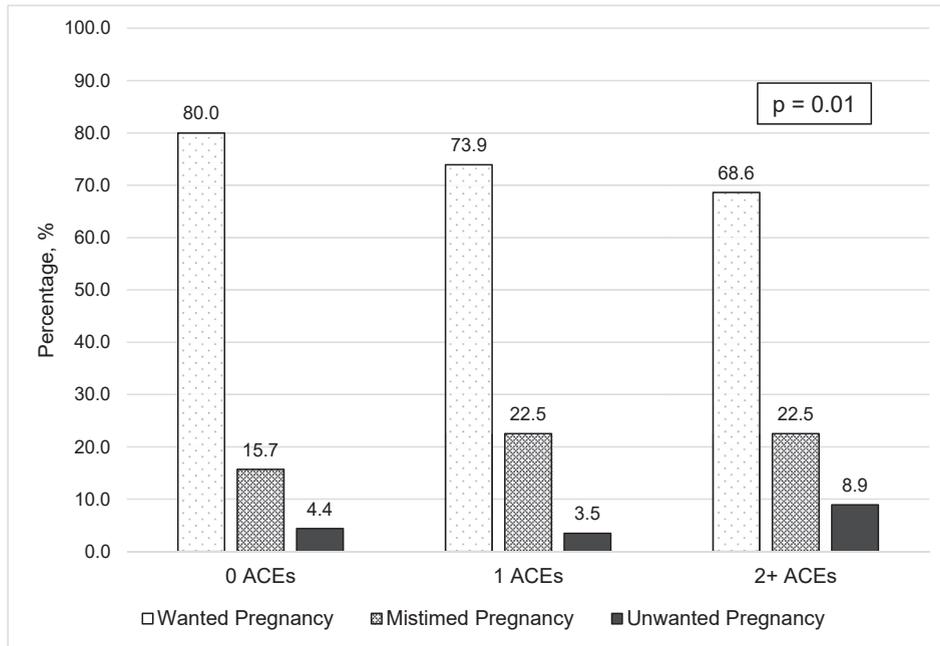
**Table 2**  
Prevalence of Individual ACEs Among Pregnant Women ( $N = 745$ )

Individual ACEs before Age 18	Overall	Pregnancy Intentions			p Value
		Wanted Pregnancy ( $N = 568$ [76.2%])	Mistimed Pregnancy ( $N = 138$ [18.5%])	Unwanted Pregnancy ( $N = 39$ [5.2%])	
Family dysfunction	26.1	24.1	30.4	38.5	.06
1. Did you live with anyone who had a problem with drinking or using drugs, including prescription medications?	15.0	14.3	17.4	18.0	.57
2. Did you live with anyone who was depressed, mentally ill, or attempted suicide?	13.7	12.9	16.7	15.4	.48
3. Did you live with anyone who went to jail or prison?	8.2	7.2	10.1	15.4	.13
4. Did your parents or adults in your home ever hit, punch, beat, or threaten to harm each other?	8.5	7.6	10.9	12.8	.28
Loss of parent					
5. Did you lose a parent through divorce, abandonment, death or other reason?	22.6	19.9	30.4	33.3	<.01
Emotional abuse	14.6	13.6	16.7	23.1	.20
6. Did a parent or adult in your home ever swear at you, insult you, or put you down?					
Physical abuse	5.6	4.9	6.5	12.8	.10
7. Not including spanking, did a parent or adult in your home ever hit, beat, kick, or physically hurt you in any way?					
Sexual abuse	7.7	6.7	10.1	12.8	.18
8. Did you experience unwanted sexual contact (such as fondling, or oral/anal/vaginal intercourse/penetration)?					
Neglect	3.8	3.2	3.6	12.8	<.01
9. Did you feel that no one in your family loved you or thought you were special?	2.8	2.1	3.6	10.3	<.01*
10. Did you feel that you didn't have enough to eat, had to wear dirty clothes, or had no one to protect or take care of you?	1.9	1.6	2.2	5.1	.03*
No. of ACEs					
0	58.3	61.1	49.3	48.7	.01
1	19.1	18.5	23.2	12.8	
$\geq 2$	22.7	20.4	27.5	38.5	

Abbreviation: ACE, adverse childhood experience.

All p values computed using the  $\chi^2$  test unless indicated otherwise. Values are percent.

\* Fisher's exact test was used to calculate p value.



**Figure 1.** Pregnancy intentions by adverse childhood experience (ACE) score ( $N = 745$ ). A  $\chi^2$   $p$  value was considered significant at .01.

pregnancy intentions after delivery (Dietz et al., 1999) and suggest that certain childhood exposures may confer especially high risk for having an unwanted pregnancy.

A particularly important contribution of the current paper is the finding that ACEs were only associated with risk of having an unwanted pregnancy, but not a mistimed pregnancy. Prior studies of ACEs and pregnancy intentions have only assessed whether the pregnancy was intended versus unintended, and our results highlight the importance of differentiating unwantedness versus mistiming of pregnancy. Women with unwanted versus mistimed pregnancies face additional risk factors associated with poor maternal and offspring health, including risky maternal health behaviors, intimate partner abuse, and lower happiness about the pregnancy (D'Angelo et al., 2004; Kost et al., 1998; Piccinino & Peterson, 1999; Santelli et al., 2003). Our study adds to this literature and indicates that women with unintended pregnancies are also more likely to have been exposed to ACEs. Mistimed

pregnancies may be due to current issues in the woman's life, including lack of a stable relationship, or desire to achieve certain educational or financial goals first. Our results suggest that unwanted pregnancies may occur in the context of additional psychosocial risk factors, such as ACEs, that may compound risk for poor maternal and infant health. Support for women who choose to move forward with an unwanted pregnancy may look quite different than support for women with a mistimed pregnancy. For example, although additional research is needed to better understand the mechanisms through which ACEs are related to risk of having an unwanted pregnancy, women with unwanted pregnancies may benefit from education about the impact of ACEs on health and parenting, and extra resources and support to help break the intergenerational cycle of ACEs.

Pregnancy intentions are complex and influenced by multiple individual, social, cultural, and contextual factors, yet health care systems typically focus on contraception as primary mode of

**Table 3**  
Adjusted Odds Ratio (OR) Estimates for ACEs and Pregnancy Intentions among Pregnant Women ( $N = 745$ )

ACEs	Unwanted Versus Wanted Pregnancy		Mistimed Versus Wanted Pregnancy	
	OR (95% CI)	$p$ Value	OR (95% CI)	$p$ Value
No. of ACEs				
0	Reference		Reference	
1	0.66 (0.22–1.96)	.46	1.37 (0.80–2.34)	.24
$\geq 2$	2.60 (1.19–5.68)	.02	1.42 (0.85–2.37)	.19
ACE category				
Loss of parent	2.20 (1.03–4.71)	.04	1.61 (1.00–2.59)	.05
Family dysfunction	1.86 (0.88–3.90)	.10	1.23 (0.77–1.96)	.39
Emotional abuse	2.24 (0.93–5.37)	.07	1.27 (0.71–2.27)	.42
Physical abuse	3.17 (1.00–10.07)	.05	1.69 (0.71–3.98)	.23
Sexual abuse	2.02 (0.67–6.07)	.21	1.27 (0.62–2.61)	.51
Neglect	5.67 (1.72–18.72)	<.01	1.34 (0.43–4.17)	.62

**Abbreviations:** ACE, adverse childhood experience; CI, confidence interval.

Separate models were run for number of ACEs and each type of ACE category with pregnancy intentions as the outcome. All analyses adjusted for age, race, parity, use of cannabis in the year before pregnancy, use of nicotine in the year before pregnancy, Medicaid status, and living situation.

preventing unplanned pregnancy. Our results suggest that although effective contraception is critically important for preventing unplanned pregnancies, focusing solely on contraception may leave out other tools that could specifically help to decrease the number of unwanted pregnancies. For example, screening reproductive aged women for ACEs and other psychosocial factors may help clinicians and health care systems to better identify and support at-risk women with resources to prevent a future unwanted pregnancy. Additional studies that advance understanding of the mechanisms through which ACEs contribute to increased risk of unwanted pregnancies will inform the development of better prevention and intervention strategies to prevent unwanted pregnancies.

Notably, few women reported not wanting to get pregnant at all (5%), and because our study included women screened for ACEs during standard prenatal care between 14 and 20 weeks of gestation, women with unintended pregnancies who chose to terminate their pregnancies before this time frame are not included. Studies suggest that approximately 40% of unintended pregnancies end in abortion (Finer & Zolna, 2016), and the association between ACEs and unintended pregnancies may have been even stronger if our ACEs screening occurred earlier in pregnancy and we were able to capture data on women who chose to terminate their pregnancies. Further research is needed to better understand the relationship between ACEs and mistimed versus unwanted pregnancy, as well as termination of pregnancy. Learning about this could inform more effective public health strategies to reduce both unplanned pregnancy and pregnancy termination.

#### Limitations and Strengths

The study was conducted in two KPNC medical centers and was limited to English-speaking patients aged 18 and older who were seeking prenatal care. These findings may over-represent women with wanted pregnancies and may not generalize to all pregnant patients. Self-reported ACEs and pregnancy intentions are subject to self-report biases, and we did not have detailed information about each ACE (e.g., severity, frequency, age, or duration of exposure). Future longitudinal studies with larger samples that assess pregnancy intentions earlier in pregnancy and include more detailed information about ACEs and other factors that may influence pregnancy intentions (e.g., reproductive coercion, relationship instability, intimate partner violence, mood and anxiety disorders, and medical problems) will be important to better understand how ACEs impact pregnancy intentions. Finally, it is important to note that although pregnancy intentions are useful for understanding women's pregnancy preferences, the construct of pregnancy intentions may not be relevant for all women (Borrero et al., 2015; Lundsberg, Peglow, Qasba, Yonkers, & Garipey, 2018). Some women are ambivalent or indifferent about becoming pregnant, the strength of intentions can fluctuate over time, and intentions do not fully capture women's emotional responses to their pregnancies, which can be positive or negative regardless of pregnancy intention (Aiken, Borrero, Callegari, & Dehlendorf, 2016; Manze, Watnick, & Romero, 2019).

The strengths of this study include the use of a large, diverse sample of women universally screened for ACEs and pregnancy intentions during standard prenatal care, differentiation of unwanted pregnancy versus mistimed pregnancy, a focus on both ACE count and individual ACEs, and contemporary data in the age of increasing use of long-acting contraceptives and decreasing rates of unintended pregnancies.

#### Implications for Practice and/or Policy

Given that our study found ACEs were associated with increased odds of having an unwanted pregnancy, health care organizations have an important opportunity to offer support during prenatal care for pregnant women who have experienced ACEs. The psychosocial burden of continuing an unwanted pregnancy in the context of ACEs may be quite high. For these factors alone, women may experience many other negative thoughts and feelings as they prepare to parent the new child. Prenatal care is an ideal setting for providing emotional and behavioral health support to help women deal with these complex psychosocial issues. Prenatal care that incorporates empowering conversations that recognize past trauma while simultaneously fostering resilience and maternal–infant attachment could help to support healthy parenting and potentially interrupt the intergenerational cycle of ACEs. Additional referral services to mental health, counseling, and educational classes could also be beneficial for these women. Our finding that unwanted pregnancies were higher among women who reported childhood loss of a parent or childhood neglect suggests using an identified version of the ACEs screening tool (rather than just a total score) may allow clinicians to recognize and respond to specific risks factors (e.g., neglect) that are associated with an increased likelihood of having an unintended pregnancy. Additional research is needed to better understand the mechanisms through which ACEs are associated with risk for having an unwanted pregnancy and how to most effectively use this information in clinical practice.

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