

Influence of Adverse Childhood Experiences on Anxiety and Depression In Children Aged 6 to 11 Years

Mojtaba Zare, Mary Narayan, Annie Lasway, Panagiota Kitsantas, Janusz Wojtusiak, and Cheryl A. Oetjen

Popular media, such as CBS' *60 Minutes* (Winfrey, 2018) and the *PBS News Hour* (Harris, 2018), have recently highlighted the importance of addressing the needs of children who have been negatively affected by adverse childhood experiences. According to the American Academy of Pediatrics (AAP), children affected by adverse childhood experiences suffer from "toxic stress," which is defined as "excessive or prolonged activation of the physiologic stress response systems in the absence of the buffering protection afforded by stable, responsive relationships" (Garner & Shonkoff, 2012, p. e225). When children experience prolonged physiologic stress responses, chemical and physical changes in children's neural networks and metabolic processes occur. These changes are related to physical, mental, behavioral, and developmental damage, which affect children's future lives in profound ways, contributing to life-long morbidity and life-limiting mortality (Garner & Shonkoff, 2012).

Mojtaba Zare, MS, is a Health Services Research PhD Student, Department of Health Administration and Policy College of Health and Human Services, George Mason University, Fairfax, VA.

Mary Narayan, MSN, RN, HHCNS-BC, is a Nursing PhD Student, School of Nursing, College of Health and Human Services, George Mason University, Fairfax, VA.

Annie Lasway, MS, is a Health Services PhD Student, Department of Health Administration and Policy, College of Health and Human Services, George Mason University, Fairfax, VA.

Panagiota Kitsantas, PhD, is a Professor, Department of Health Administration and Policy, College of Health and Human Services, George Mason University, Fairfax, VA.

Zare, M., Narayan, M., Lasway, A., Kitsantas, P., Wojtusiak, J., & Oetjen, C.A. (2018). Influence of adverse childhood experiences on anxiety and depression in children aged 6 to 11 years. *Pediatric Nursing, 44*(6), 267-274, 287.

Adverse childhood experiences, such as exposure to poverty, violence, discrimination, and prolonged parental absence, can cause toxic stress and can affect children's physical, mental, and behavioral health for the rest of their lives. We examined the association of adverse childhood experiences with depression and anxiety in the understudied population of children 6 to 11 years old. We performed a secondary data analysis of the 2011/2012 National Survey of Children's Health. A sample of 31,060 primary school-aged children was extracted from the nationally representative sample of 95,677 children 0 to 17 years old. Independent variables included sociodemographic items related to the social determinants of health (race/ethnicity, sex, poverty level, family structure) and adverse childhood experience-exposure items (family economic hardship, parental separation/divorce, parental incarceration, parental/family member with mental illness or depression, parental/family member with drug or alcohol problem, and exposure to prejudice or discrimination). Outcome variables were diagnosed depression and anxiety. Descriptive statistics and logistic regression analyses were performed. Findings showed that in this sample, 6% of children were diagnosed with depression and/or anxiety. Findings also showed that economic hardship, poor parental mental/behavioral health, exposure to violence, or racial/ethnic discrimination increased the risk of depression and/or anxiety in 6- to 11-year-old children. Pediatric nurses can help protect children from adverse childhood experience exposure and can help them recover from these events. Pediatric nurses can identify children at risk, provide parental anticipatory guidance, make referrals for mental health services and community-based programs, protect children from traumatic medical events, and provide resilience education/skill-building, which can alleviate the long-term effects of adverse childhood experiences exposure.

Key Words: Adverse childhood experiences, depression, anxiety, mental health, toxic stress, National Survey of Children's Health.

Adverse childhood experiences include a wide range of traumatic and toxic events that occur during childhood, such as man-made and natural disasters, traumatic medical events, violence, discrimination, poverty, dysfunctional families, and tragic family events. Disasters may cause children psychological trauma, such as being separat-

ed from their parents and other social supports, and by losing their homes and cherished possessions (Barber, Kohl, Kassam-Adams, & Gold, 2014; Quinn et al., 2016). Witnessing or experiencing violent events (i.e., neighborhood violence, sexual violence, physical and psychological abuse) is harmful to children (Avanci, Assis,

Janusz Wojtusiak, PhD, is an Associate Professor, Department of Health Administration and Policy, College of Health and Human Services, George Mason University, Fairfax, VA.

Cheryl A. Oetjen, DNP, FNP-BC, is an Assistant Professor, School of Nursing, College of Health and Human Services, George Mason University, Fairfax, VA.

Oliveira, & Pires, 2012; Blair, McFarlane, Nava, Gilroy, & Maddoux, 2015; Butler, Kowalkowski, Jones, & Raphael, 2012). In addition, racism and discrimination can also have long-term effects on children's physical, mental, and behavioral health (Cooke, Bowie, & Carrère, 2014; Garner & Shonkoff, 2012; Priest et al., 2013).

Other types of adverse childhood experiences include living in poverty or living within families struggling to meet basic physical needs, including food and shelter, which can leave children with feelings of anxiety and sadness (Butler et al., 2012). Separation from parents is traumatic for children, especially when it is permanent or prolonged, such as when a parent dies or is incarcerated, or when parents divorce (Gjelsvi, Dumont, Nunn, & Rosen, 2014; Larson & Halfon, 2013). Emotional separation from parents, such as when a parent is severely depressed, mentally ill, or has substance abuse problems, also has detrimental effects on children (Bennett, Brewer, & Rankin, 2012; Lewis, Rice, Harold, Collishaw, & Thapar, 2011; Mendes et al., 2012).

Adverse childhood experience-related physical, mental, and behavioral health problems that start in childhood and extend into adulthood are numerous. They include asthma; obesity; adult cardiovascular and pulmonary disorders; and mood, anxiety, and substance abuse disorders, among others (Campbell, Walker, & Egede, 2016; Garner & Shonkoff, 2012; Merrick et al., 2017; Remigio-Baker, Hayes, & Reyes-Salvail, 2015; Sareen et al., 2013). In children, adverse childhood experience exposure is strongly associated with depression and anxiety disorders (Avanci et al., 2012; Balistreri & Alvira-Hammond, 2016; Barber et al., 2014; Butler et al., 2012). Research evidence shows that adolescents (12 to 17 years old) who experience a large number of adverse childhood experiences are more likely to experience poor physical and mental outcomes as compared to their counterparts with fewer reported adverse childhood experiences (Balistreri & Alvira-Hammond, 2016; Bhatta, Champion, Young, & Loika, 2018). Further, in a study of low-income Brazilian children 6 to 10 years old, 10% of the children in their sample were depressed, and their depression was associated with poverty and growing up in dysfunctional families

(Avanci et al., 2012). Poor parental mental health has been linked with mood/anxiety disorders and depression in young children (Lewis et al., 2011; Reid, 2015).

A considerable number of research studies has focused on adverse childhood experience-associated mental health problems in adolescents (12 to 17 years old). Other studies have looked more broadly at the pediatric population, evaluating the effects on all children together, ages 2 through 17 years, (Balistreri & Alvira-Hammond, 2016; Barber et al., 2014; Bennett et al., 2012; Butler et al., 2012). To the best of our knowledge, there is a gap in the literature about the association between adverse childhood experiences and depression and/or anxiety in children 6 to 11 years old.

Purpose

This secondary data analysis study attempts to answer the question, "In the population of United States children 6 to 11 years old, what is the relationship between adverse childhood experiences and anxiety and depression." Findings from quantitative studies are significant to pediatric nurses because they are uniquely positioned to help identify and intervene with primary school-aged children who suffer from adverse childhood experience exposure, and adverse childhood experience-related depression and anxiety. Early intervention, especially with programs that build resilience, can enable children to overcome the harmful effects of these conditions on their health and well-being during childhood and into adolescence and adulthood (Garner & Shonkoff, 2012; Lavoie, Pereira, & Talwar, 2016).

Design and Methods

Design

To answer the research question, we conducted a secondary data analysis of the 2011/2012 National Survey of Children's Health (NSCH). The purpose of this survey instrument, sponsored by the Centers of Disease Control and Prevention (CDC), was to collect national data on the health and well-being of children between 0 and 17 years of age. The NSCH provides rich data on "multiple, intersecting aspects of children's lives, including physical and mental health, access

to quality health care, and the child's family, neighborhood, school, and social context" (Tufts University, 2017).

Sample

The NSCH was conducted using telephone numbers that were dialed at random to identify households with children under 18 years old. In total, interviewers contacted 847,881 households, of which 87,422 households had age-eligible children, and interviews were completed on 95,677 children (CDC, 2013). The sample for our analysis included only children between the ages of 6 and 11 years. This subsample included 31,060 children. Missing data for the variables used in this study ranged from 0.06% to 2.4%.

Measures

The outcome variable, namely depression and/or anxiety, was constructed based on two questions found in the NSCH: "Has a doctor or other health professional ever told you that [child's name] has depression problems?" and "Has a doctor or other health professional ever told you that [child's name] has anxiety problems?" If a response was "yes" to either of these questions, then the outcome variable was classified as depression and/or anxiety, indicating the child has depression or anxiety or both. If the response was "no" for both depression and anxiety, then the outcome variable was coded as "no," indicating the child had neither anxiety nor depression.

Sociodemographic variables included race/ethnicity (Hispanic, White non-Hispanic, Black non-Hispanic, and Other; "Other" includes Asian, American Indian, Native Alaskan, Native Hawaiian, Other Pacific Islander and multi-racial children), family structure (two biological parents, parent and step-parent, single mother-no father, other family type), sex (male, female), and poverty level (0% to 99% Federal Poverty Level (FPL), 100% to 199% FPL, 200% to 399% FPL, 400% FPL or greater). The variable poverty level was constructed based on household income reported in the NSCH. The nine adverse childhood experiences included:

- How often has it been hard to get by on your family's income, such as having enough money for basics like food or housing?
- Did [child's name] ever live with a

parent or guardian who got divorced or separated after [he/she] was born?

- Did [child's name] ever live with a parent or guardian who died?
- Did [child's name] ever live with a parent or guardian who served time in jail or prison after [child's name] was born?
- Did [child's name] ever see or hear any parents, guardians, or any other adults in [his/her] home slap, hit, kick, punch, or beat each other up?
- Was [child's name] ever the victim of violence or witnessed any violence in [his/her] neighborhood?
- Did [child's name] ever live with anyone who was mentally ill or suicidal, or severely depressed for more than a couple of weeks?
- Did [child's name] ever live with anyone who had a problem with alcohol or drugs?
- Was [child's name] ever treated or judged unfairly because of [his/her] race or ethnic group?

Statistical Analysis

Descriptive and bivariate analyses were conducted to examine the distribution of adverse childhood experiences and sociodemographic variables, as well as depression and/or anxiety, across the independent variables. Logistic regression analysis was performed to assess the magnitude and direction of adverse childhood experiences on depression and/or anxiety. Collinearity diagnostics were performed to ensure the adverse childhood experience variables in particular were not associated among themselves and other sociodemographic variables. We used Stata software version 14.2 (Statacorp, 2015) to perform the analyses, and all analyses were weighted to account for the complex design of the survey.

Results

Table 1 shows the distribution of sample characteristics, depression and/or anxiety, and the nine adverse childhood experiences. We found that 6% of the children have been diagnosed with either depression or anxiety or both. Approximately 1% had only depression, and 3.7% experienced only anxiety. The majority of children (63.4%) came from a two-biological parent household, while 19.6% lived with a single mother. Male and female children were almost

Table 1.
Distribution of Sample Characteristics, Anxiety/Depression,
and Adverse Childhood Experiences

	Unweighted <i>n</i> (Weighted %)
Race/ethnicity	
Hispanic	4,293 (24.3)
White, non-Hispanic	19,455 (51.3)
Black, non-Hispanic	2,987 (14.1)
Other	3,494 (10.3)
Sex	
Male	15,876 (51.2)
Female	15,154 (48.8)
Poverty level	
0% to 99% FPL	4,699 (22.0)
100% to 199% FPL	5,644 (22.3)
200% to 399% FPL	9,654 (26.8)
400% FPL or greater	11,091 (28.8)
Family structure	
Two biologic parents	21,271 (63.4)
Parent and step-parent	2,316 (10.2)
Single mother, no father	4,801 (19.6)
Other family type	2,268 (6.9)
Depression only	226 (0.9)
Anxiety only	1,335 (3.7)
Depression and/or anxiety	2,058 (6.0)
Experienced economic hardship	
Very often	1,675 (7.3)
Sometimes	4,677 (18.9)
Not very often	9,271 (32.6)
Never	14,808 (41.3)
Lived with a parent who divorced/separated	5,978 (22.2)
Lived with a parent who died	946 (3.0)
Lived with a parent who served time in jail/prison	2,082 (8.2)
Saw or heard parents/other adults slap/hit/kick/punch/beat	1,985 (7.9)
Was a victim or witnessed violence in his/her neighborhood	2,251 (8.7)
Lived with someone who was mentally ill/suicidal/depressed	2,783 (8.4)
Lived with someone who had a problem with drugs/alcohol	3,377 (11.6)
Was unfairly treated/judged due to his/her race/ethnic group	1,165 (4.1)

Note. Results derived from an analysis of the 2011-2012 *National Survey of Children's Health* (Centers for Disease Control and Prevention, 2013).

equally represented in the sample (51.2% and 48.8%, respectively). Most of the children were White non-Hispanic (51.30%), followed by Hispanic (24.30%), Black non-Hispanic (14.10%), and Other (10.30%). A large percentage of children (44.3%) lived in households at or below 199% of the FPL.

Regarding adverse childhood experiences, 26.1% of the children's families reported it was hard to afford basic life necessities. Also, 22.2% of the children lived with a parent who separated or divorced after the child were born. Although the majority of the sample (97%) had not lived with a parent or guardian who died, 8.2% of the children lived with parents who served in jail or prison. Almost 8% of children witnessed parent/adult physical abuse, while about 9% were victims of violence or witnessed neighborhood violence. Further, 8.4% of these children lived with someone who had a mental health condition for more than two weeks, and 11.6% of children lived with parents who had abused alcohol or drugs. The majority of children (95.9%) did not experience racial/ethnic discrimination.

Findings related to bivariate and logistic regression analyses for depression and/or anxiety are shown in Table 2. These findings show that White non-Hispanic children were 2.48 (1.63 to 3.76) times more likely to experience depression and/or anxiety compared to Hispanic children, while male children were almost twice as likely to have depression and/or anxiety as their female counterparts. Children living in households at or less than 99% FPL and those at least 400% FPL were 40% to 46% times more likely to have depression and/or anxiety compared to children from households with income levels between 200% and 399% FPL.

Analysis of adverse childhood experience factors indicated that children whose families "very often" and "sometimes" had difficulty affording basics, such as food or housing, were 3.25 (2.26 to 4.68) and 1.79 (1.32 to 2.43) times more likely, respectively, to have depression and/or anxiety compared to children whose families "never" had difficulties affording basic necessities. Children who had lived with a parent or guardian who died were at higher risk (OR = 1.75, 95% CI = 1.13 to 2.70) for depression and/or anxiety compared to children who never lived with a parent or guardian

who died. The likelihood of depression and/or anxiety was also higher among children who experienced or witnessed any violence in their neighborhoods (OR = 2.33, 95% CI = 1.63 to 3.04) or were ever treated or judged unfairly because of race or ethnicity (OR = 1.80, 95% CI = 1.17 to 2.78). Further, children who had lived with anyone with mental illness for more than a couple of weeks were almost 3.0 (2.05 to 3.94) times more likely to have depression and/or anxiety compared to children who never lived in a similar situation.

Discussion

The unique contribution of this analysis is that it elucidates and quantifies the effect of a set of adverse childhood experiences on depression and/or anxiety in a nationally representative sample of 6- to 11-year old children. We found that approximately 1% of the sample were diagnosed with depression (not anxiety), and 3.7% were diagnosed with anxiety (not depression), with a combined depression and/or anxiety incidence of 6%. Although in this study, depression was slightly lower than estimates reported from a decade ago (depression at 1.4%) in 6- to 11-year-old children, anxiety was considerable higher relative to 2.9% from estimates reported about 10 years ago (Perou et al, 2013). Increases in depression and anxiety within younger children in particular are concerning given their deleterious long-term effects on these children's well-being in adolescence and adulthood. It also creates a substantial public health problem within the context of limited mental health programs and resources.

Further, findings of the present study that primary school-aged children are at risk for depression and/or anxiety when exposed to adverse childhood experiences are consistent with and extend previous research that has examined the effects adverse childhood experiences on mental health in the aggregate for U.S. children 2 to 17 years old or adolescents 12 to 17 years old (Balistreri & Alvira-Hammond, 2016; Bennett et al., 2012; Butler et al., 2012). Particularly important contributing factors to depression and/or anxiety for 6- to 11-year-old children include economic hardships, being victims of or exposed to violence, living with someone who is mentally ill, and being treated unfairly because of their race/ethnicity. Exposure to violence and living with adults who have

mental health problems have been associated in prior research with poor health and emotional problems in children (Balisteri & Hammond, 2015; Bennett et al., 2012; Butler et al., 2012). For example, poor parental mental health increased the prevalence of mental health conditions in children 2 to 17 years old (Bennett et al., 2012). Low neighborhood support and poor physical qualities have also been associated with higher depression and/or anxiety in children 6 to 17 years old (Butler et al., 2012). Research evidence shows that stress may alter hormone activity in children (Shonkoff & Garner 2012) that can trigger emotional distress (Sacks, Murphey, & Moore, 2014), leading to mental disorders, such as depression and anxiety.

Sociodemographic factors were associated with depression and/or anxiety. In our sample of 6- to 11-year-old children, boys were almost twice as likely as girls to be diagnosed with these disorders. This finding is not consistent with previous research that has focused on adolescents (13 to 17 years old). For example, Kessler, Petukhova, Sampson, Zaslavsky and Wittchen (2012) found that females are at higher risk for anxiety and depressive disorders compared to their male counterparts. This finding emphasizes the need for more research in younger populations of children for depression and anxiety. Further, our study shows that White (non-Hispanic) children have the highest level of depression and/or anxiety, over twice the level for Hispanic children. This is surprising given that the minority children are more likely to be exposed to adverse childhood experiences, such as racial/ethnic discrimination, living in neighborhoods where violence occurs, or being in families unable to meet their food and shelter needs (Priest et al., 2013). This finding may indicate that Hispanic children are more resilient to adverse childhood experiences than White children. It could also mean their parents underreport depression and/or anxiety due to cultural fears of stigmatization or that Hispanic children lack access to the services that identify and treat children at risk, leading to underestimation of depression or anxiety in this group. Similarly, we found that families at the highest income level, presumably with the most resources to avoid adverse childhood experiences, were almost as likely to be affected by adverse childhood experience-associat-

Table 2.
Weighted Distribution of Depression and/or Anxiety and Odds Ratios
(95% Confidence Intervals) for Depression and/or Anxiety

	Depression and/or Anxiety			
	No %	Yes %	Odds Ratio (95% CI)	p-Value
Race/ethnicity				
Hispanic	96.3	3.7	Reference	
White, non-Hispanic	92.2	7.7	2.48 (1.63 to 3.76)	0.000
Black, non-Hispanic	95.2	4.8	1.10 (0.67 to 1.81)	0.695
Other	94.7	5.3	1.36 (0.87 to 2.14)	0.182
Sex				
Male	92.7	7.3	1.67 (1.35 to 2.07)	0.000
Female	95.3	4.7	Reference	
Poverty level				
0% to 99% FPL	92.0	8.0	1.46 (1.02 to 2.10)	0.041
100% to 199% FPL	93.2	6.8	1.27 (0.90 to 1.80)	0.176
200% to 399% FPL	95.1	4.9	Reference	
400% FPL or greater	95.0	5.0	1.40 (1.06 to 1.85)	0.017
Family structure				
Two biologic parents	95.5	4.5	Reference	
Parent and step-parent	89.8	10.2	1.26 (0.84 to 1.90)	0.270
Single mother, no father	91.8	8.2	1.035 (0.75 to 1.42)	0.832
Other family type	92.3	7.7	0.92 (0.62 to 1.37)	0.688
Experienced economic hardship				
Very often	83.8	16.2	3.25 (2.26 to 4.68)	0.000
Sometimes	91.3	8.7	1.79 (1.32 to 2.43)	0.000
Not very often	95.2	4.8	1.14 (0.88 to 1.49)	0.329
Never	96.0	4.0	Reference	
Lived with a parent who divorced/separated				
No	95.3	4.7	Reference	
Yes	89.2	10.8	1.35 (0.993 to 1.85)	0.056
Lived with a parent who died				
No	94.2	5.8	Reference	
Yes	86.9	13.1	1.75 (1.13 to 2.70)	0.012
Lived with a parent who served time in jail/prison				
No	94.5	5.5	Reference	
Yes	88.2	11.8	1.01 (0.70 to 1.45)	0.949

continued on next page

Table 2. (continued)
Weighted Distribution of Depression and/or Anxiety and Odds Ratios
(95% Confidence Intervals) for Depression and/or Anxiety

	Depression and/or Anxiety			
	No %	Yes %	Odds Ratio (95% CI)	p-Value
Saw or heard parents/other adults slap/hit/kick/punch/beat			Reference	
No	94.7	5.3	1.19 (0.84 to 1.68)	0.332
Yes	85.2	14.8		
Was a victim or witnessed violence in his/her neighborhood				
No	95.0	5.0	Reference	
Yes	82.6	17.4	2.23 (1.63 to 3.04)	0.000
Lived with someone who was mentally ill/suicidal/depressed				
No	95.2	4.8	Reference	
Yes	80.2	19.8	2.84 (2.05 to 3.94)	0.000
Lived with someone who had a problem with drugs or alcohol				
No	94.8	5.2	Reference	
Yes	87.1	12.9	0.96 (0.68 - 1.35)	0.815
Was unfairly treated/judged due to his/her race/ethnic group				
No	94.2	5.8	Reference	
Yes	87.6	12.4	1.80 (1.17 - 2.78)	0.008

Note: Results derived from an analysis of the 2011-2012 National Survey of Children's Health (Centers for Disease Control and Prevention, 2013).

ed depression and/or anxiety as children whose families were at the lowest income level. Future research should address potential differential effects of adverse childhood experiences on depression and/or anxiety by race/ethnicity for different age groups.

Limitations

This study has several limitations. Because it is a cross-sectional survey, it is not possible to longitudinally examine the effects adverse childhood experiences have on depression and/or anxiety, or to infer causal relationships between adverse childhood experiences or mental health outcomes. Longitudinal data could enable examination of how one set of adverse childhood experiences may influence other adverse childhood experiences (e.g., divorce earlier in childhood may influence economic hardship) based on their onset and

frequency in children's lives. Knowing the onset and duration of adverse childhood experiences in a child's life may be useful in accurately measuring the effects of these adverse events on children's mental health.

Another limitation is that adverse childhood experiences may be under-reported given they are recounted by parents/guardians and are socially undesirable events. Finally, the NSCH includes only diagnosed depression and anxiety disorders, presumably excluding children who could be depressed and anxious, but who have not had access to or been evaluated by a mental health provider.

Practice Implications

The prevalence of adverse childhood experience exposure and depression and/or anxiety among primary school-aged children has implications

for pediatric nurses, including those in acute care, in community-based settings, and for school nurses serving in primary schools. Pediatric nurses can modify (Al-Yateem & Rossiter, 2017) the trajectory of adverse childhood experience exposure and concomitant depression and/or anxiety, as well as other adult mental health and physical morbidities, through prevention, assessment, intervention, and advocacy efforts.

Prevention

Pediatric nurses can provide anticipatory guidance to parents and other caregivers about how to prevent adverse childhood experience exposure by seeking safe physical and emotional environments for their children or by seeking counseling for themselves if they are suffering from mental health or substance abuse problems. Pediatric nurses can also advise parents

Instructions For Continuing Nursing Education Contact Hours

Influence of Adverse Childhood Experiences on Anxiety and Depression in Children Aged 6 to 11 Years

Deadline for Submission: December 31, 2020

PED 1806

To Obtain CNE Contact Hours

1. To obtain CNE contact hours, you must read the article and complete the evaluation through the *Pediatric Nursing* website at www.pediatricnursing.net/ce
2. Evaluations must be completed **online** by December 31, 2020. Upon completion of the evaluation, your CNE certificate for 1.4 contact hour(s) will be mailed to you.

Learning Outcome

After completing this education activity, the learner will be able to identify the implications for pediatric nurses in helping to alleviate long term effects of adverse childhood experiences exposure.

Learning Engagement Activity

Download and review:

Based on the results of the NSCH, identify the skills set necessary for the pediatric nurse to assess a child's exposure to adverse childhood experiences.

Centers for Disease Control and Prevention. (2013). *National survey of children's health*. Retrieved from <http://www.cdc.gov/nchs/slraits/nsch.htm>

The author(s), editor, editorial board, content reviewers, and education director reported no actual or potential conflict of interest in relation to this continuing nursing education article.

This educational activity is provided by Anthony J. Jannetti, Inc.

Anthony J. Jannetti, Inc. is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

Anthony J. Jannetti, Inc. is a provider approved by the California Board of Registered Nursing, provider number CEP 5387.

Licenses in the state of California must retain this certificate for four years after the CNE activity is completed.

This article was reviewed and formatted for contact hour credit by Michele Boyd, MSN, RN-BC, Anthony J. Jannetti, Inc. Education Director.

Fees — *Subscriber: FREE Regular: \$20*

that they can help their children overcome the toxic stress of adverse experiences by "being there;" providing love, caring, and support as soon as possible after such events; and not leaving children alone to cope with their emotions and fears. Parents can help their children cope with empathetic listening and by role-modeling constructive coping and resilience mechanisms (Garner & Shonkoff, 2012). When nurses encounter families whose children are at risk for adverse childhood experiences (e.g., families living below the poverty line in violent neighborhoods or parents who have not had good parental models themselves), the family can be referred to programs, such as Healthy Start, the Comprehensive Child Development Program, or the Nurse-Family Partnership Program, which enable parents to adopt positive parenting techniques (Arruabarrena & De Paúl, 2012; Garner & Shonkoff, 2012). Pediatric nurses are positioned to provide care coordination by referring parents to federal programs, such as Special Needs Assistance Programs (SNAPS) for housing needs and Supplemental Nutrition Assistance Program (SNAP) for food insecurities.

Identification

Early identification enables early intervention. Children should be screened for both adverse childhood experience exposure, and for symptoms of anxiety and depression with instruments designed for the children themselves as well as for their parents. Each well child visit should follow the guidelines set forth by *Bright Futures* (AAP, 2017). The children in this age group, referred to as middle childhood, are in a transitional period where they are building the skills required to cope with stressors. Although the *Bright Futures* guidelines for middle childhood do not include a formal tool for screening for depression, a priority for middle childhood children includes addressing the social determinants of health, mental health, school, and safety.

Screening tools have been developed for older children and adults, but screening tools for children age 6 to 11 years need further development and validation (AAP, 2014). However, the NSCH itself includes sensitive and well-tested parental questions about exposure to many adverse childhood experiences, though not all of them

(CDC, 2013). For instance, pediatric nurses could ask the questions about adverse childhood experience exposure identified earlier in the *Measures* section of this article. They could supplement these with additional questions about adverse childhood experiences not investigated with the NSCH, such as questions addressing child abuse/neglect, natural disasters, and traumatic medical events. Finally, the lack of child-friendly screening tools for adverse childhood experience exposure beckons nurse researchers to develop such instruments.

Intervention

Pediatric nurses may be the first to suspect a child has adverse childhood experience-associated depression and/or anxiety. These nurses can alert the child's pediatrician or make referrals to mental health service programs. They can also make referrals to their organization's social workers or to community-based programs, such as the Big Brother/Big Sister programs. Pediatric nurses can also learn how to best promote resilience in these children. The AAP and other organizations identify strategies that nurses can use, such as promoting the 7Cs of

Resilience (competence, confidence, connectedness, character, contribution, coping, and control) or providing Trauma-Informed Care (Garner & Shonkoff, 2012; Winfrey, 2018). Nurses can then educate parents, teachers, coaches, and child care providers on how they can be most helpful to these children. Nurses can also use their empathic listening skills and their knowledge about how to build resilience to directly provide the care these children need. Most importantly, nurses can take steps to prevent current hospitalizations and medical procedures from being traumatic for children with sensitive nursing interventions (Al-Yateem & Rossiter, 2017).

Advocacy

Findings also emphasize the need for public health policy and prevention programs that focus on family and community health and well-being. Pediatric nurses can advocate within their organizations, local schools, and communities for strategies that promote child safety and environments that help children thrive, shielded from experiences that are detrimental to children's health and well-being throughout their entire lives. Finally, nurses can advocate for allocating resources for developing mental health programs and treatments as public health measures.

Conclusion

When young children's sense of safety and security is threatened or destroyed by traumatic events, such as natural disasters, parental separation, violence, or other adverse events, children can be left with deep emotional wounds that affect their mental health. In this secondary data analysis of the NSCH, the prevalence of diagnosed anxiety and depression in children 6 to 11 years old exposed to adverse childhood experiences is 6%. Many children exposed to these events may not have been adequately assessed by a pediatric provider skilled in mental health assessment. The prevalence of undiagnosed anxiety and depression could be much higher.

Resulting from exposure to adverse childhood experiences, anxiety and depression are associated with a lifetime of mental, behavioral, and physical problems. Compared to children who have not suffered from such problems, children who have experienced adverse events have lower levels

of school/social success and higher levels of morbidity and early mortality throughout their lifespans. Pediatric nurses can help mitigate these problems with interventions that help prevent adverse childhood experience exposure, especially with parental anticipatory guidance. Nurses can also alleviate adverse childhood experience effects by identifying children who have been exposed to such adverse events. They can then institute interventions and referrals that help promote children's health and well-being. Assessing a child's exposure to adverse childhood experiences should be a key element of the nurse's assessment of children. ■

References

- Al-Yateem, N., & Rossiter, R.C. (2017). Unstructured play for anxiety in pediatric inpatient care: *Journal for Specialists in Pediatric Nursing*, 22(1), e12166. doi:10.1111/jspn.12166
- American Academy of Pediatrics (AAP). (2014). *Addressing adverse childhood experiences and other types of trauma in the primary care setting*. Retrieved from https://www.aap.org/en-us/Documents/ttb_addressing_aces.pdf
- American Academy of Pediatrics (AAP). (2017). *Bright futures: Guidelines for health supervision of infants, children and adolescents* (4th ed.). Itasca IL: Author.
- Arruabarrena, I., & De Paúl, J. (2012). Improving accuracy and consistency in child maltreatment severity assessment in child protection services in Spain: New set of criteria to help caseworkers in substantiation. *Children and Youth Services Review*, 34(4), 666-674.
- Avanci, J., Assis, S., Oliveira, R., & Pires, T. (2012). Childhood depression. Exploring the association between family violence and other psychosocial factors in low-income Brazilian schoolchildren. *Child and Adolescent Psychiatry and Mental Health*, 6(1), 26.
- Balistreri, K.S., & Alvira-Hammond, M. (2016). Adverse childhood experiences, family functioning and adolescent health and emotional well-being. *Public Health*, 132, 72-78. doi:10.1016/j.puhe.2015.10.034
- Barber, B.A., Kohl, K.L., Kassam-Adams, N., & Gold, J.I. (2014). Acute stress, depression, and anxiety symptoms among English and Spanish speaking children with recent trauma exposure. *Journal of Clinical Psychology in Medical Settings*, 21(1), 66-71. doi:10.1007/s10880-013-9382-z
- Bennett, A.C., Brewer, K.C., & Rankin, K.M. (2012). The association of child mental health conditions and parent mental health status among U.S. children, 2007. *Maternal & Child Health Journal*, 16(6), 1266-1275. doi:10.1007/s10995-011-0888-4
- Bhatta, S., Champion, J.D., Young, C., & Loika, E. (2018). Outcomes of depression screening among adolescents accessing school-based pediatric primary care clinic services. *Journal of Pediatric Nursing*, 38, 8-14.
- Blair, F., McFarlane, J., Nava, A., Gilroy, H., & Maddoux, J. (2015). Child witness to domestic abuse: Baseline data analysis for a seven-year prospective study. *Pediatric Nursing*, 41(1), 23-29.
- Butler, A.M., Kowalkowski, M., Jones, H.A., & Raphael, J.L. (2012). The relationship of reported neighborhood conditions with child mental health. *Academic Pediatrics*, 12(6), 523-531.
- Campbell, J.A., Walker, R.J., & Egede, L.E. (2016). Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. *American Journal of Preventive Medicine*, 50(3), 344-352. doi:10.1016/j.amepre.2015.07.022
- Centers for Disease Control and Prevention. (2013). *National survey of children's health*. Retrieved from <http://www.cdc.gov/nchs/slats/nsch.htm>
- Cooke, C.L., Bowie, B.H., & Carrère, S. (2014). Perceived discrimination and children's mental health symptoms: *Advances in Nursing Science*, 37(4), 299-314. <https://doi.org/10.1097/ANS.0000000000000047>
- Garner, A.S., & Shonkoff, J.P. (2012). Early childhood adversity, toxic stress, and the role of the pediatrician: Translating developmental science into lifelong health. *Pediatrics*, 129(1), e224-e231. doi:10.1542/peds.2011-2662
- Gjelsvik, A., Dumont, D.M., Nunn, A., & Rosen, D.L. (2014). Adverse childhood events: Incarceration of household members and health-related quality of life in adulthood. *Journal of Health Care for the Poor and Underserved*, 25(3), 1169-1182. doi:10.1353/hpu.2014.0112
- Harris, N.B. (2018, February 26). *Opinion: Too many children with toxic stress are being misdiagnosed*. Retrieved from <https://www.pbs.org/newshour/health/opinion-too-many-children-with-toxic-stress-are-being-misdiagnosed>
- Kessler, R.C., Petukhova, M., Sampson, N.A., Zaslavsky, A.M., & Wittchen, H.U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21(3), 169-184. doi:10.1002/mpr.1359
- Larson, K., & Halfon, N. (2013). Parental divorce and adult longevity. *International Journal of Public Health*, 58(1), 89-97. doi:10.1007/s00038-012-0373-x
- Lavoie, J., Pereira, L.C., & Talwar, V. (2016). Children's physical resilience outcomes: Meta-analysis of vulnerability and protective factors. *Journal of Pediatric Nursing*, 31(6), 701-711. doi:10.1016/j.pedn.2016.07.011
- Lewis, G., Rice, F., Harold, G.T., Collishaw, S., & Thapar, A. (2011). Investigating environmental links between parent depression and child depressive/anxiety

continued on page 287

Anxiety and Depression in Children

continued from page 274

- symptoms using an assisted conception design. *Journal of the American Academy of Child & Adolescent Psychiatry*, 50(5), 451-459.
- Mendes, A.V., Loureiro, S.R., Crippa, J.A., de Meneses Gaya, C., Garcia-Esteve, L., & Martin-Santos, R. (2012). Mothers with depression, school-age children with depression? A systematic review. *Perspectives in Psychiatric Care*, 48(3), 138-148. doi:10.1111/j.1744-6163.2011.00318.x
- Merrick, M.T., Ports, K.A., Ford, D.C., Afifi, T.O., Gershoff, E.T., & Grogan-Kaylor, A. (2017). Unpacking the impact of adverse childhood experiences on adult mental health. *Child Abuse & Neglect*, 69, 10-19.
- Perou, R., Bitsko, R.H., Blumberg, S.J., Pastor, P., Ghandour, R.M., Gfroerer, J.C., ... Parks, S.E. (2013). Mental health surveillance among children – United States, 2005-2011. *MMWR Surveillance Summaries*, 62(Suppl. 2), 1-35.
- Priest, N., Paradies, Y., Trener, B., Truong, M., Karlsen, S., & Kelly, Y. (2013). A systematic review of studies examining the relationship between reported racism and health and wellbeing for children and young people. *Social Science & Medicine*, 95, 115-127. doi:10.1016/j.socscimed.2012.11.031
- Quinn, M., Gollooly, D., Kelly, S., Kolassa, J., Davis, E., & Jankowski, S. (2016). Evaluation of identified stressors in children and adolescents after Super Storm Sandy. *Pediatric Nursing*, 42(5), 235-241.
- Reid, K. (2015). The relationship between parents' poor emotional health status and childhood mood and anxiety disorder in Florida children, National Survey of Children's Health, 2011-2012. *Maternal & Child Health Journal*, 19(5), 1071-1077. doi:10.1007/s10995-014-1607-8
- Remigio-Baker, R.A., Hayes, D.K., & Reyes-Salvail, F. (2015). Adverse childhood events are related to the prevalence of asthma and chronic obstructive pulmonary disorder among adult women in Hawaii. *Lung*, 193(6), 885-891. doi:10.1007/s00408-015-9777-8
- Sacks, V., Murphey, D., & Moore, K. (2014). Adverse childhood experiences: National and state-level prevalence. *Child Trends*. Retrieved from https://www.childtrends.org/wp-content/uploads/2014/07/Brief-adverse-childhood-experiences_FINAL.pdf
- Sareen, J., Henriksen, C.A., Bolton, S.L., Afifi, T.O., Stein, M.B., & Asmundson, G.J. (2013). Adverse childhood experiences in relation to mood and anxiety disorders in a population-based sample of active military personnel. *Psychological Medicine*, 43(1), 73-84. doi:10.1017/S003329171200102X
- Shonkoff, J.P., & Garner, A.S. (2012). The life-long effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232-e246.
- StataCorp. (2015). *Stata statistical software: Release 14*. College Station, TX: Author.
- Tufts University. (2017). *Resources: Social science data and statistics*. Retrieved from <http://researchguides.library.tufts.edu/c.php?g=249153&p=2520001>
- Winfrey, O. (2018, March 11). Treating childhood trauma. *60 Minutes*. Retrieved from <https://www.cbsnews.com/news/oprah-winfrey-treating-childhood-trauma/>