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Prevalence of Positive Childhood Experiences and Associations with Current Anxiety, Depression, and Behavioral or Conduct Problems among U.S. Children Aged 6–17 Years

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Abstract

Positive childhood experiences (PCEs) have substantial potential to improve children's mental health. We examined the prevalence of 26 specific PCEs, overall and by demographics, and the individual and cumulative effects of PCEs with current diagnosis of three mental health conditions using nationally representative, parent-reported data on U.S. children aged 6–17 years from the 2018–2019 National Survey of Children's Health (n=35,583). The prevalence of each PCE varied, with a range between 22.6% (gets recommended amount of physical activity) to 92.1% (parent(s) have positive mental health). Accounting for demographics, there were associations between most specific PCEs and lower prevalence of current childhood anxiety (22 of 26 PCEs), depression (22 of 26 PCEs), and behavioral or conduct problems (21 of 26 PCEs). There was a dose-response relationship between children in higher cumulative PCE quartiles and lower proportions of anxiety, depression, and behavioral or conduct problems. Findings generally did not attenuate after further adjusting for adverse childhood experiences. PCEs are common among U.S. children, but vary substantially by type of PCE and subpopulation. This has critical implications for focusing prevention and intervention strategies to bolster PCEs in ways that could improve health equity and children's mental health.

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Keywords

Positive Childhood Experiences; Mental Health; Adverse Childhood Experiences; Health Equity

Introduction

Positive childhood experiences (PCEs) are individual experiences in childhood that increase the likelihood of having safe, stable, and nurturing relationships and environments. PCEs can have a profound impact on childhood health–particularly mental health–and well-being, with effects throughout the lifespan (CDC, 2019a; Center on the Developing Child, 2010; Sege & Browne, 2017). There is robust literature documenting the benefits of several specific types of PCEs, such as having positive parent-child relationships (e.g., Chapman et al., 2016; Crosnoe & Thorpe, 2022; Gorostiaga et al., 2019; Laursen & Collins, 2009; Mak & Iacovou, 2018; Morris et al., 2017), prosocial friendships and a sense of belonging at school (e.g., Alsarrani et al., 2022; Bond et al., 2007; Homel et al., 2020; Neal & Veenstra, 2021; Rose et al., 2022), and a mentor (e.g., Grossman & Tierney, 1998; King et al., 2021) on mental health and well-being in childhood and beyond. These PCEs are also associated with less risk for substance use, violence, and suicidal behaviors (e.g., Austin et al., 2022; Bond et al., 2007; Gorostiaga et al., 2019; Grossman & Tierney, 1998; Mak & Iacovou, 2018; Marraccini & Brier, 2017; Rodriguez-Ruiz et al., 2023; Rose et al., 2022). Emerging research suggests the accumulation of PCEs has a dose-response relationship with reduced risk for depression and other indicators of poor mental health in adulthood (e.g, Bethell et al., 2019; Crandall et al., 2020). Despite the public health promise of PCEs, there are notable literature gaps that limit ability to leverage PCEs for improving lifespan health and well-being (CDC, 2022; Han et al., 2023; Raghunathan et al., 2024).

While there is substantial research on several specific PCEs, there is limited use of an organizing framework and thus inadequate understanding of the totality of PCEs that may impact health (CDC, 2022). To date, population-based research on PCEs as a collective construct have included 7–10 items to reflect an array of PCEs (Bethell et al., 2019; Broadbent et al., 2022; Bunting et al., 2023; Crandall et al., 2020; Crouch, Probst, et al., 2023; Crouch, Radcliff, et al., 2023; Crouch, Radcliff, Merrell, & Bennett, 2021; Crouch, Radcliff, Merrell, Brown, et al., 2021; Graupensberger et al., 2023). While based on validated tools (Raghunathan et al., 2024), this limited set of indicators may preclude understanding of a broader network of PCEs that could impact health and well-being. Moreover, given studies on the effects of specific PCEs on health outcomes focus on a single or small set of PCEs within one study, there is limited comprehensive, comparable data on a diverse set of PCEs and their effects on health. Finally, while growing rapidly (Raghunathan et al., 2024), population-based research on the cumulative impact of PCEs on health and well-being have either used adult samples reporting retrospectively on childhood, which may confer recall bias (Bethell et al., 2019; Graupensberger et al., 2023) or been geographically narrow in sample scope, which may limit generalizability (Broadbent et al., 2022; Crandall et al., 2020). Taken together, this suggests research to describe prevalence of a broader set of PCEs and their effects on mental health or other health outcomes to inform public health prevention, intervention, and response efforts is warranted.

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To address these limitations, we used the Healthy Outcomes from Positive Experiences (HOPE) framework to identify an array of PCEs from four categories: being in nurturing, supportive relationships; living, developing, playing, and learning in safe, stable, protective, and equitable environments; having opportunities for constructive social engagement and to develop a sense of connectedness; and learning social and emotional competencies (Sege & Browne, 2017). Notably, there are many valuable frameworks from across disciplines that describe elements of how to promote positive childhood development (e.g., developmental assets, Search Institute, 2024; resilience theories, Masten et al., 2021; positive youth development, Lerner et al., 2015); many of these frameworks align on critical elements of what children need to thrive. We used nationally representative data on U.S. children aged 6–17 years to calculate prevalence of 26 specific PCEs, overall and by demographics, and associations between these individual PCEs, and cumulative PCEs quartiles, with current diagnosis of three mental health conditions.

Methods

Participants and Procedures

Data were from the Health Resources and Service Administration (HRSA)'s 2018 and 2019 National Survey of Children's Health (NSCH), an annual survey representative of U.S. children aged 0–17 years living in non-institutionalized settings. Data are collected via web- or paper-based questionnaires from parents or other primary caregivers about one randomly-selected eligible child in the home; survey methodology details are elsewhere (Ghandour et al., 2018; US Census Bureau, 2023a). There were 30,530 and 29,433 completed surveys for the 2018 and 2019 NSCH, respectively; overall response rates were 43.1% and 42.4%, and survey completion rates were 78.0% and 79.5%, respectively (US Census Bureau, 2023b, 2023c). As data were publicly available and de–identified, no institutional review board approval was required. Although more recent NSCH data are available, we used data from 2018–2019 to eliminate potential COVID-19 pandemic biases and allow examination of baseline demographic differences and associations between PCEs and selected mental health conditions. There were changes in the availability and occurrence of selected PCEs during the COVID-19 pandemic (Lyu & Wehby, 2023), along with worsening of children's mental health (Gaylor et al., 2023; Kauhanen et al., 2023; Lebrun-Harris et al., 2022; Radhakrishnan et al., 2022) and decreases in available healthcare (Lebrun-Harris et al., 2022). As some pandemic-exacerbated challenges have begun to resolve (Anderson et al., 2023), the COVID-19 pandemic years may be a unique context with limited ongoing generalizability for analyses focused on PCEs and children's mental health.

Measures

Item content and coding for all variables is in eTable 1; this includes information on the original NSCH question wording, response options, and analytic coding decisions made to categorize responses for this analysis. First, we identified five demographic characteristics relevant to PCEs and children's mental health. These included child sex (male; female), child age (6–11 years old; 12–17 years old), child race and ethnicity (American Indian or Alaska Native, Non-Hispanic [NH]; Asian, NH; Black, NH; Hispanic; Native Hawaiian or Other Pacific Islander, NH; Multiracial, NH; White, NH; Another race, NH), highest

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parental education (Less than High School; High School or GED; Some College or Technical School; College Degree or higher); and family income as a function of federal poverty level (FPL) (0–99% FPL; 100–199% FPL; 200–399% FPL; 400% FPL or greater). For child race and ethnicity, children of any race who were reported as Hispanic were coded as Hispanic.

We identified 26 PCE indicators and mapped them to the HOPE framework (Sege & Browne, 2017). For example, items regarding parental involvement in the child's activities or perceiving the family as resilient are indicators of *being in nurturing, supportive relationships*; having access to sufficient and nutritious food or living in a safe neighborhood are indicators of *living, developing, playing, and learning in safe, stable, protective, and equitable environments*; participating in extracurricular activities is an indicator of *having opportunities for constructive social engagement and to develop a sense of connectedness*; and the child staying calm when faced with challenges is an indicator of *learning social and emotional competencies*. Given the differing original response options across specific PCEs, we dichotomized each PCE for the purpose of this analysis to reflect the presence or absence of a PCE (yes; no). Decisions on what constituted the presence of a PCE were made based on available literature, public health recommendations when relevant (i.e., for age-appropriate physical activity and sleep), and based on expert judgement to reflect that positive experiences are more than an absence of a negative experience.

We identified whether children had a *current* diagnosis of anxiety, depression, and behavioral or conduct problems. To identify these conditions, parents are asked to report if a doctor or other health care provider has ever told you that the child has anxiety, depression, or behavioral and conduct problems, respectively. If so, parents are asked to report if the child currently has the condition. Children were coded as having the mental health condition of interest if parents answered yes to both questions for anxiety, depression, and behavioral or conduct problems, respectively. Children were coded as not having a current diagnosis of the mental health condition of interest if the parent has *never* been told that the child has anxiety, depression, or behavioral or conduct problems, respectively.

Statistical Analysis

To generate the analytic sample, selection criteria were employed. First, given differing developmental appropriateness of some PCEs for younger children, we included only children aged 6–17 years (n=43,213); many PCEs items included in this analysis from the NSCH are only administered to parents of children aged 6–17 years (i.e., not included in surveys administered to parents of children aged 0–5 years; US Census Bureau, 2023a). Second, restrictions were applied to exclude children who previously, but not currently, had one or more of the three mental health conditions that were a focus of this analysis to remove potential confounding and temporal bias given the current timing of PCE variables (4.7%). Third, to align with other scientific research in this topic area that employ complete case analyses to analyze data from the NSCH (e.g., Crouch, Probst, et al., 2023; Crouch, Radcliff, et al., 2023; Crouch, Radcliff, Merrell, & Bennett, 2021; Crouch, Radcliff, Merrell, Brown, et al., 2021; Hutchins et al., 2022; Lebrun-Harris et al., 2022), we restricted to those with complete data on demographics or other covariates, PCEs, and the three mental health

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conditions of interest (which resulted in a sample size reduction by 11.5%). This resulted in an included analytic sample of 35,583 children aged 6–17 years old.

We calculated weighted prevalence estimates and 95% confidence intervals (CIs) for presence of each PCE and current diagnosed mental health condition by included demographics. Crude prevalence ratios (PRs) and 95% CIs were calculated using Poisson regression with robust standard errors to examine associations between each demographic characteristic and PCE or mental health condition. We also calculated prevalence estimates and 95% CIs for each PCE by each mental health condition. To better understand how each PCE was related to the three diagnosed children's mental health conditions, we calculated two sets of adjusted prevalence ratios (aPRs) and 95% CIs ([1] adjusted for demographics and [2] adjusted for demographics and cumulative adverse childhood experiences [ACEs]) using Poisson regression with robust standard errors. Cumulative ACEs were calculated using recommended standards that sum responses to nine NSCH items on ACEs that have been described previously (Bethell et al., 2017); given their use as a covariate in this analysis, a continuous count was used. Finally, we examined associations between cumulative PCE quartiles and mental health conditions. Children were placed into a population quartile based on the median and interquartile range (IQR) for cumulative PCE exposure (<16, 16–18, 19–20, >20); cumulative PCEs were examined by population quartile given the high volume of PCEs in this analysis, the absence of a known meaningful cutoff, and to aide in public health interpretation relative to a cumulative count. We calculated weighted prevalence estimates and associated 95% CIs for each condition by PCE quartile, as well as aPRs and 95% CIs to examine the relationship between cumulative PCE quartile and each condition, adjusting for demographics with and without cumulative ACE exposure. ACEs were included as a covariate in analyses examining effects of PCEs on children's mental health conditions given known relationships between ACEs and mental health (Anderson et al., 2022; Peterson et al., 2023) and studies indicating PCEs may have mitigating effects on relationships between ACEs and mental health in adulthood (Bethell et al., 2019; Crandall et al., 2020). Analyses were conducted using SAS version 9.4, accounting for the complex survey design of NSCH.

Results

The prevalence of anxiety, depression, and behavioral or conduct problems among children aged 6–17 years was 10.2%, 4.7%, and 7.5%, respectively, and varied by demographics (eTable 2). The prevalence of each PCE varied among children aged 6–17 years, with a range of 22.6% (gets recommended amount of physical activity) to 92.1% (parent(s) have positive mental health) (Table 1). The prevalence of some specific PCEs varied by sex (Table 1). For example, a greater proportion of female than male children participated in service or volunteer work (female: 47.4% versus male: 41.4%), were engaged in school (59.1% versus 41.8%), and completed things he or she started (88.4% versus 82.9%); however, more male (25.5%) than female (19.7%) children met recommendations for physical activity. There were also some differences in prevalence of specific PCEs by age (Table 1). For example, children aged 6–11 years had a greater prevalence of PCEs compared to adolescents aged 12–17 years across multiple indicators of parent-child relationship quality (e.g., being able to communicate freely was reported by 70.8% of parents of children aged 6–11 years

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but 61.8% of parents of adolescents aged 12–17 years), perceived school safety (6–11 years: 75.1% versus 12–17 years: 65.5%), recommended physical activity (28.8% versus 16.4%), and showing interest in new things (93.5% versus 87.8%). However, compared to children aged 6–11 years, adolescents aged 12–17 years more frequently participated in service or volunteer work (6–11 years: 35.0% versus 12–17 years: 53.8%) and stayed calm when faced with a challenge (74.4% versus 81.9%). There were racial and ethnic subpopulation variations in the prevalence of selected PCEs (Table 2). Children from many historically disadvantaged racial and ethnic subpopulations were less likely to live in safe, stable, and protective environments, although this varied by PCE (Table 2). For example, non-Hispanic Asian children (81.0%) had the highest proportion of living in a home with sufficient and nutritious food, but non-Hispanic Asian children's parents (51.2%) were least likely to report access to social support. Only 53.9% of non-Hispanic Black and 58.1% of Hispanic children lived in neighborhoods perceived as safe (contrasted with 71.9% of White children). Similarly, only 52.4% of non-Hispanic American Indian or Alaska Native, 59.2% of Asian, 62.9% of Black, and 62.5% of Hispanic children received recommended preventive medical care, whereas nearly three-quarters of non-Hispanic White (73.7%) and non-Hispanic multiracial (74.5%) children did so (Table 2). All variations in the 26 PCEs by the child's race and ethnicity are in Table 2; variations in PCEs by parent education and family income as function of FPL are in eTable 3. Prevalence of PCEs generally increased with parental educational attainment or family income as a function of FPL, although there was some variation across levels of these demographics and specific PCEs. For example, parent social support (45.4% for parent(s) with less than high school education to 83.1% for parents with a college degree or higher), the child receiving preventive medical care (44.9% to 78.6%, respectively), and the child participating in extracurricular activities at school or in the neighborhood (59.1% to 91.4%, respectively) all had substantial increases in prevalence as parental education increased. However, while children whose parent(s) had a college degree or higher had the highest prevalence of living in a home with sufficient or nutritious food (81.0%), this was followed by those with less than a high school education (62.5%); children whose parent(s) had a high school education or some college or technical school had the lowest prevalence of this PCE (52.3% and 54.5%, respectively). Similarly, as family income as a function of FPL increased, so too did prevalence of some PCEs. For example, children with higher family incomes had greater prevalence of having a neighborhood perceived as safe (53.0% of children with family income at <100% of the FPL compared to 76.1% of children with family income at 400% or greater of the FPL), were more likely to receive preventive medical care (54.9% versus 80.3%, respectively), and participate in extracurricular activities at school or in the neighborhood (64.9% versus 92.8%, respectively). By contrast, children at <100% of the FPL had the highest prevalence of receiving the recommended level of physical activity (27.4%) compared to those at 100–199% (22.7%), 200–399% (21.7%), and 400% or greater of the FPL (20.9%). Finally, there were several PCEs—such as eating meals together—that showed few or no differences in prevalence across parental educational attainment or family income as a function of FPL.

After demographic adjustment, there were associations between 22 of 26 PCEs and current anxiety problems (Table 3). Eight of 10 relationship-focused PCEs (aPR range of 0.19 for the child being able to make and keep friends to 0.77 for families frequently eating

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meals together) and seven of 10 environment-focused PCEs (aPR range of 0.55 for living in a home with sufficient and nutritious food to 0.77 for receiving recommended sleep) were associated with a lower prevalence of anxiety problems. Notably, children who received preventive medical care were more likely to have current anxiety problems (aPR: 1.44, 95% CI: 1.23–1.69). All PCEs related to opportunities for social engagement and demonstrating social and emotional competencies were associated with lower prevalence of anxiety problems (aPR range: 0.39 to 0.86 and aPR range: 0.21 to 0.37, respectively). The four PCEs which did not have a significant relationship with current anxiety problems were whether the parent has access to social support, if the child has access to a mentor, if the child's neighborhood has educational resources available, and if the child's neighborhood has a playground or recreational center. Only one of the 22 identified associations between specific PCEs and anxiety problems significantly attenuated after adjusting for ACEs (Table 3), suggesting PCEs are associated with lower prevalence of anxiety problems regardless of cumulative ACE exposure.

After demographic adjustment, there were associations between 22 of 26 PCEs and current depression (Table 3). Eight of 10 relationship-focused PCEs (aPR range of 0.13 for the child being able to make and keep friends to 0.65 for parental involvement in the child's activities) and seven of 10 environment-focused PCEs (aPR range of 0.46 for living in a home with sufficient and nutritious food to 0.65 for having sufficient health insurance) were associated with lower prevalence of depression. Children who received preventive medical care were more likely to have current depression (aPR: 1.47, 95% CI: 1.17–1.85). All PCEs related to opportunities for social engagement and demonstrating social and emotional competencies were associated with lower depression prevalence (aPR range: 0.25 to 0.73 and aPR range: 0.17 to 0.28, respectively). The PCEs that did not have a significant association with anxiety problems also did not have an association with depression. No associations between specific PCEs and current depression significantly attenuated after ACEs adjustment (Table 3).

After demographic adjustment, there were associations between 21 of 26 PCEs with behavioral or conduct problems (Table 3). Eight of the 10 relationship-focused PCEs were associated with lower prevalence of behavioral or conduct problems (aPR range of 0.13 for the child being able to make and keep friends to 0.73 for families frequently eating meals together). Six of the 10 environment-focused PCEs were associated with lower prevalence of behavioral or conduct problems (aPR range of 0.55 for school being perceived as safe and living in a home with sufficient and nutritious food to 0.75 for receiving recommended sleep); those who received preventive medical care had higher prevalence of current behavioral or conduct problems (aPR: 1.32, 95% CI: 1.11–1.57). All PCEs related to opportunities for constructive social engagement and demonstrating social and emotional competencies were associated with lower prevalence of behavioral or conduct problems (aPR range: 0.13 to 0.70 and aPR range: 0.09 to 0.24, respectively). As with anxiety and depression, parent social support, the child having access to a mentor, having access to neighborhood educational resources, and having access to a neighborhood playground or recreation center were not associated with the child having current behavioral or conduct problems. In addition to the aforementioned PCEs, the child receiving the recommended amount of physical activity was not associated with behavioral or conduct problems. No associations significantly attenuated after ACEs adjustment (Table 3).

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There was a dose-response relationship between cumulative PCE quartiles and proportion of children with each mental health condition (Fig. 1); children in higher PCE quartiles had a lower prevalence of each condition. Children in the lowest population quartile of PCEs (<16) had the highest prevalence of anxiety (20.8%), depression (12.0%), and behavioral or conduct problems (20.0%) (Fig. 1). After demographic adjustment, compared to children with <16 PCEs, children with 16–18 PCEs (2nd quartile) had lower prevalence of anxiety (aPR: 0.44, 95% CI: 0.38–0.52), depression (aPR: 0.33, 95% CI: 0.26–0.41), and behavioral or conduct problems (aPR: 0.31, 95% CI: 0.26–0.37) (Fig. 2, Panel A). Children with 19–20 PCEs (3rd quartile) had a further attenuated prevalence of anxiety (aPR: 0.27, 95% CI: 0.22–0.34), depression (aPR: 0.19, 95% CI: 0.12–0.30), and behavioral or conduct problems (aPR: 0.16, 95% CI: 0.12–0.20) compared to children with <16 PCEs (Fig. 2, Panel A). Among children in the highest quartile, only 4.2% had anxiety, 0.9% had depression, and 0.8% had behavioral or conduct problems (Fig. 1). After demographic adjustment, children with >20 PCEs had the lowest prevalence of anxiety (aPR: 0.17, 95% CI: 0.14–0.19), depression (aPR: 0.07, 95% CI: 0.05–0.10), and behavioral or conduct problems (aPR: 0.04, 95% CI: 0.03–0.05) compared to those with <16 PCEs (Fig. 2, Panel A). No associations were significantly attenuated after adjusting for ACEs (Fig. 2, Panel B).

Discussion

PCEs are common among U.S. children, but their prevalence varies by the type of PCE and subpopulation of interest. In addition to demographic differences by child age, sex, and parent education and family income, our analysis demonstrates meaningful racial and ethnic differences in the prevalence of different types of PCEs, with many structurally marginalized subpopulations having a high prevalence of specific types of PCEs, but notable inequities for others. Previous research from the 2017–2018 NSCH described racial and ethnic differences in seven PCEs items for children identified as NH Black, Hispanic, NH White, and another NH race (Crouch, Radcliff, Merrell, Brown, et al., 2021); we expand upon this research by examining nearly 20 additional PCEs and more specific racial and ethnic demographic subpopulations (American Indian and Alaska Native, Asian, Black, Hispanic, Native Hawaiian or Pacific Islander, White, Multiracial, and another race). While the overall prevalence estimates for the seven items included in this analysis and the Crouch, Radcliff, Merrell, Brown, et al. (2021) paper were similar, we identified additional racial and ethnic differences in included PCEs because of the more granular subpopulations included. This has critical implications for public health efforts to identify inequities in PCEs and efforts to improve well-being. Moreover, observed differences in the prevalence of PCEs by child sex, race and ethnicity, and parental economic status raise important questions surrounding how the structural and social determinants of health are related to PCEs. Critical to future research is examining how many differences in PCEs can be explained by cultural norms versus inequitable resource access. While structural policies can create or widen inequities (e.g., residential segregation, redlining; Bailey et al., 2017) they can also increase the prevalence of PCEs (e.g. universal paid parental leave or other economic support policies, home visiting programs; Perrin et al., 2020) and narrow inequities in access (Donahue et al., 2022; Metzler et al., 2017). We also identified lack of subpopulation differences in some PCEs, including several related to parental education and family income; research to

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examine underlying contributors to similarities and differences in prevalence of PCEs by subpopulation is needed to identify policies and programs that could contribute to reducing inequities. Understanding differences (or the lack thereof) in specific PCEs by subpopulation are also critical for focusing prevention and intervention strategies, and employing and evaluating structural and social policy efforts that improve equity. Practitioners supporting programs bolstering specific PCEs should consider characteristics of the population served to champion areas of existing strengths and identify or leverage prevention strategies that systematically improve PCEs where inequities exist to advance well-being for all children.

Our findings align with research documenting the importance of specific types of PCEs for improving children's mental health. For example, studies have documented the impact of PCEs involving parent-child relationships and peer relationships on reductions in poor mental health in childhood or adolescence (Alsarrani et al., 2022; Bond et al., 2007; Chapman et al., 2016; Crosnoe & Thorpe, 2022; Gorostiaga et al., 2019; Homel et al., 2020; Laursen & Collins, 2009; Mak & Iacovou, 2018; Morris et al., 2017; Neal & Veenstra, 2021; Rose et al., 2022); our results align with this research. Notably, we did not find relationships between having a mentor and examined mental health conditions; this may be due to differences in study design and measurement between this analysis and previous research (Grossman & Tierney, 1998; King et al., 2021). Our analysis also demonstrates associations between living in safe, stable, and protective environments with lower prevalence of selected common mental health conditions in childhood and adolescence. While previous research in some of these areas is limited, our findings align with and build upon studies indicating neighborhood cohesion and efficacy may reduce child or adolescent suicidal ideation (Ziker & Snopkowski, 2020), depression (Sosnowski et al., 2021), and psychotic symptoms (Crush et al., 2018). In our analysis, preventive medical care was associated with higher prevalence of diagnosed mental health conditions; this may reflect pediatric primary care efforts to improve universal mental health screening (Foy et al., 2019), with referral and diagnosis if needed, and not a detrimental relationship between preventive pediatric medical care and mental health. Our findings also reinforce the importance of opportunities for social engagement and demonstrating social and emotional competencies for children's mental health. Similarly, a recent study of developmental assets—including commitment to learning and social competencies—supports a relationship between these constructs and adolescent depression (Parks et al., 2022). This demonstrates the potential impact that PCEs—from across the HOPE framework (Sege & Browne, 2017)—may have on the mental and behavioral health of U.S. children. Findings from our analysis on the effects of specific PCEs on current mental health diagnoses among children aged 6–17 years indicate most PCEs persist in their relationship with children's mental health even after adjusting for demographics or the presence of accumulated ACEs. Future research may wish to continue interrogating relationships between specific types of PCEs, ACEs, and children's mental health outcomes, including whether PCEs have a mitigating effect on relationships between ACEs and children's mental health, and, whether these relationships are similar across demographic subpopulations and intersectional identities. Research that seeks to understand the relative importance of specific PCEs or PCE categories within the HOPE framework (Sege & Browne, 2017) may also be warranted to better understand how to prioritize public health efforts that improve the prevalence of specific PCEs with greatest public health

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impact overall and for specific demographic subpopulations. These critical areas of research can inform practice by providing tailored data on how PCEs can impact child health across distinct subpopulations and inform prevention, intervention, and response efforts to bolster well-being.

There has been limited population-based research to date examining how cumulative PCEs are related to mental health conditions in childhood and adolescence; most research has examined the cumulative effect of PCEs on mental health in adulthood (Bethell et al., 2019; Crandall et al., 2020; Narayan et al., 2018). We found a strong association between accumulation of PCEs, as measured by quartiles, and lower prevalence of current, diagnosed mental health conditions among children aged 6–17 years, suggesting cross-cutting, multi-sectoral opportunities to improve children's access to multiple forms of PCEs may have a notable impact on mental health in childhood. In our analysis, children in the lowest population quartiles had many PCEs–but still had higher prevalence of current mental health conditions–compared to children in the highest population quartile with nearly all examined PCEs. While scientific efforts have not elucidated a specific number of PCEs to reduce risk, this analysis found an ongoing positive effect as children accumulate PCEs. This suggests that public health efforts aimed at improving children's mental health may wish to consider how to bolster and generate a robust network of positive experiences that support safe, nurturing relationships; living in safe, stable, protective, and equitable environments; having opportunities for engagement; and to learn social and emotional competencies (Sege & Browne, 2017). Collectively, emphasis on developing safe, stable, nurturing relationships and environments will support the positive experiences needed to help children and families thrive and ensure health and well-being for all (CDC, 2019a, CDC, 2019b).

While the NSCH is among the most robust data sources available on PCEs, there are limitations to our analysis. First, this cross-sectional data cannot establish temporality and causality between PCEs and children's mental health. Second, parent-reported data are subject to recall error or bias: parents may have limited knowledge of specific PCEs, overreport PCEs perceived to be related to "good" parenting, or underreport poor mental health. Third, we relied upon existing measures to capture PCEs that best aligned with the HOPE framework. More optimum measurement of some PCEs—including *quality* of some interpersonal relationships and ability to measure *opportunities* for social engagement (i.e., instead of achieved activities)—may be available in datasets developed for this purpose. Fourth, the NSCH only includes information about diagnosed mental health conditions; we were unable to examine symptom severity or presence of the condition without diagnosis. This is a critical avenue for future PCEs research. Fifth, although the NSCH reflects nationally-representative data from parents of children aged 0–17 years, we only included children aged 6–17 years in this analysis. While justified given differences in NSCH PCE item content for children aged <6, future research should seek to understand prevalence and demographic factors associated with PCEs among children aged 0–5 years and, when appropriate, indicators of early childhood mental health. Sixth, we restricted the analysis to include those with complete data on analytic variables; given the wide array of variables used, that reduced our sample size by 11.5%. While this approach is in line with other NSCH studies, this could introduce potential biases if respondents with missing data differed from the overall sample.

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This analysis provides a comprehensive picture of the prevalence of an array of PCEs among U.S. children and adolescents aged 6–17 years. It also demonstrates strong associations between individual PCEs, and cumulative PCE quartiles, and lower prevalence of diagnosed, common mental health conditions. This highlights the importance of programmatic and policy efforts focused on equitably strengthening safe, stable, nurturing relationships and environments for children and families (Barry et al., 2022; CDC, 2019a, CDC, 2019b; NASEM, 2019), which have significant potential to bolster PCEs and improve mental health.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Data Availability

Data from the National Survey of Children's Health are publicly available and can be accessed via the US Census Bureau (https://www.census.gov/programs-surveys/nsch/data/datasets.html) or the Data Resource Center for Child and Adolescent Health (https://www.childhealthdata.org/learn-about-the-nsch/NSCH).

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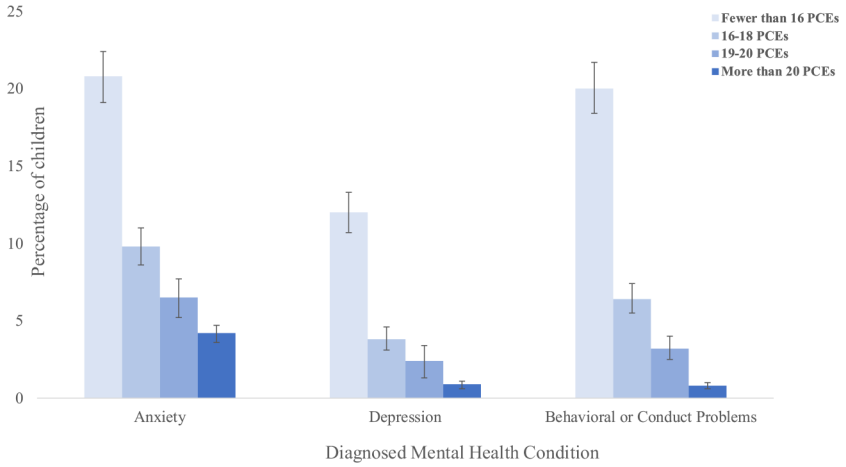

Fig. 1.

Weighted Prevalence of Current Anxiety, Depression, and Behavioral or Conduct Problems Among U.S. Children Aged 6–17 Years, by Cumulative Number of Positive Childhood Experiences (PCEs), National Survey of Children's Health, 2018–2019

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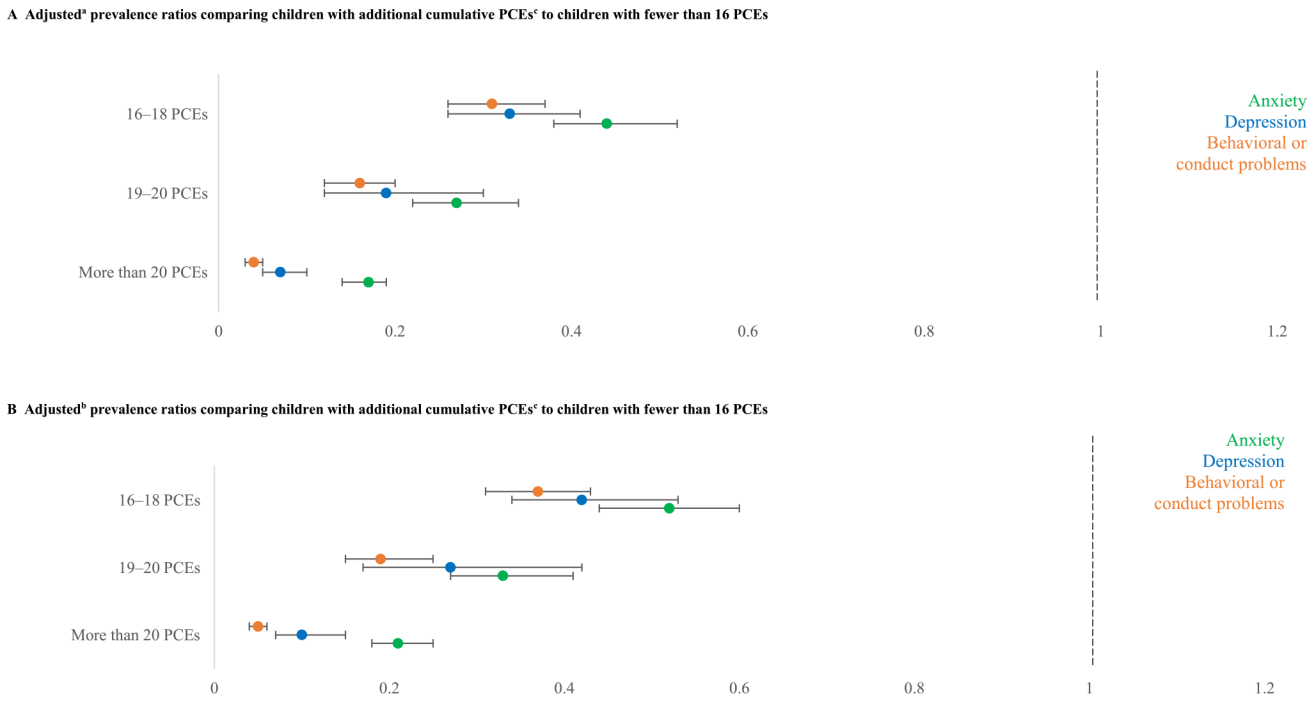

Fig. 2.

Adjusted Prevalence Ratios for Associations between Cumulative Number of Positive Childhood Experiences (PCEs) and Current Anxiety, Depression, and Behavioral or Conduct Problems among U.S. Children Aged 6–17 Years, National Survey of Children's Health, 2018–2019. Graphs in Panel A [a] are adjusted for demographics, including child sex, child age, child race and ethnicity, parental education, and family income as a percentage of federal poverty level; Graphs in Panel B [b] are adjusted for the demographics included above and cumulative ACEs. Graphs are plotted on an arithmetic, not logarithmic, scale, as these values represent the calculated adjusted prevalence ratios for the relationship between cumulative PCEs and each mental health condition. Prevalence ratios with error bars that do not cross the threshold of the dotted line at "1" are considered statistically significant. The prevalence ratios with error bars reflect comparisons between the indicated cumulative PCE category with the reference category of <16 PCEs, after adjusting for covariates. [c]Twenty–five PCEs were included in this analysis; this includes all PCEs except for receipt of preventive medical services, as this variable was only available for surveys administered in 2019. These categories were determined by examining the median and IQR for the number of PCEs for children in the sample. The 25th percentile was 16.0 PCEs, 50% percentile was 19.0 PCEs, and 75% percentile was 21.0 PCEs

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Table 1

Weighted Prevalence of Positive Childhood Experiences Among U.S. Children Aged 6–17 Years, Overall and by Child Sex and Age, National Survey of Children's Health, 2018–2019

	Total Sample	Child Sex		Child Age (in years)		
	Percent Yes (95% CI)	Female, Percent Yes (95% CI)	Male, Percent Yes (95% CI)	Aged 12–17, Percent Yes (95% CI)	Aged 6–11, Percent Yes (95% CI)	Statistical Differences
PCEs: Being in Nurturing, Safe, and Supportive Relationships						
Parent–Child Able to Communicate Freely	66.3% (65.2–67.3)	68.8% (67.3–70.3)	63.8% (62.4–65.3)	61.8% (60.2–63.3)	70.8% (69.4–72.2)	A, B
Parental Involvement in Activities	88.2% (87.4–89.1)	88.5% (87.3–89.7)	88.0% (86.8–89.1)	85.0% (83.6–86.3)	91.5% (90.6–92.3)	B
Frequently Eating Meals Together	70.5% (69.5–71.5)	69.9% (68.5–71.3)	71.0% (69.6–72.4)	65.4% (64.0–66.9)	75.5% (74.1–76.9)	B
Family is Resilient	81.6% (80.7–82.4)	81.4% (80.1–82.6)	81.8% (80.6–83.0)	79.9% (78.7–81.1)	83.2% (82.0–84.5)	B
Parent(s) Have Positive Physical Health	90.6% (89.8–91.3)	89.9% (88.8–91.1)	91.2% (90.3–92.2)	89.9% (88.7–91.1)	91.2% (90.3–92.1)	
Parent(s) Have Positive Mental Health	92.1% (91.4–92.7)	91.5% (90.4–92.5)	92.6% (91.9–93.4)	91.8% (90.8–92.9)	92.3% (91.5–93.1)	
Parent Able to Cope with Parenting	62.0% (61.0–63.1)	62.4% (60.8–63.9)	61.7% (60.2–63.2)	61.9% (60.4–63.4)	62.2% (60.7–63.7)	
Parent Has Social Support	76.1% (75.1–77.2)	76.8% (75.3–78.3)	75.5% (74.0–77.0)	74.0% (72.4–75.5)	78.2% (76.8–79.7)	B
Child Has Access to Mentor	90.0% (89.2–90.7)	90.9% (89.9–91.9)	89.0% (87.9–90.2)	89.6% (88.5–90.7)	90.3% (89.2–91.3)	A
Child Able to Make Friends	78.2% (77.3–79.1)	79.1% (77.9–80.4)	77.3% (76.0–78.6)	77.1% (75.8–78.3)	79.3% (78.1–80.6)	A, B
PCEs: Living in Safe, Stable, and Protective Environments						
Home Has Sufficient and Nutritious Food	68.3% (67.3–69.4)	67.8% (66.2–69.3)	68.9% (67.4–70.4)	68.9% (67.4–70.4)	67.8% (66.3–69.3)	
Neighborhood Has Educational Resources	68.0% (66.9–90.0)	68.7% (67.2–70.2)	67.2% (65.8–68.7)	67.0% (65.5–68.5)	69.0% (67.5–70.4)	
Neighborhood is Perceived as Supportive	56.0% (54.9–57.2)	56.2% (54.6–57.8)	55.9% (54.3–57.5)	56.0% (54.4–57.6)	56.0% (54.5–57.6)	
Neighborhood is Perceived as Safe	65.2% (64.0–66.3)	64.2% (62.6–65.7)	66.1% (64.6–67.7)	66.1% (64.5–67.7)	64.3% (62.7–65.8)	
School is Perceived as Safe	70.3% (69.3–71.4)	70.0% (68.5–71.5)	70.6% (69.2–72.1)	65.5% (64.0–67.0)	75.1% (73.6–76.5)	B
Neighborhood Has Playground or Recreation Center	78.4% (77.5–79.3)	78.6% (77.3–79.9)	78.1% (76.9–79.4)	77.4% (76.2–78.7)	79.3% (78.1–80.5)	B
Child Gets Recommended Physical Activity	22.6% (21.7–23.6)	19.7% (18.5–20.9)	25.5% (24.2–26.9)	16.4% (15.3–17.6)	28.8% (27.4–30.2)	A, B
Child Receives Preventive Medical Care[C]	68.8% (67.7–69.9)	68.9% (67.3–70.5)	68.7% (67.2–70.2)	66.9% (65.4–68.5)	70.7% (69.2–72.2)	B
Child Gets Recommended Sleep	66.3% (65.2–67.4)	66.5% (65.0–68.1)	66.1% (64.6–67.6)	67.2% (65.7–68.8)	65.4% (63.9–66.9)	
Child Has Adequate Health Insurance	66.4% (65.4–67.5)	66.4% (64.8–67.9)	66.5% (65.0–67.9)	65.4% (63.9–66.9)	67.4% (66.0–68.9)	
PCEs: Opportunities for Constructive Social Engagement and Connection						

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	Total Sample	Child Sex		Child Age (in years)		
	Percent Yes (95% CI)	Female, Percent Yes (95% CI)	Male, Percent Yes (95% CI)	Aged 12–17, Percent Yes (95% CI)	Aged 6–11, Percent Yes (95% CI)	Statistical Differences
Child Participates in Service or Volunteer Work	44.4% (43.3–45.5)	47.4% (45.8–49.0)	41.4% (39.9–42.9)	53.8% (52.2–55.4)	35.0% (33.6–36.4)	A, B
Child Participates in Extracurricular Activities at School or in the Neighborhood	81.0% (80.0–81.9)	82.0% (80.6–83.4)	79.9% (78.6–81.2)	82.0% (80.7–83.4)	79.9% (78.5–81.2)	A, B
Child Engages with and Cares about School	50.4% (49.2–51.5)	59.1% (57.5–60.7)	41.8% (40.2–43.3)	48.0% (46.5–49.6)	52.7% (51.1–54.2)	A, B
PCEs: Opportunities to Demonstrate Social and Emotional Competencies						
Child Shows Interest in New Things	90.6% (90.0–91.3)	91.9% (90.9–92.8)	89.4% (88.5–90.3)	87.8% (86.7–88.8)	93.5% (92.7–94.3)	A, B
Child Completes Things He or She Starts	85.6% (84.8–86.4)	88.4% (87.3–89.4)	82.9% (81.8–84.0)	86.1% (85.1–87.2)	85.1% (84.0–86.2)	A
Child Stays Calm if Faced with Challenge	78.1% (77.3–79.0)	80.4% (79.1–81.6)	76.0% (74.8–77.2)	81.9% (80.8–83.1)	74.4% (73.1–75.7)	A, B

PCEs Positive Childhood Experiences, *CI* Confidence Interval.

[a] There were statistically significant differences between female and male children based on calculation of prevalence ratios with 95% confidence intervals that excluded 1.0

[b] There were statistically significant differences between children aged 12–17 years and aged 6–11 years old based on calculation of prevalence ratios with 95% confidence intervals that excluded 1.0

[c] Data only represents children whose parents responded to the survey in 2019; this item was changed in between the 2018 and 2019 NSCH survey administrations

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Table 2

Weighted Prevalence of Positive Childhood Experiences Among U.S. Children aged 6–17 Years, by Child's Race and Ethnicity,[a] National Survey of Children's Health, 2018–2019

	Child's Race and Ethnicity, Percent of Children with Each PCE (95% CI)								
	American Indian or Alaska Native	Asian	Black	Hispanic	Native Hawaiian or Pacific Islander	Multiracial	White	Another Race[b]	Statistical Differences
PCEs: Being in Nurturing, Safe, and Supportive Relationships									
Parent–Child Able to Communicate Freely	61.9% (52.3–71.4)	57.6% (52.8–62.3)	68.8% (65.8–71.8)	67.9% (64.8–71.0)	68.7% (53.2–84.2) *FF*	63.3% (59.3–67.3)	66.1% (65.1–67.2)	56.9% (40.8–72.9) *FF*	K, L, O, S
Parental Involvement in Activities	80.7% (72.1–89.4)	78.3% (74.4–82.2)	80.5% (77.7–83.2)	83.8% (81.2–86.3)	86.9% (77.1–96.8)	89.4% (86.7–92.0)	93.1% (92.5–93.7)	78.4% (61.6–95.2) *FF*	I, L, N, O, S, T, W, X, CC
Frequently Eating Meals Together	70.9% (62.4–79.4)	74.3% (69.9–78.7)	60.6% (57.5–63.8)	73.0% (70.1–75.9)	69.2% (50.4–88.0) *FF*	69.3% (65.6–73.1)	71.4% (70.5–72.4)	85.7% (78.3–93.0)	E, J, K, P, Q, S, T, U, Y, DD, EE
Family is Resilient	72.9% (64.3–81.5)	78.2% (74.4–82.1)	77.3% (74.6–80.0)	80.0% (77.3–82.7)	71.5% (52.7–90.4) *FF*	77.7% (74.1–81.2)	84.2% (83.4–84.9)	82.1% (71.6–92.6)	I, O, T, X, CC
Parent(s) Have Positive Physical Health	79.3% (71.7–86.9)	93.5% (90.8–96.2)	81.1% (78.4–83.8)	89.0% (86.8–91.2)	76.8% (61.8–91.8) *FF*	89.8% (87.2–92.5)	93.7% (93.0–94.3)	80.8% (68.6–93.0)	D, F, H, I, K, L, Q, S, T, X, AA, CC
Parent(s) Have Positive Mental Health	81.2% (73.0–89.4)	94.9% (92.5–97.2)	84.5% (81.9–87.1)	92.9% (91.1–94.6)	78.4% (63.7–93.1) *FF*	90.2% (87.6–92.8)	93.7% (93.1–94.4)	83.3% (72.7–93.8) *FF*	D, F, I, K, M, N, P, Q, S, T, CC
Parent Able to Cope with Parenting	60.5% (51.0–70.0)	55.3% (50.5–60.1)	70.4% (67.6–73.3)	64.3% (61.2–67.5)	72.8% (58.9–86.7) *FF*	57.1% (53.1–61.2)	60.1% (59.0–61.2)	49.2% (33.8–64.7) *FF*	K, L, M, Q, S, T, U, W, X, Z, AA, BB
Parent Has Social Support	78.9% (71.4–86.3)	51.2% (46.4–55.9)	71.1% (68.0–74.2)	62.9% (59.6–66.2)	73.2% (53.1–93.3) *FF*	84.8% (82.0–87.5)	84.7% (83.9–85.6)	73.2% (60.3–86.1) *FF*	D, F, K, L, M, N, O, P, Q, S, T, W, X
Child Has Access to Mentor	91.8% (86.7–96.9)	80.9% (76.7–85.1)	86.4% (84.1–88.7)	83.0% (80.5–85.5)	75.7% (55.2–96.3) *FF*	91.3% (89.4–93.1)	94.7% (94.2–95.3)	88.1% (79.9–96.4)	D, F, K, N, O, S, T, W, X, CC
Child Able to Make Friends	76.4% (68.2–84.6)	82.7% (79.6–85.9)	82.5% (80.2–84.9)	79.2% (76.4–81.9)	89.7% (80.7–98.7)	76.7% (73.3–80.0)	76.4% (75.5–77.4)	76.0% (63.3–88.6) *FF*	G, N, O, S, T, V, Z, AA
PCEs: Living in Safe, Stable, and Protective Environments									
Home Has Sufficient and Nutritious Food	50.0% (40.2–59.7)	81.0% (76.8–85.2)	55.6% (52.3–59.0)	65.4% (62.3–68.5)	51.1% (31.3–70.9) *FF*	64.5% (60.3–68.8)	72.3% (71.3–73.3)	61.6% (46.6–76.5) *FF*	D, F, H, I, K, L, M, N, O, P, Q, S, T, X, CC
Neighborhood Has Educational Resources	57.9% (48.6–67.2)	75.2% (70.7–79.8)	73.7% (70.8–76.5)	68.2% (65.0–71.3)	60.4% (40.5–80.4) *FF*	71.2% (67.9–74.6)	65.5% (64.5–66.6)	69.2% (52.7–85.7) *FF*	D, E, H, L, O, Q, T, CC
Neighborhood is Perceived as Supportive	51.9% (42.2–61.6)	52.3% (47.5–57.2)	44.1% (40.8–47.4)	47.6% (44.2–50.9)	37.4% (20.2–54.5) *FF*	51.9% (47.7–56.1)	63.6% (62.5–64.7)	64.6% (51.2–78.0) *FF*	I, K, O, S, T, U, X, Y, AA, BB, CC

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	Child's Race and Ethnicity, Percent of Children with Each PCE (95% CI)								
	American Indian or Alaska Native	**Asian**	**Black**	**Hispanic**	**Native Hawaiian or Pacific Islander**	**Multiracial**	**White**	**Another Race[b]**	**Statistical Differences**
Neighborhood is Perceived as Safe	63.5% (54.2–72.8)	60.8% (55.8–65.7)	53.9% (50.6–57.3)	58.1% (54.8–61.4)	65.3% (48.9–81.8) *FF*	62.0% (57.7–66.4)	71.9% (70.8–72.9)	67.1% (53.9–80.2) *FF*	E, K, O, S, T, U, X, CC
School is Perceived as Safe	72.1% (63.4–80.8)	74.4% (70.1–78.6)	64.5% (61.3–67.7)	65.4% (62.2–68.6)	73.0% (58.9–87.1) *FF*	66.5% (62.6–70.4)	73.9% (73.0–74.9)	69.6% (56.7–82.6) *FF*	K, L, N, T, X, CC
Neighborhood Has Playground or Recreation Center	78.1% (71.5–84.6)	85.4% (81.7–89.0)	83.6% (81.4–85.9)	80.9% (78.1–83.6)	81.9% (69.6–94.2) *FF*	82.6% (80.0–85.1)	74.8% (73.9–75.8)	79.1% (62.7–95.5) *FF*	O, T, X, CC
Child Gets Recommended Physical Activity	32.6% (23.0–42.3)	14.4% (11.3–17.4)	22.3% (19.7–24.9)	20.0% (17.3–22.7)	35.1% (12.7–57.6) *FF*	22.4% (19.1–25.7)	24.5% (23.5–25.5)	30.7% (17.3–44.1)*FF*	D, E, F, H, K, L, M, N, O, P, X
Child Receives Preventive Medical Care[c]	52.4% (42.6–62.2)	59.2% (54.4–64.0)	62.9% (59.7–66.2)	62.5% (59.2–65.8)	62.6% (42.8–82.4) *FF*	74.5% (70.8–78.1)	73.7% (72.6–74.7)	59.7% (45.0–74.3) *FF*	H, I, N, O, S, T, W, X
Child Gets Recommended Sleep	62.7% (53.2–72.1)	70.1% (66.1–74.1)	51.0% (47.7–54.3)	63.4% (60.2–66.6)	68.3% (52.9–83.6) *FF*	67.0% (63.1–70.9)	71.1% (70.1–72.1)	62.5% (46.4–78.6) *FF*	E, K, L, Q, R, S, T, X
Child Has Adequate Health Insurance	67.3% (58.7–75.9)	65.3% (60.8–69.9)	74.1% (71.3–76.9)	63.6% (60.4–66.9)	67.2% (50.6–83.9) *FF*	67.1% (62.9–71.3)	65.8% (64.8–66.8)	62.8% (46.4–79.2) *FF*	K, Q, S, T
PCEs: Opportunities for Constructive Social Engagement and Connection									
Child Participates in Service or Volunteer Work	40.9% (31.6–50.2)	43.9% (39.1–48.7)	45.3% (42.0–48.6)	35.5% (32.4–38.6)	46.1% (26.5–65.7) *FF*	43.2% (39.1–47.2)	48.3% (47.2–49.4)	34.2% (20.7–47.7) *FF*	L, Q, W, X, CC
Child Participates in Extracurricular Activities at School or Neighborhood	73.7% (64.7–82.8)	80.2% (76.0–84.4)	74.8% (71.9–77.7)	75.8% (72.9–78.7)	83.1% (72.2–93.9) *FF*	82.4% (79.3–85.5)	84.9% (84.0–85.8)	63.8% (47.0–80.5) *FF*	I, K, O, S, T, W, X, EE
Child Engages with and Cares about School	46.0% (36.2–55.8)	64.7% (60.0–69.3)	49.2% (45.8–52.5)	53.2% (49.8–56.5)	47.7% (27.9–67.6) *FF*	46.8% (42.6–50.9)	48.6% (47.4–49.6)	37.4% (23.3–51.5) *FF*	D, K, L, N, O, P, W, X
PCEs: Opportunities to Demonstrate Social and Emotional Competencies									
Child Shows Interest in New Things	86.9% (80.2–93.5)	91.2% (88.1–94.2)	87.6% (85.6–89.7)	89.4% (87.4–91.4)	96.4% (91.9–100)	90.2% (87.4–93.0)	92.0% (91.4–92.6)	85.1% (69.3–100) *FF*	G, R, T, V, X, Z
Child Completes Things He or She Starts	80.1% (72.4–87.8)	88.9% (85.1–92.7)	82.0% (79.6–84.5)	85.4% (83.1–87.7)	90.8% (82.0–99.5)	86.6% (84.3–88.9)	86.2% (85.4–86.9)	86.5% (76.9–96.0)	K, Q, R, S, T
Child Stays Calm if Faced with Challenge	74.5% (66.8–82.2)	86.1% (83.0–89.1)	76.0% (73.4–78.6)	78.5% (75.8–81.1)	78.7% (59.5–97.8) *FF*	77.4% (74.2–80.5)	78.0% (77.1–78.9)	68.7% (52.1–85.2) *FF*	D, K, L, N, O

PCEs Positive Childhood Experiences, *CI* Confidence Interval.

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[a] All race categories reflect non–Hispanic ethnicity. Children who are Hispanic may be any race

[b] Data only represent children whose parents received the survey in 2018; this response option was removed and not available in the 2019 NSCH survey administration

[c] Data only represents parents who responded to the survey in 2019. This item was updated and changed in between the 2018 and 2019 NSCH administrations

[d] There were statistically significant differences between American Indian or Alaska Native and Asian populations

[e] There were statistically significant differences between American Indian or Alaska Native and Black populations

[f] There were statistically significant differences between American Indian or Alaska Native and Hispanic populations

[g] There were statistically significant differences between American Indian or Alaska Native and Native Hawaiian or Pacific Islander populations

[h] There were statistically significant differences between American Indian or Alaska Native and multiracial populations

[i] There were statistically significant differences between American Indian or Alaska Native and White populations

[j] There were statistically significant differences between American Indian or Alaska Native and another race populations

[k] There were statistically significant differences between Asian and Black populations

[L] There were statistically significant differences between Asian and Hispanic populations

[m] There were statistically significant differences between Asian and Native Hawaiian or Pacific Islander populations

[n] There were statistically significant differences between Asian and multiracial populations

[o] There were statistically significant differences between Asian and White populations

[p] There were statistically significant differences between Asian and another race populations

[q] There were statistically significant differences between Black and Hispanic populations

[r] There were statistically significant differences between Black and Native Hawaiian or Pacific Islander populations

[s] There were statistically significant differences between Black and multiracial populations

[t] There were statistically significant differences between Black and White populations

[u] There were statistically significant differences between Black and another race populations

[v] There were statistically significant differences between Hispanic and Native Hawaiian or Pacific Islander populations

[w] There were statistically significant differences between Hispanic and multiracial populations

[x] There were statistically significant differences between Hispanic and White populations

[y] There were statistically significant differences between Hispanic and another race populations

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[z] There were statistically significant differences between Native Hawaiian or Pacific Islander and multiracial populations

[aa] There were statistically significant differences between Native Hawaiian or Pacific Islander and White populations

[bb] There were statistically significant differences between Native Hawaiian or Pacific Islander and another race populations

[cc] There were statistically significant differences between multiracial and White populations

[dd] There were statistically significant differences between multiracial and another race populations

[ee] There were statistically significant differences between White and another race populations

[ff] Estimates may be unstable due to small sample size and should be interpreted with caution.

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Table 3

Weighted Prevalence and Associations Between Positive Childhood Experiences and Current Anxiety, Depression, and Behavioral or Conduct Problems among U.S. Children Aged 6–17 Years, National Survey of Children's Health, 2018–2019

	Anxiety			Depression			Behavioral and Conduct Problems		
	Percent Yes (95% CI)	aPR[a] (95% CI)	aPR[b] (95% CI)	Percent Yes (95% CI)	aPR[a] (95% CI)	aPR[b] (95% CI)	Percent Yes (95% CI)	aPR[a] (95% CI)	aPR[b] (95% CI)
PCEs: Being in Nurturing, Safe, and Supportive Relationships									
Parent–Child Able to Communicate Freely									
Yes	7.3% (6.7–7.9)	**0.47 (0.42–0.52)**	**0.52 (0.46–0.59)**	2.9% (2.5–3.3)	**0.39 (0.32–0.47)**	**0.47 (0.39–0.57)**	4.0% (3.6–4.5)	**0.28 (0.24–0.32)**	**0.32 (0.28–0.38)**
No	16.0% (14.7–17.3)			8.2% (7.2–9.3)			14.4% (13.3–15.6)		
Parental Involvement in Activities									
Yes	9.9% (9.3–10.5)	**0.71 (0.58–0.87)**	**0.80 (0.65–0.98)**	4.3% (3.9–4.8)	**0.65 (0.50–0.84)**	**0.77 (0.60–0.99)**	7.0% (6.4–7.5)	**0.60 (0.49–0.73)**	**0.70 (0.57–0.85)**
No	12.8% (10.4–15.2)			7.6% (5.9–9.4)			11.9% (9.8–13.9)		
Frequently Eating Meals Together									
Yes	9.3% (8.5–10.0)	**0.77 (0.68–0.87)**	**0.85 (0.75–0.95)**	3.8% (3.3–4.3)	**0.61 (0.51–0.74)**	**0.72 (0.60–0.86)**	6.9% (6.3–7.5)	**0.73 (0.63–0.85)**	**0.82 (0.71–0.95)**
No	12.5% (11.4–13.6)			7.0% (6.1–7.9)			9.1% (8.0–10.1)		
Family is Resilient									
Yes	8.7% (8.1–9.4)	**0.51 (0.45–0.58)**	**0.60 (0.53–0.68)**	3.6% (3.1–4.0)	**0.39 (0.32–0.47)**	**0.51 (0.42–0.62)**	6.0% (5.5–6.5)	**0.42 (0.36–0.48)**	**0.53 (0.46–0.62)**
No	16.9% (15.2–18.7)			9.8% (8.4–11.3)			14.3% (12.6–16.0)		
Parent(s) Have Positive Physical Health									
Yes	9.5% (8.9–10.1)	**0.50 (0.42–0.60)**	**0.77 (0.64–0.93)**	3.9% (3.5–4.3)	**0.34 (0.27–0.43)**	**0.66 (0.52–0.83)**	6.5% (6.0–7.0)	**0.41 (0.34–0.50)**	**0.68 (0.56–0.84)**
No	17.6% (14.9–20.4)			12.5% (10.0–15.0)			17.6% (14.7–20.4)		
Parent(s) Have Positive Mental Health									
Yes	9.4% (8.8–10.0)	**0.45 (0.38–0.53)**	**0.73 (0.61–0.88)**	4.0% (3.6–4.4)	**0.34 (0.27–0.42)**	**0.72 (0.57–0.91)**	6.5% (6.0–7.0)	**0.37 (0.31–0.44)**	**0.64 (0.53–0.77)**
No	20.0% (16.9–23.0)			13.0% (10.4–15.6)			20.0% (16.9–23.1)		
Parent Able to Cope with Parenting									
Yes	7.2% (6.5–7.9)	**0.48 (0.43–0.54)**	**0.56 (0.50–0.63)**	3.0% (2.4–3.5)	**0.38 (0.31–0.47)**	**0.50 (0.41–0.62)**	4.9% (4.3–5.4)	**0.39 (0.34–0.45)**	**0.49 (0.42–0.57)**
No	15.2% (14.1–16.3)			7.6% (6.8–8.4)			11.9% (10.9–12.9)		
Parent Has Social Support									
Yes	10.6% (9.9–11.2)	1.01 (0.86–1.18)	1.00 (0.86–1.16)	4.6% (4.1–5.1)	0.91 (0.72–1.14)	0.90 (0.72–1.11)	7.6% (7.0–8.2)	1.01 (0.85–1.21)	1.00 (0.84–1.18)
No	9.2% (7.9–10.6)			5.2% (4.2–6.1)			7.4% (6.3–8.5)		

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	Anxiety			Depression			Behavioral and Conduct Problems		
	Percent Yes (95% CI)	**aPR[a] (95% CI)**	**aPR[b] (95% CI)**	**Percent Yes (95% CI)**	**aPR[a] (95% CI)**	**aPR[b] (95% CI)**	**Percent Yes (95% CI)**	**aPR[a] (95% CI)**	**aPR[b] (95% CI)**
Child Has Access to Mentor									
Yes	10.3% (9.6–10.9)	0.89 (0.72–1.11)	0.94 (0.76–1.15)	4.6% (4.2–5.1)	0.82 (0.59–1.14)	0.89 (0.67–1.19)	7.3% (6.8–7.9)	0.80 (0.63–1.00)	0.84 (0.68–1.05)
No	9.9% (7.8–11.9)			5.4% (3.8–7.1)			9.4% (7.4–11.4)		
Child Able to Make Friends									
Yes	5.1% (4.6–5.6)	**0.19 (0.17–0.21)**	**0.22 (0.19–0.25)**	1.9% (1.5–2.3)	**0.13 (0.11–0.17)**	**0.18 (0.14–0.23)**	3.0% (2.6–3.4)	**0.13 (0.11–0.15)**	**0.16 (0.14–0.19)**
No	28.6% (26.6–30.6)			14.9% (13.4–16.4)			23.8% (22.0–25.5)		
PCEs: Living in Safe, Stable, and Protective Environments									
Home Has Sufficient and Nutritious Food									
Yes	8.3% (7.7–9.0)	**0.55 (0.48–0.63)**	**0.72 (0.63–0.83)**	3.4% (3.0–3.8)	**0.46 (0.37–0.57)**	**0.72 (0.58–0.89)**	5.6% (5.0–6.1)	**0.55 (0.47–0.65)**	**0.77 (0.65–0.90)**
No	14.3% (13.0–15.7)			7.6% (6.6–8.7)			11.9% (10.7–13.1)		
Neighborhood Has Educational Resources									
Yes	10.2% (9.5–10.9)	1.04 (0.91–1.19)	1.05 (0.92–1.19)	4.6% (4.1–5.1)	0.97 (0.78–1.21)	1.00 (0.81–1.22)	7.7% (7.0–8.3)	1.12 (0.97–1.29)	1.11 (0.97–1.28)
No	10.3% (9.2–11.5)			5.0% (4.1–6.0)			7.3% (6.4–8.2)		
Neighborhood is Perceived as Supportive									
Yes	8.9% (8.2–9.7)	**0.70 (0.62–0.80)**	**0.81 (0.72–0.92)**	3.7% (3.1–4.2)	**0.62 (0.51–0.75)**	**0.78 (0.64–0.96)**	5.5% (4.9–6.0)	**0.56 (0.49–0.65)**	**0.67 (0.59–0.78)**
No	11.9% (10.9–12.9)			6.1% (5.3–6.8)			10.2% (9.3–11.2)		
Neighborhood is Perceived as Safe									
Yes	9.2% (8.5–9.9)	**0.70 (0.62–0.80)**	**0.80 (0.71–0.91)**	3.9% (3.4–4.4)	**0.64 (0.53–0.78)**	**0.81 (0.67–0.99)**	6.1% (5.6–6.7)	**0.64 (0.56–0.73)**	**0.77 (0.67–0.89)**
No	12.2% (11.1–13.4)			6.2% (5.3–7.1)			10.2% (9.1–11.3)		
School is Perceived as Safe									
Yes	8.6% (7.9–9.2)	**0.61 (0.54–0.69)**	**0.71 (0.63–0.80)**	3.5% (3.0–3.9)	**0.52 (0.43–0.63)**	**0.68 (0.55–0.82)**	6.1% (5.5–6.6)	**0.55 (0.47–0.63)**	**0.68 (0.59–0.78)**
No	14.2% (12.9–15.6)			7.8% (6.7–8.8)			11.0% (9.8–12.2)		
Neighborhood Has Playground or Recreation Center									
Yes	10.1% (9.4–10.8)	1.03 (0.90–1.18)	1.04 (0.91–1.19)	4.6% (4.1–5.2)	1.04 (0.85–1.27)	1.07 (0.88–1.31)	7.4% (6.8–8.0)	1.02 (0.87–1.19)	1.05 (0.89–1.22)
No	10.8% (9.5–12.1)			5.1% (4.2–5.9)			8.0% (6.8–9.1)		
Child Gets Recommended Physical Activity									
Yes	7.9% (6.8–9.0)	**0.75 (0.65–0.88)**	**0.76 (0.65–0.89)**	2.5% (1.9–3.2)	**0.56 (0.42–0.73)**	**0.56 (0.43–0.72)**	7.9% (6.8–9.1)	0.89 (0.75–1.04)	0.89 (0.75–1.04)
No	10.9% (10.2–11.6)			5.4% (4.8–5.9)			7.4% (6.8–8.0)		
Child Receives Preventive Medical Care[c]									

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	Anxiety			Depression			Behavioral and Conduct Problems		
	Percent Yes (95% CI)	aPR[a] (95% CI)	aPR[b] (95% CI)	Percent Yes (95% CI)	aPR[a] (95% CI)	aPR[b] (95% CI)	Percent Yes (95% CI)	aPR[a] (95% CI)	aPR[b] (95% CI)
Yes	11.3% (10.6–12.0)	**1.44 (1.23–1.69)**	**1.42 (1.22–1.66)**	5.1% (4.6–5.6)	**1.47 (1.17–1.85)**	**1.44 (1.16–1.78)**	8.0% (7.4–8.5)	**1.32 (1.11–1.57)**	**1.30 (1.10–1.54)**
No	7.8% (6.6–9.0)			3.9% (3.1–4.7)			6.6% (5.6–7.7)		
Child Gets Recommended Sleep									
Yes	9.5% (8.8–10.2)	**0.77 (0.68–0.87)**	**0.83 (0.74–0.94)**	4.0% (3.5–4.5)	**0.63 (0.53–0.76)**	**0.72 (0.60–0.86)**	6.5% (5.9–7.0)	**0.75 (0.65–0.87)**	**0.83 (0.72–0.95)**
No	11.7% (10.6–12.7)			6.2% (5.3–7.1)			9.6% (8.5–10.7)		
Child Has Adequate Health Insurance									
Yes	8.6% (8.0–9.3)	**0.65 (0.58–0.73)**	**0.66 (0.59–0.74)**	4.0% (3.6–4.5)	**0.65 (0.54–0.78)**	**0.67 (0.56–0.80)**	6.9% (6.3–7.5)	**0.73 (0.64–0.84)**	**0.77 (0.67–0.88)**
No	13.4% (12.1–14.6)			6.1% (5.1–7.0)			8.8% (7.8–9.8)		
PCEs: Opportunities for Constructive Social Engagement and Connection									
Child Participates in Service or Volunteer Work									
Yes	10.1% (9.2–11.0)	**0.86 (0.76–0.97)**	0.91 (0.81–1.04)	4.4% (3.7–5.1)	**0.73 (0.60–0.90)**	**0.81 (0.67–0.97)**	5.5% (4.8–6.1)	**0.70 (0.60–0.81)**	**0.74 (0.64–0.85)**
No	10.3% (9.5–11.1)			5.0% (4.4–5.5)			9.2% (8.4–10.0)		
Child Participates in Extracurricular Activities at School or in the Neighborhood									
Yes	9.3% (8.7–9.9)	**0.58 (0.50–0.67)**	**0.65 (0.56–0.75)**	3.9% (3.4–4.3)	**0.45 (0.37–0.55)**	**0.54 (0.44–0.65)**	6.0% (5.5–6.5)	**0.48 (0.41–0.56)**	**0.53 (0.45–0.62)**
No	14.3% (12.5–16.1)			8.3% (7.0–9.7)			14.2% (12.5–15.9)		
Child Engages with and Cares about School									
Yes	5.8% (5.2–6.4)	**0.39 (0.34–0.44)**	**0.46 (0.40–0.52)**	1.9% (1.5–2.3)	**0.25 (0.20–0.31)**	**0.34 (0.27–0.43)**	1.6% (1.2–2.0)	**0.13 (0.10–0.17)**	**0.16 (0.12–0.20)**
No	14.7% (13.7–15.8)			7.6% (6.8–8.4)			13.6% (12.6–14.5)		
PCEs: Opportunities to Demonstrate Social and Emotional Competencies									
Child Shows Interest in New Things									
Yes	8.8% (8.2–9.4)	**0.37 (0.32–0.42)**	**0.45 (0.38–0.52)**	3.6% (3.2–4.1)	**0.28 (0.23–0.34)**	**0.40 (0.32–0.49)**	5.7% (5.3–6.2)	**0.24 (0.20–0.27)**	**0.30 (0.25–0.34)**
No	24.3% (21.6–27.1)			15.3% (13.0–17.7)			25.2% (22.2–28.2)		
Child Completes Things He or She Starts									
Yes	7.6% (7.0–8.2)	**0.28 (0.25–0.32)**	**0.34 (0.30–0.39)**	3.2% (2.8–3.7)	**0.23 (0.19–0.27)**	**0.32 (0.27–0.40)**	3.5% (3.2–3.9)	**0.13 (0.11–0.15)**	**0.15 (0.13–0.18)**
No	25.7% (23.4–28.0)			13.5% (11.8–15.3)			31.3% (28.8–33.9)		
Child Stays Calm if Faced with Challenge									
Yes	5.8% (5.2–6.4)	**0.21 (0.18–0.23)**	**0.24 (0.21–0.27)**	2.4% (2.0–2.8)	**0.17 (0.14–0.20)**	**0.22 (0.18–0.28)**	2.2% (1.9–2.5)	**0.09 (0.08–0.11)**	**0.11 (0.09–0.13)**
No	26.0% (24.3–27.8)			13.0% (11.6–14.3)			26.7% (24.8–28.6)		

PCEs Positive Childhood Experiences, CI Confidence Interval, *aPR* Adjusted Prevalence Ratios. APRs and 95% CIs in bold are statistically significant, as defined by having confidence intervals that do not include 1.0.

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[a] Adjusted for child sex, child age, child race and ethnicity, parental education, and family income as a percentage of federal poverty level

[b] Adjusted for child sex, child age, child race and ethnicity, parental education, family income as a percentage of federal poverty level, and cumulative number of ACEs

[c] Data only represents parents who responded to the survey in 2019. This item was updated and changed in between the 2018 and 2019 NSCH administrations