



Do Pediatricians Ask About Adverse Childhood Experiences in Pediatric Primary Care?

Bonnie D. Kerker, PhD; Amy Storfer-Isser, PhD; Moira Szilagyi, MD, PhD; Ruth E. K. Stein, MD; Andrew S. Garner, MD, PhD; Karen G. O'Connor, BS; Kimberly E. Hoagwood, PhD; Sarah M. Horwitz, PhD

From the Nathan Kline Institute of Psychiatric Research, Orangeburg, NY (Dr Kerker); Department of Child and Adolescent Psychiatry, New York University School of Medicine, New York, NY (Drs Kerker, Hoagwood, and Horwitz); Statistical Research Consultants, LLC., Schaumburg, Ill (Dr Storfer-Isser); University of California at Los Angeles, Los Angeles, Calif (Dr Szilagyi); Albert Einstein College of Medicine, Bronx, NY (Dr Stein); Case Western Reserve University, School of Medicine, Cleveland, Ohio (Dr Garner); American Academy of Pediatrics, Elk Grove Village, Ill (Ms O'Connor); and New York State Office of Mental Health, Albany, NY (Dr Hoagwood)

The authors declare that they have no conflict of interest.

Address correspondence to Bonnie D. Kerker, PhD, Department of Child and Adolescent Psychiatry, New York University School of Medicine, 1 Park Ave, 7th Floor, New York, NY 10016 (e-mail: Bonnie.Kerker@nyumc.org).

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ABSTRACT

OBJECTIVE: The stress associated with adverse childhood experiences (ACEs) has immediate and long-lasting effects. The objectives of this study were to examine 1) how often pediatricians ask patients' families about ACEs, 2) how familiar pediatricians are with the original ACE study, and 3) physician/practice characteristics, physicians' mental health training, and physicians' attitudes/beliefs that are associated with asking about ACEs.

METHODS: Data were collected from 302 nontrainee pediatricians exclusively practicing general pediatrics who completed the 2013 American Academy of Pediatrics Periodic Survey. Pediatricians indicated whether they usually, sometimes, or never inquired about or screened for 7 ACEs. Sample weights were used to reduce nonresponse bias. Weighted descriptive and logistic regression analyses were conducted.

RESULTS: Only 4% of pediatricians usually asked about all 7 ACEs; 32% did not usually ask about any. Less than 11% of pediatricians reported being very or somewhat familiar with the

ACE study. Pediatricians who screened/inquired about ACEs usually asked about maternal depression (46%) and parental separation/divorce (42%). Multivariable analyses showed that pediatricians had more than twice the odds of usually asking about ACEs if they disagreed that they have little effect on influencing positive parenting skills, disagreed that screening for social emotional risk factors within the family is beyond the scope of pediatricians, or were very interested in receiving further education on managing/treating mental health problems in children and adolescents.

CONCLUSIONS: Few pediatricians ask about all ACEs. Pediatric training that emphasizes the importance of social/emotional risk factors may increase the identification of ACEs in pediatric primary care.

KEYWORDS: ACE; adverse childhood experiences; pediatric primary care; screening

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WHAT'S NEW

Few pediatricians usually ask patients about all adverse childhood experiences (ACEs). Pediatricians' attitudes and beliefs about ACEs are related to asking about them; physician/practice/training factors are not. Pediatric training that emphasizes the importance of social/emotional risk factors may increase identification in pediatric practices.

health and mental health (MH) problems.¹ Adverse experiences in early childhood have been linked to developmental delays and injuries in 4- and 5-year-olds, learning and behavioral disorders and high body mass index among children and adolescents, and poor MH in young children.^{2–4} The Adverse Childhood Experiences (ACEs) study retrospectively examined the long-term impact of adverse experiences, such as childhood abuse, neglect, and household dysfunction, and demonstrated that greater numbers of stressors experienced early in life were associated with later-in-life risk taking and unhealthy lifestyles, as well as with disease.⁵

Identifying ACEs in young children who are not yet in school can be difficult. However, most infants do receive well-child visits,⁶ and the American Academy of Pediatrics

THE STRESS ASSOCIATED with cumulative adverse experiences in early childhood has immediate and long-lasting effects, as it can disrupt developing brain circuits and increase levels of stress hormones, leading to adult

(AAP) recommends 7 well-child visits for children during the first year of life as well as frequent visits throughout early childhood.⁷ Given the frequency of contact with pediatricians and the impact that ACEs can have on children's health, pediatric offices may be a promising venue for identifying and managing adverse experiences in early childhood.

The AAP recognizes that early life experiences can impact long-term health outcomes and has consequently made significant efforts to raise the awareness of ACEs and their effects on early brain and child development among pediatricians.^{8,9} For example, to identify children at risk, it has encouraged pediatricians to implement routine screening to identify family- or community-level factors that may adversely affect children.^{9,10} However, we know little about which pediatricians do and do not regularly identify ACEs among their patients.

In 2013, the AAP included questions about identifying adverse experiences among children in its Periodic Survey (PS). Given these unique data, the goals of this study were to: 1) examine how often pediatricians ask patients' families about ACEs, 2) examine pediatricians' familiarity with the original ACEs study, 3) assess pediatricians' attitudes and beliefs about the impact of stress/adversity on child development, and the role that parents and pediatricians have in mitigating the effects of ACE, and 4) examine the associations of physician and practice characteristics, MH training, and physician attitudes and beliefs with asking about ACEs.

METHODS

PS 85 SURVEY ADMINISTRATION

The AAP has conducted a PS of pediatricians 3 or 4 times each year since 1987 to inform policy, to develop new initiatives, and/or to evaluate current projects. Data collection for the PS 85 occurred between July and December 2013. The survey contained largely closed-ended questions asking about sociodemographic and practice characteristics, and it included questions about attitudes, training, and behaviors about child/adolescent and maternal MH. The questionnaire was pretested and approved by the AAP institutional review board before the mailings. Information about the survey is available online (<http://www.aap.org/en-us/professional-resources/Research/pediatrician-surveys/Pages/Periodic-Survey-of-Fellows.aspx/>).

Of the 54,491 US nonretired AAP members, 1617 were randomly selected and asked to complete the PS 85. Although the sample represents the AAP membership on age, sex, and region (data not shown), the response rate was suboptimal ($n = 594$, 37%). Comparisons of responders and nonresponders showed that the former group was significantly older (46.6 vs 43.7 years, $P < .001$). Additional analyses examined differences between early and late responders, using late responders as a proxy for nonresponders. The groups were similar with respect to how often pediatricians ask patients' families about ACEs, familiarity with the original ACEs study, and pedi-

atricians' attitudes and beliefs about the impact of stress/adversity on child development (results not shown). Nonetheless, sample weights were created to reduce potential nonresponse bias and ensure that the respondents were representative of the AAP membership. Logistic regression was used to estimate response propensity scores. The final model included the 3-way interaction of age, sex, and region, as well as their 2-way interactions and main effects. Ten groups were created using deciles of the response propensity score distribution. The sample weights were the inverse of the average propensity score for each group. The sample weights were rescaled such that the mean was unity and the sum was equal to the analytic sample size.

EXPOSURE AND OUTCOME VARIABLES

Sociodemographic factors included physician characteristics (eg, race/ethnicity, sex, age) and practice characteristics (eg, years in practice, type of practice, patient insurance). Physicians were asked about their past child MH-related residency and fellowship training (in developmental/behavioral pediatrics, child psychiatry, adolescent medicine, and behavioral sciences), and their interest in future MH-related education, which was rated on a 3-point ordinal scale (very, somewhat, not at all). Physicians were also asked how familiar they were with the original ACEs study (very, somewhat, vaguely, not at all familiar). Their beliefs and attitudes about adverse experiences, the impact of ACEs on children, and the role that parents and providers play in mitigating the effects of ACEs were assessed using a 5-point Likert scale, ranging from strongly agree to strongly disagree. Responses were dichotomized such that strongly agree and agree were compared to the other 3 categories for positively worded questions, and strongly disagree and disagree were compared to the other 3 categories for negatively worded questions.

Using a 3-point ordinal scale (usually, sometimes, never), pediatricians were asked how often they inquired about or routinely screened for 7 ACEs: maternal depression, parental separation/divorce, physical or sexual abuse, hostile/rejecting parenting by mothers, domestic violence exposure, parental alcohol/drug use, and incarcerated relative. Although hostile/rejecting parenting by mothers was not included in the original ACEs study, it is conceptually similar to emotional abuse, which was in the original study; emotional abuse was not included in the PS 85. Pediatricians who reported usually inquiring about or routinely screening for 1 or more ACEs (asking about any ACEs) were compared to those who reported sometimes or never asking about any ACEs.

STATISTICAL ANALYSIS

Univariate and bivariate analyses were summarized using weighted percentages for categorical measures and weighted means and standard errors for continuous measures. Bivariate comparisons were assessed by the Rao-Scott chi-square test and weighted linear regression. Weighted multivariable logistic regression was used to

examine associations of physician characteristics, practice characteristics, and beliefs/attitudes with usually asking about any ACEs. The results are summarized using odds ratios and 95% confidence intervals, and statistical significance was set at $P < .01$. All analyses were performed by SAS 9.3 (SAS Institute, Cary, NC).

RESULTS

Examination of the 321 nontrainee pediatricians who exclusively practiced general pediatrics showed that 302 answered the majority of the ACEs questions and therefore were included in the analytic sample. Pediatricians were 46 years old on average, and 68% were women (Table 1). About half (51%) practiced in suburban settings, 53% worked in pediatric group practices, and 21% were in practice for less than 5 years. Almost two-thirds saw fewer than 100 ambulatory visits per week (65%), and the majority of the patients served were white and 16% of physicians reported that at least 80% of their patients have public insurance or Medicaid. About half of pediatricians completed 4 or more weeks of a developmental/behavioral pediatrics rotation in residency, and 70% completed 4 or more weeks of a residency rotation in some child MH area; very few (2%) completed a fellowship in child MH. Nearly half attended a child MH lecture/conference in the past 2 years and were very interested in further education on child and adolescent MH (Table 2).

Only 2% of pediatricians reported that they were very familiar with the ACEs study, 9% were somewhat familiar, 13% were vaguely familiar, and 76% were not at all familiar (results not shown). Approximately one-third (32%) of pediatricians reported that they did not usually ask about any ACEs, while 4% reported usually asking about all 7 ACEs (Figure 1). The ACEs pediatricians usually asked about most often were maternal depression (46%) and parental separation/divorce (42%) (Figure 2). The least commonly asked about ACEs were hostile/rejecting parenting by mothers (10%) and incarcerated relatives (9%). A greater percentage of physicians who were very or somewhat familiar with the ACEs study usually asked about ACE compared to physicians who were vaguely or not at all familiar with the ACEs study (83.2% vs 66.2%, $P = .04$) (results not shown). Only 2% reported routinely using a screening tool for child ACEs, 4% reported using the tool at times, 46% reported never using the screening tool, and 49% reported that they had never heard of the screening tool (results not shown).

Unadjusted bivariate analyses showed that the only physician characteristic associated with usually asking about ACEs was race/ethnicity: significantly fewer Asian pediatricians usually asked about ACEs compared to white pediatricians or pediatricians of other race/ethnicity (Table 1). No practice characteristics were associated with asking about ACEs. Physicians who were very interested in further education on identifying child and adolescent MH problems and on managing/treating child and adolescent MH problems were significantly more likely

Table 1. Physician and Practice Characteristics for Analytic Sample and Bivariate Associations With Pediatricians Usually Asking About One or More ACEs (Weighted %)

Characteristic	Analytic Sample (n = 302)	Pediatrician Usually Asks About One or More ACEs		P
		No (n = 96)	Yes (n = 206)	
Physician Characteristics				
Sex				.5648
Female	68.1	30.8	69.2	
Male	31.9	34.2	65.8	
Age, y, weighted mean (SE)	46.0 (0.6)	47.1 (1.3)	45.5 (0.7)	.2597
Years in practice				.0518
<5	21.3	34.3	65.7	
5–9	16.5	18.1	81.9	
10–19	29.6	27.0	73.1	
≥20	32.6	41.4	58.6	
Race/ethnicity				.0107
White	74.5	31.2	68.8	
Asian	11.5	51.6	48.4	
Other	13.9	19.3	80.7	
Location of practice				.5484
Urban	39.1	29.7	70.3	
Suburban	50.7	34.5	65.5	
Rural	10.2	26.1	73.9	
Practice Characteristics				
Type of practice				.7505
1 or 2 physician	8.7	38.5	61.5	
Pediatric group practice	52.7	33.9	66.1	
Multispecialty group	12.1	29.5	70.5	
Medical school/parent university	7.2	28.4	71.6	
Other/unknown	19.3	26.1	73.9	
Ambulatory visits per week				.0694
<100	65.2	28.4	71.6	
≥100	34.8	38.8	61.2	
Patient insurance				.8051
<80% have Medicaid/public insurance	70.1	31.0	69.0	
≥80% have Medicaid/public insurance	15.8	31.7	68.3	
Unknown	14.1	36.2	63.8	
White patients				.4829
≤49%	41.4	28.5	71.5	
50–74%	35.7	33.9	66.1	
≥75%	22.9	36.5	63.5	

ACE indicates adverse childhood experience.

to usually ask about ACEs compared to those who were somewhat or not at all interested in further education on these topics (Table 2).

Pediatricians' attitudes and beliefs are reported in Table 3. Most notably, only one-third of physicians (34%) agreed that prolonged or excessive physiologic stress in childhood can result in epigenetic modification of the DNA, but almost all agreed that persistent physiologic stress in childhood can make children less capable of coping with future stress (92%) and can disrupt brain development and impair educational achievement (96%). A great majority also indicated that stable and supportive

Table 2. MH Training and Bivariate Associations With Pediatricians Usually Asking About One or More ACE (Weighted %)

Characteristic	Analytic Sample (n = 302)	Pediatrician Usually Asks About One or More ACE		P
		No (n = 96)	Yes (n = 206)	
Child/Adolescent MH training				
Completed ≥4 week residency rotation in DBP				
No	45.0	33.9	66.1	.4879
Yes	55.0	30.2	69.8	
Completed ≥4 week residency rotation in child MH area				
No	30.4	35.3	64.7	.3952
Yes	69.6	30.4	69.6	
Completed fellowship in child MH area				
No	97.7	33.1	66.9	.2450
Yes	2.3	13.0	87.0	
Attended child MH lecture/conference in past 2 years				
No	55.7	33.8	66.2	.4884
Yes	44.3	30.0	70.0	
Very interested in further education on identifying child and adolescent MH problems				
No	47.6	39.1	60.9	.0097
Yes	52.4	25.0	75.0	
Very interested in further education on managing/treating child and adolescent MH problems				
No	55.6	40.0	60.0	.0009
Yes	44.4	21.9	78.1	

MH indicates mental health; ACE, adverse childhood experience; DBP, developmental/behavioral pediatrics.

adult relationships can mitigate the negative effects of persistent childhood stress (84%). Most pediatricians disagreed that positive parenting has little influence on a child’s life-course trajectory (96%), that advice from pediatricians has little effect on influencing positive parenting skills (79%), and that screening for social emotional risk factors within the family are beyond the scope of the pediatric medical home (81%).

Unadjusted bivariate associations of these attitudes and beliefs with usually asking about ACEs are also shown in Table 3. Agreeing that prolonged or excessive physiologic stress in childhood can result in epigenetic modification of the DNA was positively associated with usually asking about ACEs ($P = .04$). Disagreeing that advice from pediatricians has little effect on influencing positive parenting

skills among patients’ parents and that screening for social emotional risk factors within the family is beyond the scope of the pediatric medical home were also positively associated with usually asking about ACEs ($P < .001$).

Results from the multivariable logistic regression analyses showed that those who disagreed that pediatricians have little effect on influencing positive parenting skills among patients’ parents had a 2.2-fold increased odds of usually asking about ACEs (Table 4). Similarly, pediatricians who disagreed that screening for social emotional risk factors within the family is beyond the scope of the pediatric medical home had a 2.4-fold increased odds of usually asking about ACEs. Pediatricians who were very interested in receiving further education on managing/treating MH problems in children and adolescents had a 2.1-fold increased odds of usually asking about ACEs.

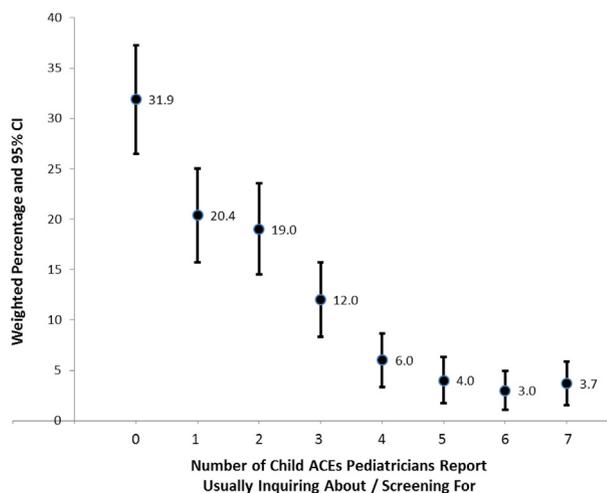


Figure 1. Number of ACE pediatricians reported usually asking about (weighted %).

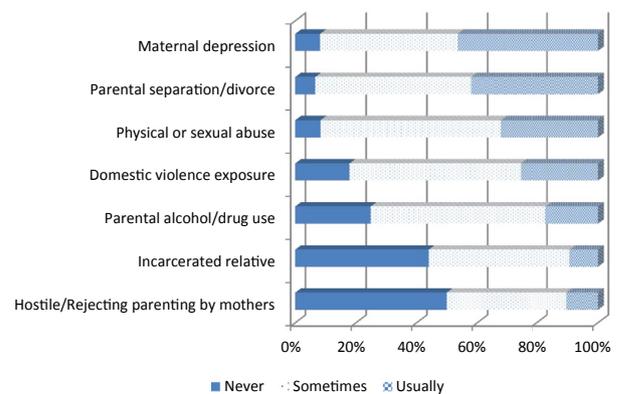


Figure 2. Frequency with which pediatricians reported asking about each child ACE (weighted %).

Table 3. Beliefs About the Effect of Stress/Adversity on Children and Bivariate Associations With Pediatricians Usually Asking About One or More ACEs (Weighted % Shown)*

	Analytic Sample (n = 302)	Pediatrician Usually Asks About One or More ACEs		P value
		No (n = 96)	Yes (n = 206)	
Prolonged or excessive physiologic stress in childhood can result in epigenetic modification of the DNA				
Disagree	66.3	35.4	64.6	.0393
Agree	33.7	23.7	76.3	
Persistent physiologic stress in childhood can make children less capable of coping with future stress				
Disagree	8.3	27.8	72.2	.6660
Agree	91.7	32.0	68.0	
Prolonged or excessive physiologic stress in childhood can disrupt brain development and impair educational achievement				
Disagree	3.7	44.4	55.6	.3554
Agree	96.3	31.2	68.8	
Brief periods of stress can have a positive effect on a child by serving to motivate and build resilience				
Disagree	42.8	30.6	69.4	.6880
Agree	57.2	32.8	67.2	
Parents who have experienced significant adversity in childhood have a harder time forming stable and supportive relationships with their children				
Disagree	41.7	34.6	65.4	.3951
Agree	58.3	29.9	70.1	
Stable and supportive adult relationships can mitigate the negative effects of persistent childhood stress				
Disagree	16.4	37.5	62.5	.3809
Agree	83.6	31.0	69.0	
Positive parenting has little influence on a child's life-course trajectory				
Disagree	95.6	30.9	69.1	.0921
Agree	4.4	53.4	46.6	
Advice from pediatricians has little effect on influencing positive parenting skills among patients' parents				
Disagree	78.8	26.7	73.3	.0005
Agree	21.2	49.9	50.1	
Screening for social emotional risk factors within the family are beyond the scope of the pediatric medical home				
Disagree	81.1	26.8	73.2	.0001
Agree	18.9	53.6	46.4	

*"Disagree" includes neutral for the positively worded items, and "Agree" includes neutral for the negatively worded items.

DISCUSSION

Our data suggest that most pediatricians surveyed have never heard of the original ACEs study and do not understand the epigenetic effects of ACEs. Nevertheless, most believe that childhood stressors can have a negative impact on children, that pediatricians can help influence parenting, and that positive parenting can influence children's trajectories. Even so, almost one-third of pediatricians in our

sample do not usually ask about any ACEs, and only 4% ask about all of them, representing a missed opportunity to address familial issues that may have a large impact on children's development as well as on both physical and mental health. Additional training on the importance of identifying ACEs in pediatric practices is essential to ensuring high-level care for all children.

The adverse experience most commonly asked about was maternal depression, yet less than half of pediatricians

Table 4. Odds of Pediatricians Usually Asking About One or More ACEs

Characteristic	OR	95% CI	P
Advice from pediatricians has little effect on influencing positive parenting skills among patients' parents			
Disagree vs agree*	2.19	1.21, 3.97	.0095
Screening for social emotional risk factors within the family is beyond the scope of the pediatric medical home			
Disagree vs agree*	2.42	1.29, 4.56	.0061
Interested in receiving further education on managing/treating mental health problems in children and adolescents			
Very vs somewhat or not at all	2.13	1.25, 3.65	.0058

ACEs indicates adverse childhood experiences; OR, odds ratio; CI, confidence interval.

*Disagree includes disagree and strongly disagree; agree (reference group) includes neutral, agree, and strongly agree.

reported usually asking about this condition. It is not surprising that maternal depression is asked about most often, given the focus of the AAP on this issue.^{11,12} Studies of the impact of maternal depression on children have consistently demonstrated both short- and long-term negative effects.^{13–16} However, only 1 in 10 pediatricians usually asked about hostile/rejecting parenting, our study's proxy for the original ACEs study's emotional abuse. Although asking about this sensitive issue is certainly challenging, it seems critical that pediatricians gather information about parenting practices, given research suggesting that supportive parenting is associated with positive changes in brain structure and fewer MH symptoms.^{17–20} The distribution of ACEs usually asked about suggests that although individual adverse experiences may be salient with some pediatricians, as a whole, they have not embraced the concept of comprehensively identifying the social and emotional factors that can impact children.

The factors that were most strongly associated with usually asking about ACEs were pediatricians' attitudes and beliefs. Although most pediatricians believed that they can influence parenting, this attitude doubled the odds of pediatricians asking about ACEs, suggesting that training that emphasizes pediatricians' ability to impact the lives of their young patients, as well as strategies that pediatricians can use to help parents mitigate the impacts of stressful situations at home, might increase identification. The majority of pediatricians believed that addressing social emotional issues is within the scope of pediatric practice, and those with this attitude also had twice the odds of asking about ACEs. These findings suggest that learning how social and environmental factors can influence health may be an important yet missing component of pediatric training. Further, pediatricians who were very interested in further MH education were twice as likely to ask about ACEs as those who were not, suggesting that training is particularly important for pediatricians who are not interested in MH issues.

Our data also indicate that almost no pediatricians use a screening tool to assess adverse experiences in families, and almost half had never heard of such a tool. This is not surprising given the lack of validated ACEs screening tools available to pediatricians, although there are some promising screening models available to gather data on individual adverse events (eg, <http://umm.edu/programs/childrens/services/child-protection/seek-project>). Nonetheless, the field should invest in the development of validated comprehensive, easy to use tools to help pediatricians better assess their patients' needs.

Identifying ACEs among young children may lead to concrete steps to address family situations and mitigate the consequences of the event; additionally, conversations about ACEs with parents might encourage them to seek help, either as a result of an increased understanding of the importance of adverse events to their children's health or as a result of someone expressing interest in their difficulties and validating their experiences. One reason pediatricians do not ask about ACEs more often may be that

they lack the training to do so. We did not have data on pediatricians' feelings of competence in this area, but research in other areas suggests that if physicians do not feel competent in a topic, they do not address it with their patients or their families.^{21–23} Pediatric training programs should consider including practical approaches to not only asking about but also discussing ACEs with families. Providers would likely be more comfortable using screening tools if they had training on how to talk with parents about sensitive subjects such as adverse experiences and what to do with the information they collect. Further, it would be helpful for training to stress the importance of incorporating screening tools and anticipatory guidance into practice. Future research should examine more fully the barriers to having discussions about ACEs in pediatric practice.

These data are not without limitations. The survey had a suboptimal response rate, which is typical for surveys of physicians.^{24,25} However, extensive analysis of response bias in AAP surveys, including periodic surveys, has shown little nonresponse bias.²⁶ Further, we found little difference among AAP members, providers who were randomly selected for the survey, and survey participants. Additionally, early and late responders were similar with respect to the primary outcomes of this study. Nonetheless, even though the results were weighted to reduce potential nonresponse bias, there may have been differences in unmeasured variables. For example, pediatricians who were very interested in the topic may have been more likely to respond.²⁷ There is also the possibility of response bias for professionally desirable behaviors. If nonresponse or social desirability bias were present, we anticipate that our findings would overestimate the prevalence of physicians who usually ask about ACEs. Also, the 7 questions about ACEs were conceptually similar to those used in the original ACEs study, although the wording was not exactly the same, and 2 of the original ACEs questions were not included in the AAP survey (physical neglect and emotional neglect). An additional ACE, emotional abuse, was examined with a proxy, hostile/rejecting parenting. Further, the original study separated out physical and sexual abuse. If anything, we believe that these differences would overestimate the number of ACEs that pediatricians usually ask about. Finally, these data are cross sectional, and therefore the reported associations do not imply causality.

This national survey of pediatricians suggests that although pediatricians seem to understand the importance of childhood stressors to children's health and development, most are not asking about all ACEs in their practice. Educating pediatricians about toxic stress became an AAP educational goal around the same time that this survey was administered, so it would be beneficial to repeat this survey to see if recent efforts have made a difference in asking about ACEs. The 2013 survey showed that those who believe that pediatricians can influence parenting practices and those who believe that asking about social emotional issues is within the scope of pediatric practice are more likely to ask about ACEs compared to those who do not hold such beliefs. These findings emphasize the need to

include the importance of social and emotional risk factors, and the role that pediatricians can play in addressing these factors, in pediatric training. This may require a change in the focus of pediatric well-child visits to emphasize the importance of children's families and social and emotional health. Without increased attention to adverse experiences in pediatric training, pediatric care will remain a missed opportunity to ensure that all aspects of children's health and development receive the attention they deserve.

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