

State Legislators' Opinions About Adverse Childhood Experiences as Risk Factors for Adult Behavioral Health Conditions

Jonathan Purtle, Dr.P.H., M.Sc., Félice Lê-Scherban, Ph.D., M.P.H., Xi Wang, Ph.D., Emily Brown, M.S.W., Mariana Chilton, Ph.D., M.P.H.

Objectives: Adverse childhood experiences (ACEs) increase risk of adult behavioral health conditions. State legislators are an important audience to target with evidence about ACEs because they make policy decisions that can prevent ACE exposure and enhance resilience. This study sought to describe state legislators' opinions about ACEs as risk factors for adult behavioral health conditions and identify how opinions vary between legislators with different characteristics.

Methods: A multimodal survey was conducted in 2017 (response rate, 16.4%; N=475). Dependent variables were the extent to which legislators thought that four ACEs—sexual abuse, physical abuse, witnessing domestic violence, and childhood neglect—increase risk of adult behavioral health conditions. Independent variables were legislator characteristics (e.g., ideology and gender). Rao-Scott chi-square tests and multivariable logistic regression were conducted.

Results: Childhood sexual abuse was identified as a major risk factor by the largest proportion of respondents (77%), followed by childhood physical abuse (59%), witnessing domestic violence (39%), and childhood neglect (38%). The proportion identifying each ACE as a major risk factor was significantly higher among Democrats than among Republicans, liberals than among conservatives, and women than among men. For example, 56% of liberals identified witnessing domestic violence as a major risk factor, compared with 29% of conservatives ($p < .001$).

Conclusions: Opinions about ACEs as risk factors for adult behavioral health conditions varied between legislators with different characteristics, especially liberals and conservatives. To enhance the policy impact of evidence about ACEs, advocates might consider developing multiple versions of ACE evidence summaries that are tailored on the basis of these characteristics.

Psychiatric Services in Advance (doi: 10.1176/appi.ps.201900175)

In 1998, results of the Adverse Childhood Experiences Study (ACE Study) were first published, demonstrating that ACEs—such as childhood abuse, neglect, and witnessing domestic violence—were strongly associated with adult behavioral health conditions (1). Since then, these results have been widely replicated. A 2017 meta-analysis of 37 studies found that compared with adults with no ACEs, adults with four or more ACEs had 4.4-times higher odds of depression, 5.8-times higher odds of problematic alcohol use, 10.2-times higher odds of problematic drug use, and 30.1-times higher odds of attempting suicide (2). Analysis of U.S. National Comorbidity Survey Replication data found that three ACEs—sexual abuse, physical abuse, and witnessing domestic violence—accounted for 27% of all mood, anxiety, and substance use disorders among females and 24% of those among males (3). ACE exposure is common in the United States. An analysis of data from Behavioral Risk Factor

HIGHLIGHTS

- A survey of U.S. state legislators found that 77% identified childhood sexual abuse as a major risk factor for adult behavioral health conditions, 59% identified childhood physical abuse, 39% identified witnessing domestic violence as a child, and 38% identified childhood neglect.
- The proportion of legislators who identified each adverse childhood experience (ACE) as a major risk factor for adult behavioral health conditions was significantly higher among Democrats than among Republicans, among liberals than among conservatives, and among women than among men.
- Many state legislators were unaware of or unpersuaded by evidence about the extent to which ACEs influence risk of adult behavioral health conditions, especially the experiences of witnessing domestic violence and childhood neglect.

Surveillance System surveys indicated that 16% of U.S. adults experienced four or more ACEs and 38% experienced two or more and that ACE exposure was significantly higher among populations with lower socioeconomic status (4).

State legislators are an important audience to target with evidence about ACEs because they make budgetary and regulatory decisions that may reduce ACE exposure and enhance resilience (5–8). For example, a 2018 report by the National Conference of State Legislatures (6) highlighted a range of evidence-supported policies that legislators can adopt to address ACEs, such as funding nurse-family partnerships (9), increasing access to early childhood education (10, 11), expanding school-based behavioral health services (11–13), raising the minimum wage, and extending earned income tax credits (13–15).

A first step in developing empirically informed strategies to disseminate ACE evidence is to conduct formative audience research that assesses opinions about ACEs among legislators with different characteristics (e.g., political party, ideology, and gender) (16–18). This information can then be used to tailor evidence summaries for legislators on the basis of these characteristics, with the ultimate goal of maximizing the persuasive power of the messages among different audiences (16, 19). Such information currently does not exist.

Compared with the amount of scholarly attention ACEs have received in recent years—the number of articles indexed in PubMed mentioning ACEs in the title or abstract increased from 28 in 2010 to 74 in 2014 and 313 in 2018 (goo.gl/5wk5xN)—surprisingly little research has examined opinions about ACEs or how to communicate evidence about the topic. Public opinion experiments conducted by the FrameWorks Institute in 2008 broadly explored how to communicate evidence about early childhood development (5, 20). This work found that using the term “toxic stress,” framing healthy child development as a way to promote community and economic prosperity, and framing policy interventions to support child development as ingenuity were all effective in cultivating public support for policies that would increase access to high-quality mental health services for children and families. Related research comes from surveys of knowledge and attitudes about ACEs among primary care providers (21–23), which found that interest in child mental health was associated with a higher likelihood of screening for ACEs (21, 22). However, neither of these bodies of research accessed opinions about the impacts of ACEs on behavioral health or any specific outcome or examined differences in opinions between individuals with different characteristics. Furthermore, no studies have examined opinions about ACEs among public policy makers.

To address these knowledge gaps, this study was conducted with the aims of describing state legislators' opinions about ACEs as risk factors for adult behavioral health conditions and identifying how these opinions vary between legislators with different characteristics. The ultimate goal of the study was to provide an empirical foundation to inform

how evidence about ACEs as risk factors for behavioral health conditions can be more effectively disseminated to state legislators. The study builds on work previously published in *Psychiatric Services* that focused on the translation of behavioral health research into public policy (24–28).

METHODS

A multimodal (U.S. mail, e-mail, and telephone) survey of a state-stratified random sample of state legislators, excluding their staff, was conducted between March and September 2017 as part of a larger project focused on improving how evidence about mental and substance use disorders is disseminated to state legislators (29). The survey was sent directly to legislators by using contact information maintained by the National Conference of State Legislatures. Data were collected by SSRS, a survey research firm. The study was approved by the Drexel University Institutional Review Board (1608004754).

The survey was completed by 475 legislators (response rate, 16.4%). This rate is higher than those of all other legislator surveys conducted on health- and non-health-related topics published in the past 5 years, which ranged from 3.1% to 13.0% (30–34). Each legislator in the sample frame was contacted up to 29 times over 3 months; recruitment details have been published elsewhere (16, 24). Compared with nonrespondents, respondents were more likely to be Democrats (49% versus 42%, $p=.001$), women (33% versus 23%, $p<.001$), and from the Midwest (31% versus 23%, $p<.001$). Poststratification nonresponse weights adjusted for these differences (35). Weighted and unweighted results were only modestly different, suggesting that findings were not strongly driven by sample-specific legislator characteristics.

Dependent variables were the extent to which legislators thought that four ACEs “increase a person’s risk of developing a mental illness or substance use disorder as an adult” on a 5-point scale (1, little risk increase; 5, major risk increase). The ACEs were childhood sexual abuse, childhood physical abuse, witnessing domestic violence as a child, and childhood neglect (Cronbach’s $\alpha=0.89$). Given the ordinal nature of these items and strong evidence linking these ACEs to adult behavioral health conditions (1–3), these variables were dichotomized as “major risk increase” (yes or no).

Opinions were assessed about four ACEs, as opposed to all ten ACEs in the full battery, because of length constraints of the survey instrument, which explored a range of issues about behavioral health. Childhood sexual abuse, physical abuse, witnessing domestic violence, and childhood neglect were selected as the four ACEs because they represent a range of violent and nonviolent, sexual and nonsexual, and direct and indirect ACE exposures. The items assessed opinions about ACEs as risk factors for a “mental illness or substance use disorder” because cognitive pretesting of the survey instrument revealed that generally there was no conceptual clarity between mental illness and substance use disorders among legislators (16).

The primary independent variables were legislators' individual characteristics.

Information on legislators' political party affiliation and gender were obtained from the National Conference of State Legislatures' database. Information on highest level of education, health committee membership, and ideology were obtained via self-report. Ideology was assessed by two separate items, adapted from American National Election Studies' questions (36), which asked legislators to indicate "how [they] usually think of [themselves] when it comes to..." "social" and "fiscal" issues" on a 7-point scale (1, extremely liberal; 7, extremely conservative). Social and fiscal ideology scores were summed to create an aggregate score and then categorized (liberal, 2–6; moderate, 7–9; and conservative, 10–14). Legislators also indicated whether they had heard of the ACE Study (yes, no, or not sure). Responses of no and not sure were combined.

Percentages described the proportion of legislators that identified each ACE as a major risk factor, stratified by legislator characteristics. Rao-Scott chi-square tests examined differences by legislator characteristics, accounting for clustering by state. Four separate multivariable logistic regression models estimated adjusted associations between legislator characteristics and identification of each ACE as a major risk factor. These models accounted for clustering of survey responses from legislators in the same state and adjusted for legislator gender, political party, and ideology and whether the legislator had heard of the ACE Study. Adjusted odds ratios (AORs) were produced. All analyses were performed with SAS 9.3.

RESULTS

In the sample of legislators, 75% were men and 54% were Republicans, generally reflecting the composition of all state legislators in 2017 (Table 1). In terms of ideology, 28% of legislators were liberal, 24% were moderate, and 48% were conservative. All four census geographic regions were represented, ranging from 19% of respondents from the Northeast to 32% from the South. (Because information on race-ethnicity were not relevant to our research questions, this information was not collected.)

Childhood sexual abuse was identified as a major risk factor for adult behavioral health conditions by the largest proportion of respondents (77%), followed by childhood physical abuse (59%) (Table 2). Only 39% of legislators identified witnessing domestic violence as a child as a major risk factor, and only 38% identified childhood neglect as a major risk factor.

In unadjusted analyses, the proportion of legislators who identified each ACE as a major risk factor was significantly higher among those who identified as Democrat, compared with those who identified as Republican; among those who identified as ideologically liberal, compared with those who identified as conservative; and among women, compared with men (Table 2). For example, 68% of Democrats thought that childhood physical abuse was a major risk factor,

TABLE 1. Characteristics of 475 state legislators who were surveyed about whether ACEs are risk factors for adult behavioral health conditions^a

| Characteristic | N | % ^b |
|-----------------------------|-----|----------------|
| Heard of ACE Study | | |
| No or not sure | 299 | 67 |
| Yes | 172 | 33 |
| Gender | | |
| Female | 155 | 25 |
| Male | 320 | 75 |
| Highest level of education | | |
| College degree or less | 247 | 51 |
| Postgraduate degree or more | 226 | 49 |
| Political party | | |
| Democrat | 232 | 44 |
| Other | 24 | 2 |
| Republican | 219 | 54 |
| Ideology | | |
| Liberal | 157 | 28 |
| Moderate | 113 | 24 |
| Conservative | 198 | 48 |
| Member of health committee | | |
| No | 296 | 62 |
| Yes | 176 | 38 |
| Years as legislator | | |
| ≤5 | 228 | 47 |
| ≥6 | 245 | 53 |
| U.S. census region | | |
| West | 124 | 25 |
| Midwest | 146 | 24 |
| South | 110 | 32 |
| Northeast | 95 | 19 |

^a Adverse childhood experiences.

^b Weighted.

compared with 51% of Republicans ($p < .001$), and 77% of women thought that this ACE was a major risk factor, compared with 54% of men ($p < .001$). Associations between political party affiliation and identification of ACEs as major risk factors were not statistically significant in logistic regression models adjusting for state clustering, gender, ideology, and having heard of the ACE Study (Table 3). However, female gender remained significantly associated with higher odds of identifying childhood physical abuse (AOR=2.32) and childhood neglect as major risk factors.

The differences were largest between liberal and conservative legislators. For example, the proportions of liberal legislators who identified witnessing domestic violence and childhood neglect as major risk factors for adult behavioral health conditions were nearly twice those of conservative legislators (56% versus 29%, $p < .001$; and 53% versus 26%, $p < .001$, respectively) (Table 2). After adjustment for state clustering, gender, political party, and having heard of the ACE Study, a liberal legislator had 3.65-times higher odds of identifying childhood sexual abuse as a major risk factor than a conservative legislator, and a moderate legislator had 2.17-times higher odds. The direction and magnitude of these adjusted associations were similar for identifying childhood physical abuse as a major risk factor.

TABLE 2. Adverse childhood experiences (ACEs) identified by 475 U.S. state legislators as major risk factors for adult behavioral health conditions, by legislator characteristic

| Characteristic | Childhood sexual abuse | | | Childhood physical abuse | | | Witnessing domestic violence as a child | | | Childhood neglect | | |
|-----------------------------|------------------------|----------------|----------------|--------------------------|----------------|----------------|---|----------------|----------------|-------------------|----------------|----------------|
| | N | % ^a | p ^b | N | % ^a | p ^b | N | % ^a | p ^b | N | % ^a | p ^b |
| All legislators | 370 | 77 | | 290 | 59 | | 194 | 39 | | 190 | 38 | |
| Heard of ACE Study | | | <.001 | | | .007 | | | <.001 | | | <.001 |
| Yes | 152 | 87 | | 123 | 68 | | 91 | 50 | | 88 | 47 | |
| No or not sure | 217 | 72 | | 166 | 55 | | 102 | 34 | | 101 | 33 | |
| Gender | | | .005 | | | <.001 | | | <.001 | | | <.001 |
| Female | 130 | 85 | | 117 | 77 | | 84 | 53 | | 83 | 52 | |
| Male | 240 | 75 | | 173 | 54 | | 110 | 35 | | 107 | 33 | |
| Highest level of education | | | .031 | | | .003 | | | .492 | | | .077 |
| College degree or less | 184 | 73 | | 139 | 53 | | 97 | 37 | | 89 | 33 | |
| Postgraduate degree or more | 185 | 82 | | 150 | 66 | | 96 | 41 | | 100 | 42 | |
| Political party | | | .036 | | | <.001 | | | <.001 | | | <.001 |
| Democrat | 192 | 82 | | 63 | 68 | | 119 | 50 | | 118 | 49 | |
| Other | 20 | 86 | | 19 | 82 | | 14 | 63 | | 14 | 59 | |
| Republican | 158 | 72 | | 108 | 51 | | 61 | 30 | | 58 | 27 | |
| Ideology | | | <.001 | | | <.001 | | | <.001 | | | <.001 |
| Liberal | 138 | 87 | | 119 | 74 | | 90 | 56 | | 85 | 53 | |
| Moderate | 92 | 81 | | 75 | 64 | | 48 | 41 | | 50 | 39 | |
| Conservative | 135 | 69 | | 91 | 48 | | 53 | 29 | | 50 | 26 | |
| Member of health committee | | | .032 | | | .002 | | | .344 | | | .132 |
| No | 222 | 74 | | 168 | 55 | | 117 | 38 | | 114 | 35 | |
| Yes | 147 | 83 | | 122 | 68 | | 77 | 43 | | 76 | 42 | |
| Years as legislator | | | .021 | | | .070 | | | .156 | | | .709 |
| ≤5 | 188 | 82 | | 150 | 64 | | 105 | 43 | | 96 | 38 | |
| ≥6 | 181 | 73 | | 139 | 56 | | 88 | 36 | | 93 | 37 | |
| U.S. census region | | | .625 | | | .920 | | | .287 | | | .004 |
| West | 95 | 77 | | 72 | 57 | | 46 | 36 | | 46 | 35 | |
| Midwest | 118 | 82 | | 90 | 60 | | 58 | 37 | | 57 | 37 | |
| South | 84 | 76 | | 69 | 61 | | 44 | 39 | | 39 | 34 | |
| Northeast | 73 | 74 | | 59 | 59 | | 46 | 47 | | 48 | 49 | |

^a Weighted.^b From Rao-Scott chi-square tests of differences in percentages, accounting for clustering of respondents by state.

Thirty-three percent of legislators had heard of the ACE Study, including 46% (N=72) of liberal legislators, 44% (N=50) of moderates, and 20% (N=40) of conservatives ($p<.001$). The proportion of legislators who identified each ACE as a major risk factor was significantly higher among those who had heard of the ACE Study, compared with those who had not. For example, 87% of legislators who had heard of the ACE Study identified childhood sexual abuse as a major risk factor, compared with 72% of those who had not heard of the study ($p<.001$). However, after adjustment for gender, political party, and ideology, the association between hearing of the ACE Study and identifying ACEs as major risk factors remained significant only for childhood sexual abuse (AOR=1.97).

DISCUSSION

Many state legislators are unaware of or unpersuaded by evidence about the extent to which ACEs influence the risk of adult behavioral health conditions, especially the ACEs of witnessing domestic violence and childhood neglect. The

finding that less than 40% of legislators identified witnessing domestic violence and childhood neglect as major risk factors is troubling because these ACEs are strongly associated with behavioral health risk (3, 37, 38). For example, an analysis of U.S. National Comorbidity Survey Replication data found that witnessing domestic violence accounted for 11.8% of the population burden of mood, anxiety, and substance use disorders among females and 12.2% among males (3). In contrast, physical abuse was found to account for only 3.8% and 4.7% of the population burden of mood, anxiety, and substance use disorders among females and males, respectively. Childhood neglect, which is characterized by social and emotional deprivation, is also a strongly associated with risk of adult behavioral health conditions (37, 38). Our study highlights the importance of increasing legislators' knowledge about the potential severity of these ACEs as well as interventions that can prevent exposure and mitigate their consequences.

Opinions about ACEs varied along partisan lines, with legislators who identified as Republican and conservative being significantly less likely than Democrats and liberals to

TABLE 3. Association between characteristics of 475 U.S. state legislators and whether the legislator identified adverse childhood experiences (ACEs) as major risk factors for adult behavioral health conditions

| Variable | Childhood sexual abuse | | Childhood physical abuse | | Witnessing domestic violence as a child | | Childhood neglect | |
|--|------------------------|-----------|--------------------------|-----------|---|-----------|-------------------|-----------|
| | AOR ^a | 95% CI | AOR ^a | 95% CI | AOR ^a | 95% CI | AOR ^a | 95% CI |
| Had heard of ACE Study (reference: no or not sure) | 1.97 | 1.08–3.58 | 1.14 | .73–1.80 | 1.54 | 1.00–2.39 | 1.45 | .93–2.25 |
| Female (reference: male) | 1.36 | .73–2.53 | 2.32 | 1.39–3.89 | 1.58 | .99–2.51 | 1.66 | 1.04–2.65 |
| Political party (reference: Republican) | | | | | | | | |
| Democrat | .71 | .32–1.55 | .84 | .44–1.61 | 1.26 | .66–2.41 | 1.55 | .81–2.95 |
| Other | 1.04 | .14–7.52 | 1.95 | .38–10.02 | 2.28 | .59–8.79 | 2.36 | .63–8.90 |
| Ideology (reference: conservative) | | | | | | | | |
| Liberal | 3.65 | 1.41–9.49 | 3.10 | 1.42–6.77 | 2.08 | .98–4.43 | 1.74 | .82–3.70 |
| Moderate | 2.17 | 1.02–4.64 | 1.91 | 1.04–3.49 | 1.27 | .70–2.33 | 1.24 | .67–2.29 |

^a Adjusted odds ratio. All models adjusted for state-level clustering, having heard of the ACE Study, gender, political party, and ideology.

identify ACEs as major risk factors. These differences raise questions about whether ACE evidence is reaching Republican and conservative legislators (a problem of awareness) or whether it is not convincing to them (a problem of persuasion). The insufficient-awareness explanation is supported by prior analyses of the survey data set, which found that Republican and Democratic legislators turn to different sources for behavioral health evidence (24). Republican legislators are more likely to turn to industry sources and Democrats to advocacy organizations and universities, entities that are key producers and disseminators of ACE evidence. In our sample, the proportion of legislators who had heard of the ACE Study was more than twice as high among liberals (46%) and moderates (44%) than among conservatives (20%) ($p < .001$). These data indicate that the differences in opinion observed might be partially attributable to ACE evidence not reaching Republican and conservative legislators.

However, having heard of the ACE Study was not strongly associated with identifying most ACEs as major risk factors after adjustment for other legislator characteristics. This suggests that the differences are not solely explained by insufficient awareness. One plausible explanation is that liberal and conservative legislators might vary in the extent to which they perceive information about ACEs as persuasive. Research demonstrates that political ideology is associated with a range of individual attributes—including moral values as well as personality, cognitive, and neurobiological traits (39, 40)—and that these attributes can influence how information is perceived. Of particular relevance to information about ACEs is that the value of self-determination (i.e., the idea that individuals are responsible for their life outcomes) is generally more important to conservatives than to liberals, with liberals placing more value on the notion that external factors influence life outcomes. Thus, because information about ACEs implies that childhood experiences can influence adult outcomes (i.e., impede self-determination), it is conceivable that messages about ACEs are less persuasive to conservative legislators because they conflict with their worldview. Although speculative, this

explanation is consistent with public opinion experiments demonstrating that messages emphasizing the societal causes of health problems, as opposed to individual causes, are less effective among conservatives and Republicans than among liberals and Democrats (41–43). There is a need for research that examines the effects of various ways of framing ACE evidence on opinions about ACEs and how ideology moderates message effects.

Regardless of the reasons for the differences observed, our study had at least two implications for the dissemination of evidence about ACEs. First, ACE evidence summaries might be most compelling to Republican and conservative legislators if they highlight the economic costs of ACEs (44), because economic evaluation data are especially important to these legislators (16, 24). This economic evidence could also be used to frame ACE policy interventions as a way to promote prosperity, which was found to be an effective way of framing early childhood development to increase support for child and family mental health service interventions (5, 20).

Second, evidence summaries about ACEs and behavioral health conditions might be more persuasive to Republican and conservative legislators—and avoid unintended messaging consequences—if they emphasize how policies can enhance resilience to ACEs instead of emphasizing the possible neurobiological effects of ACEs. ACE evidence summaries often emphasize neurobiological effects (e.g., disruption of brain development), and prior research has shown that such information can increase stigma toward people with behavioral health conditions (45). This is relevant to the study reported here because stigma related to behavioral health conditions is higher among conservative legislators, compared with liberal legislators (16). Thus an emphasis on the neurobiology of ACEs in evidence summaries might amplify stigma toward people with behavioral health conditions among Republican and conservative legislators. However, an emphasis on how policies can promote resilience and opportunity among individuals who experience ACEs could be a more effective frame that reduces the risk of this unintended consequence.

The study had some limitations. The response rate of 16.4% is low, but it is higher than those of other recent legislator surveys (30–34). Information about the political party affiliation, gender, and geographic region of nonrespondents allowed us to observe how nonrespondents differed from respondents on these variables and to develop and apply nonresponse weights to adjust for these differences (35). Weighted and unweighted results were also only modestly different, increasing our confidence that nonresponse bias was not a major issue. However, it is plausible that legislators who completed the survey were systematically different from those who did not complete the survey in terms of their opinions about ACEs.

The survey assessed knowledge about four ACEs—and no other childhood stressors—that can increase risk for adult behavioral health conditions. The survey also asked about each ACE in isolation and did not assess opinions about an individual's exposure to multiple ACEs, the focus of much ACE research (1, 2). The ACE items broadly asked about the risk of developing a “mental illness or substance use disorder,” and results may have differed if separate questions had assessed these two categories of diagnoses. There is no consensus about whether each of these ACEs individually constitutes a major risk factor for adult behavioral health disorders. Therefore, it should be emphasized that the items are indicators of opinions about the role of ACEs in the etiology of adult behavioral health conditions and do not reflect knowledge about risk magnitude.

Finally, it should be emphasized that legislators can promote policies that support child development and reduce risks of ACEs and behavioral health conditions even if they are unaware of or not persuaded by ACE evidence. For example, economic evidence about the long-term benefits of investments in early childhood—such as findings from studies conducted by Heckman and colleagues (46–48)—could cultivate support for public policies similar to those that would be protective against ACEs. To elevate the position of behavioral health and child development on state legislative agendas, information about ACEs could be sufficient but not necessary.

CONCLUSIONS

Opinions about ACEs as risk factors for adult behavioral health conditions were found to vary between legislators with different characteristics, especially liberals and conservatives. To enhance the policy impact of ACE evidence, researchers and advocates might consider developing multiple versions of ACE evidence summaries that are tailored on the basis of these characteristics. Future research should test the effects of tailored evidence summaries on legislators' opinions about ACEs, behavioral health conditions, and policies to address them.

AUTHOR AND ARTICLE INFORMATION

Department of Health Management and Policy (Purtle, Brown, Chilton), Department of Epidemiology and Biostatistics (Lê-Scherban), and

Center for Hunger Free Communities (Brown, Chilton), all at Dornsife School of Public Health, Drexel University, Philadelphia; PolicyLab, Children's Hospital of Philadelphia, Philadelphia (Wang). Send correspondence to Dr. Purtle (jpp46@drexel.edu).

The study was funded by grant R21MH111806 from the National Institute of Mental Health.

The authors report no financial relationships with commercial interests.

Received April 1, 2019; revision received April 30, 2019; accepted May 9, 2019; published online July 5, 2019.

REFERENCES

1. 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. *Am J Prev Med* 1998; 14:245–258
2. Hughes K, Bellis MA, Hardcastle KA, et al: The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health* 2017; 2:e356–e366
3. Afifi TO, Enns MW, Cox BJ, et al: Population attributable fractions of psychiatric disorders and suicide ideation and attempts associated with adverse childhood experiences. *Am J Public Health* 2008; 98:946–952
4. 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 Pediatr* 2018; 172:1038–1044
5. Shonkoff JP, Bales SN: Science does not speak for itself: translating child development research for the public and its policymakers. *Child Dev* 2011; 82:17–32
6. Preventing and Mitigating the Effects of Adverse Childhood Experiences. Denver, National Conference of State Legislatures. 2018. http://www.ncsl.org/Portals/1/HTML_LargeReports/ACEs_2018_32691.pdf
7. Bethell CD, Solloway MR, Guinasso S, et al: Prioritizing possibilities for child and family health: an agenda to address adverse childhood experiences and foster the social and emotional roots of well-being in pediatrics. *Acad Pediatr* 2017; 17(7 suppl):S36–S50
8. Shern DL, Blanch AK, Steverman SMJ: Toxic stress, behavioral health, and the next major era in public health. *Am J Orthopsychiatry* 2016; 86:109–123
9. Garner AS: Home visiting and the biology of toxic stress: opportunities to address early childhood adversity. *Pediatrics* 2013; 132(suppl 2):S65–S73
10. Reynolds AJ, Temple JA, Ou S-R, et al: School-based early childhood education and age-28 well-being: effects by timing, dosage, and subgroups. *Science* 2011; 333:360–364
11. High-Quality Preschool Can Support Healthy Development and Learning. Washington, DC, Child Trends, 2018. <https://www.childtrends.org/publications/high-quality-preschool-can-support-healthy-development-and-learning>
12. Rones M, Hoagwood K: School-based mental health services: a research review. *Clin Child Fam Psychol Rev* 2000; 3:223–241
13. Klevens J, Schmidt B, Luo F, et al: Effect of the earned income tax credit on hospital admissions for pediatric abusive head trauma, 1995–2013. *Public Health Rep* 2017; 132:505–511
14. Raissian KM, Bullinger LR: Money matters: does the minimum wage affect child maltreatment rates? *Child Youth Serv Rev* 2017; 72:60–70
15. Cancian M, Yang M-Y, Slack KS: The effect of additional child support income on the risk of child maltreatment. *Soc Serv Rev* 2013; 87:417–437
16. Purtle J, Lê-Scherban F, Wang X, et al: Audience segmentation to disseminate behavioral health evidence to legislators: an empirical clustering analysis. *Implement Sci* 2018; 13:121
17. Slater MD: Theory and method in health audience segmentation. *J Health Commun* 1996; 1:267–283

18. Cairney P, Kwiatkowski RJ: How to communicate effectively with policymakers: combine insights from psychology and policy studies. *Palgrave Commun* 2017; 3:37
19. Leeman J, Birken SA, Powell BJ, et al: Beyond "implementation strategies": classifying the full range of strategies used in implementation science and practice. *Implement Sci* 2017; 12:125
20. Manuel T: Refining the Core Story of Early Childhood Development: The Effects of Science and Health Frames. Washington, DC, FrameWorks Institute, 2009
21. Kerker BD, Storfer-Isser A, Szilagyi M, et al: Do pediatricians ask about adverse childhood experiences in pediatric primary care? *Acad Pediatr* 2016; 16:154–160
22. Garner AS, Storfer-Isser A, Szilagyi M, et al: Promoting early brain and child development: perceived barriers and the utilization of resources to address them. *Acad Pediatr* 2017; 17:697–705
23. Tink W, Tink JC, Turin TC, et al: Adverse childhood experiences: survey of resident practice, knowledge, and attitude. *Fam Med* 2017; 49:7–13
24. Purtle J, Dodson EA, Nelson K, et al: Legislators' sources of behavioral health research and preferences for dissemination: variations by political party. *Psychiatr Serv* 2018; 69:1105–1108
25. Purtle J, Dodson EA, Brownson RC: Uses of research evidence by state legislators who prioritize behavioral health issues. *Psychiatr Serv* 2016; 67:1355–1361
26. Williamson A, Makkar SR, McGrath C, et al: How can the use of evidence in mental health policy be increased? A systematic review. *Psychiatr Serv* 2015; 66:783–797
27. Corrigan PW, Watson AC: Factors that explain how policy makers distribute resources to mental health services. *Psychiatr Serv* 2003; 54:501–507
28. McGinty E, Pescosolido B, Kennedy-Hendricks A, et al: Communication strategies to counter stigma and improve mental illness and substance use disorder policy. *Psychiatr Serv* 2018; 69:136–146
29. Purtle J, Lê-Scherban F, Shattuck P, et al: An audience research study to disseminate evidence about comprehensive state mental health parity legislation to US state policymakers: protocol. *Implement Sci* 2017; 12:81
30. Pagel C, Bates DW, Goldmann D, et al: A way forward for bipartisan health reform? Democrat and Republican state legislator priorities for the goals of health policy. *Am J Public Health* 2017; 107:1601–1603
31. Niederdeppe J, Roh S, Dreisbach C: How narrative focus and a statistical map shape health policy support among state legislators. *Health Commun* 2016; 31:242–255
32. Zhu JM, Chhabra M, Grande D: Concise research report: the future of Medicaid: state legislator views on policy waivers. *J Gen Intern Med* 2018; 33:999–1001
33. Anderson SE, Butler DM, Harbridge L: Legislative institutions as a source of party leaders' influence. *Legis Stud Q* 2016; 41:605–631
34. Anderson SE, DeLeo RA, Taylor K: Policy entrepreneurs, legislators, and agenda setting: information and influence. *Policy Stud J* (Epub ahead of print, March 22, 2019)
35. Holt D, Elliot D: Methods of weighting for unit non-response. *Statistician* 1991; 40:333–342
36. Liberal-Conservative Self-Identification 1972–2016. Ann Arbor, MI, American National Election Studies, 2016. <http://electionstudies.org/resources/anes-guide/top-tables/?id=29>
37. Repetti RL, Taylor SE, Seeman TE: Risky families: family social environments and the mental and physical health of offspring. *Psychol Bull* 2002; 128:330–366
38. Sonuga-Barke EJS, Kennedy M, Kumsta R, et al: Child-to-adult neurodevelopmental and mental health trajectories after early life deprivation: the young adult follow-up of the longitudinal English and Romanian Adoptees study. *Lancet* 2017; 389:1539–1548
39. Hibbing JR, Smith KB, Alford JR: Differences in negativity bias underlie variations in political ideology. *Behav Brain Sci* 2014; 37:297–307
40. Mendez MF: A neurology of the conservative-liberal dimension of political ideology. *J Neuropsychiatry Clin Neurosci* 2017; 29:86–94
41. Niederdeppe J, Roh S, Shapiro MA: Acknowledging individual responsibility while emphasizing social determinants in narratives to promote obesity-reducing public policy: a randomized experiment. *PLoS One* 2015; 10:e0117565
42. Young R, Hinnant A, Leshner G: Individual and social determinants of obesity in strategic health messages: Interaction with political ideology. *Health Commun* 2016; 31:903–910
43. Gollust SE, Lantz PM, Ubel PA: The polarizing effect of news media messages about the social determinants of health. *Am J Public Health* 2009; 99:2160–2167
44. Fang X, Brown DS, Florence CS, et al: The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse Negl* 2012; 36:156–165
45. Kvaale EP, Gottdiener WH, Haslam N: Biogenetic explanations and stigma: a meta-analytic review of associations among laypeople. *Soc Sci Med* 2013; 96:95–103
46. Doyle O, Harmon CP, Heckman JJ, et al: Investing in early human development: timing and economic efficiency. *Econ Hum Biol* 2009; 7:1–6
47. Heckman, JJ: Skill formation and the economics of investing in disadvantaged children. *Science* 2006; 312:1900–1902
48. Campbell F, Conti G, Heckman JJ, et al: Early childhood investments substantially boost adult health. *Science* 2014; 343:1478–1485