Suicide in Elementary School-Aged Children and Early Adolescents

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abstract

BACKGROUND AND OBJECTIVES: Suicide in elementary school–aged children is not well studied, despite a recent increase in the suicide rate among US black children. The objectives of this study were to describe characteristics and precipitating circumstances of suicide in elementary school–aged children relative to early adolescent decedents and identify potential within-group racial differences.

METHODS: We analyzed National Violent Death Reporting System (NVDRS) surveillance data capturing suicide deaths from 2003 to 2012 for 17 US states. Participants included all suicide decedents aged 5 to 14 years (N = 693). Age group comparisons (5–11 years and 12–14 years) were conducted by using the χ^2 test or Fisher's exact test, as appropriate.

RESULTS: Compared with early adolescents who died by suicide, children who died by suicide were more commonly male, black, died by hanging/strangulation/suffocation, and died at home. Children who died by suicide more often experienced relationship problems with family members/friends (60.3% vs 46.0%; P = .02) and less often experienced boyfriend/girlfriend problems (0% vs 16.0%; P < .001) or left a suicide note (7.7% vs 30.2%; P < .001). Among suicide decedents with known mental health problems (n = 210), childhood decedents more often experienced attention-deficit disorder with or without hyperactivity (59.3% vs 29.0%; P = .002) and less often experienced depression/dysthymia (33.3% vs 65.6%; P = .001) compared with early adolescent decedents.

CONCLUSIONS: These findings raise questions about impulsive responding to psychosocial adversity in younger suicide decedents, and they suggest a need for both common and developmentally-specific suicide prevention strategies during the elementary school–aged and early adolescent years. Further research should investigate factors associated with the recent increase in suicide rates among black children.

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WHAT'S KNOWN ON THIS SUBJECT: Suicide is a leading cause of death in US elementary school–aged children, and the suicide rate in black school-aged children has increased in recent years. However, little is known about the factors precipitating suicide in this age group.

WHAT THIS STUDY ADDS: This study found both differences and similarities in individual characteristics and precipitating circumstances among children and early adolescents who died by suicide. Findings support a need for both common and developmentally-specific suicide prevention strategies.

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Suicide in elementary school–aged children is rare. The most recent national mortality statistics from the Centers for Disease Control and Prevention reveal a suicide rate of 0.17 per 100 000 persons in youth between the ages of 5 and 11 years, in contrast to a rate of 5.18 per 100 000 among adolescents aged 12 to 17 years.[1] Nevertheless, suicide ranked 10th as a cause of death for US elementary school–aged children in 2014.[2] While our understanding of suicide in children remains limited, a recent analysis of suicide trends in US children (ages 5–11 years between 1993–1997 and 2008–2012) found a significant increase in the suicide rate among black children and a significant decrease for white children.[3] Given consistent observations that suicide rates for adolescents and young adults are higher in white subjects than in black subjects,[1,4–8] this report of a higher rate of suicide in elementary school–aged black children raises questions about whether there are important racial and developmental differences in the underpinnings of suicide between elementary school–aged children and older youth.

Research on precipitating circumstances of suicide in young people derives primarily from studies of adolescents or combined adolescent and young adult samples.[6,9–16] The few studies that have included elementary school–aged suicide decedents are limited by small sample sizes in this age range.[9,13,17–20] One recent study examined precipitating circumstances in a larger sample of youth suicide decedents aged 10 to 17 years, as reported in the National Violent Death Reporting System (NVDRS) between 2005 and 2008[5]; however, children aged 5 to 9 years were not included, and no comparisons according to age group were presented.

Previous studies have examined characteristics of suicide in "older" and "younger" adolescents.[6,9,13,17–21] Although the classification into older and younger age categories has differed across studies (eg, <15 or 16 years depending on study definition versus ≥15 or 16 years), age group differences for individual characteristics and precipitating circumstances associated with adolescent suicide have been found.[6,13,17–20] These factors include lower rates of psychopathology,[6,13,21] lower suicidal intent,[6,9,12,19,21] and less cognitive ability to plan and execute a fatal suicide attempt,[6,12] suggesting that although suicide rates are lower in younger adolescents compared with older adolescents, impulsive responding may play a more prominent role in suicide for the younger population.[4,7] Because the biological, cognitive, and social characteristics of elementary school–aged children are evolving and continue to develop in adolescence,[22–27] the individual characteristics and circumstances found to precede suicide in adolescents may not fully generalize to elementary school–aged children.

The current study compares individual characteristics and precipitating circumstances of suicide in elementary school–aged children to those of early adolescent suicide decedents and describes potential racial differences within age groups by using data obtained from the NVDRS. Improved understanding of factors precipitating suicide in elementary school–aged children could help frame future prevention efforts targeting this population.

METHODS

The NVDRS is a state-based surveillance system that collects data on all violent deaths; it has multiple sources, including medical examiners, coroners, law enforcement, crime laboratories, and death certificates.[28] We obtained data between 2003 and 2012 from the NVDRS on all youth aged 5 to 14 years whose manner of death was suicide. Suicide is defined in the NVDRS as a death resulting from the use of force against oneself when a collection of evidence indicates that the use of force was intentional.[29] Precipitating circumstances of suicide collected in the NVDRS relate to mental health history and treatment status, substance use and abuse, physical health history, relationship problems, school problems, legal problems, other stressful life events (eg, victim of interpersonal violence), and suicide-related circumstances (eg, disclosed intent to die by suicide, history of suicide attempts). Given developmental considerations of very young children, suicide is never coded as a cause of death for children ≤4 years.[1] Therefore, the lower age limit in this study was 5 years; the upper age limit of 14 years marks the end of early adolescence.[30] Thirty-two states currently participate in the NVDRS. However, restricted-use data were only available from 17 states: Alaska, Maryland, Massachusetts, New Jersey, Oregon, South Carolina, and Virginia (2003–2012); Colorado, Georgia, Oklahoma, North Carolina, Rhode Island, and Wisconsin (2004–2012); Kentucky, New Mexico, and Utah (2005–2012); and Ohio (2010–2012). This study was considered exempt according to the review policy of The Research Institute at Nationwide Children's Hospital Institutional Review Board.

Comparisons were made on the basis of age group (5–11 years and 12–14 years) and race (black and non-black) within age strata. The non-black group represented all other races because the numbers were too small to allow for meaningful comparisons across specific racial subgroups. Other comparison variables included the following: demographic characteristics, time/place of injury, suicide method, precipitating circumstances (eg, recent life stressors), toxicology findings,

mental health diagnoses, alcohol/other substance abuse problems, and history of mental health treatment.

Categorical data were compared between the groups by using the χ^2 statistic or, when a zero cell or any cell with an expected value <5 was present, Fisher's exact test. Statistical significance was set at $P < .05$. All statistical analyses were performed with SPSS version 21 (IBM SPSS Statistics, IBM Corporation, Armonk, NY).

RESULTS

There were 699 suicides for youth aged 5 to14 years identified in the NVDRS during the study period. The underlying cause of death for 62 incidents was either missing ($n = 41$) or not coded as suicide based on the *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision* (X60-X84, Y87.0, and U03; $n = 21$).[1] These 62 incidents were reviewed by 2 authors (A.H.S., J.A.B.); 6 cases were found to be misclassified as suicide and were excluded, leaving 693 cases of suicide (87 children [aged 5–11 years] and 606 early adolescents [aged 12–14 years]) for analysis.

Relative to early adolescents who died by suicide, children who died by suicide were more commonly male, black, died by hanging/strangulation/suffocation, died at home, and experienced relationship problems with family members and friends (Table 1). Childhood decedents were also less likely to leave a suicide note, be depressed, or experience boyfriend/girlfriend problems compared with early adolescents who died by suicide (Tables 1 and 2). An identical percentage of childhood and early adolescent decedents (29%) disclosed suicide intent to another person before death.

Although a current mental health problem was observed in approximately one-third of all suicide decedents in the sample, there were no age group differences in rates of current mental health problems or mental health treatment (Table 2). Among decedents with a current mental health problem, a diagnosis of attention-deficit disorder/attention-deficit hyperactivity disorder (ADD/ADHD) was more common in children who died by suicide compared with early adolescents who died by suicide (59.3% vs 29.0%; $P = .0002$), whereas depression/dysthymia was more common among early adolescents who died by suicide compared with children who died by suicide (65.6% vs 33.3%; $P = .0001$).

Rates of alcohol or substance abuse problems and the presence of alcohol or illicit drugs at the time of death were generally low and did not differ significantly between groups. However, 3.9% and 7.5% of children and early adolescents, respectively, who died by suicide tested positive for opiates, rates higher than alcohol and other substances.

When stratified according to age group (Table 3), black children who died by suicide were more likely to die by hanging/strangulation/suffocation compared to non-black children. For early adolescents who died by suicide, black adolescents were also more likely to die by hanging/strangulation/suffocation but had lower rates of boyfriend/girlfriend problems, and they were less likely to leave a suicide note compared to non-black early adolescents who died by suicide.

DISCUSSION

This multistate study of elementary school–aged children and early adolescents who died by suicide suggests that some individual characteristics and precipitating circumstances may be more prominent in children who died by suicide relative to young adolescent suicide decedents. Consistent with previous research,[4–7,9,12,13,19] most suicide deaths in both age groups occurred in male subjects and at the decedent's residence. Notably, when comparing the individual characteristics and circumstances of childhood and early adolescent suicide decedents, children who died by suicide were more likely to be male, black, die by hanging/strangulation/suffocation, have problems with family or friends, and were less likely to leave a suicide note and exhibit depressed mood. Among study decedents with known mental health problems, children who died by suicide had higher rates of ADD/ADHD than early adolescent decedents, suggesting that they may have been more vulnerable as a group to respond impulsively to interpersonal challenges. In contrast, higher rates of depression were found in early adolescents who died by suicide compared with children who died by suicide. This finding is consistent with earlier research demonstrating depressive psychopathology to be more common in older versus younger adolescent suicide decedents.[6,9,20,21] Although the use of alcohol or illicit drugs before death was relatively rare in both age groups, our finding that 3.9% and 7.5% of child and early adolescent decedents, respectively, tested positive for opiates was nevertheless surprising, troubling, and worthy of attention.

Relationship problems (eg, arguments) were the most common precipitating circumstance observed in both childhood and early adolescent decedents, but the specific types of relationship problems differed along developmental lines. Compared to early adolescents who died by suicide, children who died by suicide were more likely to have relationship problems with family members and friends, whereas boyfriend/girlfriend problems were specific to early adolescents who

TABLE 1 Individual Characteristics and Precipitating Circumstances of Suicide in Children Aged 5 to 11 Years Compared with Early Adolescents Aged 12 to 14 Years in 17 US States, 2003–2012

Characteristic or Precipitating Circumstance	Children (n = 87)		Early Adolescents (n = 606)		P
	No.	%	No.	%	
Sex					.003
Female	13	14.9	184	30.4	
Male	74	85.1	422	69.6	
Race					<.001
Black	32	36.8	70	11.6	
Non-black	55	63.2	536	88.4	
Ethnicity					.89
Non-Hispanic	77	88.5	527	88.0	
Hispanic	10	11.5	72	12.0	
Suicide method					.008
Firearm	12	13.8	178	29.5	
Hanging, strangulation, or suffocation	70	80.5	387	64.1	
Poisoning	3	3.4	29	4.8	
Other methods[a]	2	2.3	10	1.7	
Injury occurred at decedent's residence					.006
No	2	2.3	73	12.3	
Yes	84	97.7	520	87.7	
Time of injury leading to death					.84
12:00–5:59 AM	4	6.8	26	7.4	
6:00–11:59 AM	7	11.9	55	15.8	
12:00–5:59 PM	26	44.1	135	38.7	
6:00–11:59 PM	22	37.3	133	38.1	
Decedent was in public custody when injury occurred					>.99
No	83	98.8	579	98.8	
Yes	1	1.2	7	1.2	
Precipitating circumstances[b]					
Boyfriend/girlfriend problem	0	0	84	16.0	<.001
Other relationship problem[c]	47	60.3	242	46.0	.02
Perpetrator of interpersonal violence	1	1.3	6	1.1	>.99
Victim of interpersonal violence	1	1.3	15	2.9	.71
Recent criminal legal problem	1	1.3	26	4.9	.24
Other legal problem	1	1.3	9	1.7	>.99
Physical health problem	3	3.8	15	2.9	.72
School problem	25	32.1	181	34.4	.68
Recent crisis	30	38.5	191	36.3	.71
Death of friend or family member	2	2.6	26	4.9	.56
Suicide-related circumstances[b]					
History of suicide attempt	8	10.3	80	15.2	.25
Suicide intent disclosed	23	29.5	152	28.9	.92
Presence of a suicide note	6	7.7	159	30.2	<.001
Recent suicide of friend or family member	1	1.3	26	4.9	.24

NVDRS participating states (and years) were as follows: Alaska, Maryland, Massachusetts, New Jersey, Oregon, South Carolina, and Virginia (2003–2012); Colorado, Georgia, Oklahoma, North Carolina, Rhode Island, and Wisconsin (2004–2012); Kentucky, New Mexico, and Utah (2005–2012); and Ohio (2010–2012).

[a] Other suicide methods include fall, transportation-related, drowning, cut/pierce, fire/burn, and unspecified methods.

[b] Precipitating circumstances were known in 78 child decedents and 526 early adolescent decedents; number and percentages are reported.

[c] Suicide deaths related to friction or conflict with friends or family.

died by suicide. These differences are not surprising given that elementary school–aged children are more likely to spend time with family and friends and less likely to engage in romantic relationships, which become more common in early adolescence.[21,24–27]

The current study found that 36.8% of elementary school–aged suicide decedents were black compared with 11.6% of early adolescent decedents. These results are in keeping with our previous report that 36.1% of all suicide deaths in 5- to 11-year-olds between 2003 and 2012 occurred in black children, nearly double the rate reported in the same demographic group between 1993 and 2002 (18.6%).[3] We were especially interested in examining potential racial differences in precipitating circumstances given that black youth may experience disproportionate exposure to violence or traumatic stressors,[31–33] both of which have been associated with suicidal behavior.[4] Also, research has shown that black youth are less likely to receive services for depression, suicidal ideation, and other mental health problems compared with non-black youth.[3,4,34] When potential

TABLE 2 Mental Health and Alcohol/Substance Use Characteristics and Suicide in Children Aged 5 to 11 Years Compared With Early Adolescents Aged 12 to 14 Years Who Died by Suicide in 17 US States, 2003–2012

Characteristic	Children (n = 87)		Early Adolescents (n = 606)		P
	No.	%	No.	%	
Mental health characteristic[a]					
Current mental health problem	27	34.6	183	34.8	.98
Current mental health treatment	18	23.1	141	26.8	.49
History of mental health treatment	27	34.6	168	31.9	.64
Current depressed mood	13	16.7	164	31.2	.009
Mental health diagnoses present in those with a current mental health problem[b]					
Depression/dysthymia	9	33.3	120	65.6	.001
Bipolar disorder	2	7.4	22	12.0	.75
Anxiety disorder	3	11.1	9	4.9	.19
ADD/ADHD	16	59.3	53	29.0	.002
Obsessive-compulsive disorder	1	3.7	2	1.1	.34
Other mental disorder	8	29.6	33	18.0	.16
Alcohol/drug-related precipitating circumstances[a]					
Alcohol problem	0	0	9	1.7	.61
Other substance problem	1	1.3	26	4.9	.24
Presence of alcohol or drugs at time of death					
Alcohol					
Tested	63	84.0	436	85.2	.79
Present (among those tested)	1	1.6	17	3.9	.71
Amphetamine					
Tested	43	57.3	314	62.5	.39
Present (among those tested)	1	2.4	5	1.6	.53
Opiate					
Tested	53	68.8	322	64.3	.44
Present (among those tested)	2	3.9	24	7.5	.56
Marijuana					
Tested	35	46.1	246	49.1	.62
Present (among those tested)	0	0	14	5.7	.39
Cocaine					
Tested	51	67.1	325	64.9	.70
Present (among those tested)[c]	0	0	0	0	NA
Antidepressants					
Tested	44	57.9	270	54.0	.53
Present (among those tested)	5	11.9	35	13.1	.83

NVDRS participating states (and years) were as follows: Alaska, Maryland, Massachusetts, New Jersey, Oregon, South Carolina, and Virginia (2003–2012); Colorado, Georgia, Oklahoma, North Carolina, Rhode Island, and Wisconsin (2004–2012); Kentucky, New Mexico, and Utah (2005–2012); and Ohio (2010–2012). NA, not applicable.

[a] Precipitating circumstances were known in 78 child decedents and 526 early adolescent decedents; number and percentages are reported.

[b] $N_{children} = 27$, $N_{earlyadolescents} = 183$.

[c] None of the youth tested positive for cocaine; no statistical test was conducted.

racial disparities in precipitating circumstances within age group were examined in the current study, few differences were found. Suicide by hanging/strangulation/suffocation was more common among black decedents in both age groups, and black early adolescents who died by suicide were less likely to experience boyfriend/girlfriend problems or leave a suicide note than non-black youth.

Public Health and Clinical Implications

Study findings suggest there are both commonalities and some differences between childhood and early adolescent suicide decedents with regard to individual characteristics and precipitating factors. The finding that circumstances precipitating suicide appear to be similar for black and non-black elementary school–aged children suggests that universal suicide prevention and treatment strategies may be appropriate. However, more research is needed to establish whether unique patterns of suicide risk exist to suggest that prevention efforts might incorporate diverse strategies informed by developmental level, race, or ethnicity.

Taken together with previous studies, there appears to be justification for future research examining whether a developmental progression of vulnerability to suicide exists that is more prominently influenced by impulsive responding in younger children and by depressed mood and emotional distress with increasing age into adolescence and young adulthood. This is not to say that impulsivity is not a relevant vulnerability to suicide across the life span, but rather raises the question

TABLE 3 Individual Characteristics and Precipitating Circumstances of Suicide in Black and Non-Black Decedents Stratified by Age Group in 17 US States, 2003–2012

Characteristic or Precipitating Circumstance	Children (n = 87)					Early Adolescents (n = 606)				
	Black (n = 32)		Non-Black (n = 55)		P	Black (n = 70)		Non-Black (n = 536)		P
	No.	%	No.	%		No.	%	No.	%	
Sex					.36					.84
Female	3	9.4	10	18.2		22	31.4	162	30.2	
Male	29	90.6	45	81.8		48	68.6	374	69.8	
Ethnicity					.01					.01
Non-Hispanic	32	100.0	45	81.8		68	97.1	459	86.8	
Hispanic	0	0	10	18.2		2	2.9	70	13.2	
Suicide method					.03					.002
Firearm	1	3.1	11	20.0		9	13.2	169	31.5	
Hanging, strangulation, or suffocation	30	93.8	40	72.7		56	82.4	331	61.8	
Poisoning and other methods[a]	1	3.1	4	7.3		3	4.4	36	6.7	
Injury occurred at decedent's residence					.14					.19
No	2	6.3	0	0		5	7.4	68	13.0	
Yes	30	93.8	54	100.0		63	92.6	457	87.0	
Precipitating circumstances[b]										
Boyfriend/girlfriend problem[c]	0	0	0	0	NA	4	6.7	80	17.2	.04
Other relationship problem[d]	16	51.6	31	66.0	.21	23	38.3	219	47.0	.21
Perpetrator of interpersonal violence	1	3.2	0	0	.40	1	1.7	5	1.1	.52
Victim of interpersonal violence	0	0	1	2.1	>.99	3	5.0	12	2.6	.40
Recent criminal legal problem	0	0	1	2.1	>.99	2	3.3	24	5.2	.76
Other legal problem	0	0	1	2.1	>.99	0	0	9	1.9	.61
Physical health problem	1	3.2	2	4.3	>.99	0	0	15	3.2	.24
School problem	8	25.8	17	36.2	.34	27	45.0	154	33.0	.07
Recent crisis	15	48.4	15	31.9	.14	23	38.3	168	36.1	.73
Death of friend or family member	2	6.5	0	0	.16	5	8.3	21	4.5	.20
Suicide-related circumstances[b]										
History of suicide attempt	4	12.9	4	8.5	.71	9	15.0	71	15.2	.96
Suicide intent disclosed	9	29.0	14	29.8	.94	12	20.0	140	30.0	.11
Suicide note	2	6.5	4	8.5	>.99	7	11.7	152	32.6	.001
Recent suicide of friend or family member	0	0	1	2.1	>.99	2	3.3	24	5.2	.76
Mental health characteristic[b]										
Current mental health problem	10	32.3	17	36.2	.72	22	36.7	161	34.5	.75
Current mental health treatment	7	22.6	11	23.4	.93	15	25.0	126	27.0	.74
History of mental health treatment	8	25.8	19	40.4	.18	17	28.3	151	32.4	.52
Current depressed mood	5	16.1	8	17.0	.92	19	31.7	145	31.1	.93

NVDRS participating states (and years) were as follows: Alaska, Maryland, Massachusetts, New Jersey, Oregon, South Carolina, and Virginia (2003–2012); Colorado, Georgia, Oklahoma, North Carolina, Rhode Island, and Wisconsin (2004–2012); Kentucky, New Mexico, and Utah (2005–2012); and Ohio (2010–2012). NA, not applicable.

[a] Other suicide methods included fall, transportation-related, drowning, cut/pierce, fire/burn, and unspecified methods.

[b] Precipitating circumstances were known in 31 black and 47 non-black child decedents and in 60 black and 466 non-black early adolescent decedents. Number and percentages are reported; reference group is not present.

[c] No children experienced boyfriend/girlfriend problems, and the test statistic could therefore not be computed.

[d] Suicide deaths related to friction or conflict with friends or family.

as to whether impulsive responding may be a more relevant vulnerability to suicide in childhood compared with adolescence, where it remains a marker of risk.[4,7,35,36] Such research could have important implications for suicide prevention efforts in childhood and potentially diminish the relevance of traditional strategies focused primarily on identifying and treating depression as a means of mitigating suicide risk. Relatedly, ADD/ADHD was the most common known mental health disorder in children who died by suicide, raising questions as to whether specific suicide prevention approaches might be productively applied to that diagnostic population.

Because interpersonal problems were found to be a precipitating factor in both child and early adolescent suicide, targeting interpersonal problem-solving skill development and building positive emotional and interpersonal skills early in childhood may be 2 upstream suicide prevention approaches with strong potential to reduce youth suicide rates.[37–39] One intervention program that has been successful in improving emotional and interpersonal skills in school-aged children is the Promoting Alternative Thinking Strategies program (PATHS).[40] The PATHS curriculum provides instruction in topics concerning the expression, understanding, and regulation of emotions. Children in the PATHS program learn to discuss their emotions by using a larger array of words increasing their emotion vocabulary and increase their emotional meta-cognitive skills allowing them to better understand emotional cues expressed by others.[40]

Another promising strategy for communities to consider is the Good Behavior Game, an elementary school–based behavior management intervention that teaches children how to cooperate with each other, self-regulate, and maintain self-control to work toward valued goals.[41] The Good Behavior Game has demonstrated significant reductions in impulsive and inattentive behaviors,[42] as well as long-term effectiveness in reducing risk of suicide attempts in adolescents and young adults who participated in the program in first and second grades.[43]

Finally, suicide intent was disclosed to another person before death with time for intervention in 29% of all suicide decedents. This percentage did not differ between the age groups and was similar to what was reported in the previous Centers for Disease Control and Prevention study that examined precipitating circumstances in youth suicide decedents (29.2%).[5] This finding highlights the importance of educating pediatricians, primary health care providers, families, school personnel, and peers about how to recognize and respond to the warning signs of suicide and to treat all disclosures of suicidal thoughts and behaviors seriously.[7,38,44,45] Parents or trusted adults proactively asking youth directly about suicidal thoughts may invoke important conversations that most likely will not be initiated by children and early adolescents.

Pediatric primary care is an ideal venue for physicians and nurses to ask youth directly about suicidal thoughts and behaviors.[45–48] More than 80% of youth visit their primary care provider at least once annually, and a similar percentage of youth who die by suicide were examined by a health care provider in the year before their death.[49–51] Nevertheless, youth will most likely present with somatic complaints and if not asked directly about suicidal thoughts may not speak of them.[47] Use of suicide risk–screening tools by pediatricians have been found to be associated with a 4-fold increase in detection of suicidal risk in youth, while not overburdening the clinical workflow and amounting to 1 extra mental health referral per week.[52] Implementing universal screening in primary care settings could help capture youth at risk and increase the likelihood of youth receiving mental health services to decrease the probability of engaging in future suicidal behavior. Screening also affords pediatricians the opportunity to alert parents to potential risks and discuss important warning signs.

One program that has shown to be effective in reducing self-reported suicidal behavior in both middle and high school children is the Signs of Suicide prevention program.[53–55] This program raises awareness that suicide is a risk for some mental health disorders, especially depression, and teaches one how to recognize and act when someone is displaying warning signs related to suicidal thoughts and behaviors. Another program recently established by the American Foundation for Suicide Prevention is the Signs Matter: Early Detection program.[56] This online program educates teachers and school staff members from kindergarten through 12th grade on the signs associated with suicide risk, the typical behaviors presented in a school setting for students struggling with mental health problems, and the necessary steps to take if signs are detected.[56] This program is promising and awaits further evaluation of its effectiveness.

Limitations

There are several potential limitations of the present study. First, restricted-use data from the NVDRS were only available for 17 US states and, therefore, findings are not nationally representative. From 2003 to 2012, approximately one-third of all suicide deaths in 5- to 14-year-olds in the United States occurred in these 17 participating states.[1] Second, data about the precipitating circumstances associated with the suicide were

unknown for ~13% of decedents, and testing for the presence of alcohol and drugs was not performed on all decedents. Third, no corrections were made for the multiple comparisons between the age groups, and the lack of significant within-group effects may be due to inadequate statistical power, given that our findings are based on a relatively small number of elementary school–aged suicide decedents. Fourth, although this study included a comparison group of early adolescents, the analyses are uncontrolled, and future research is needed to establish whether certain circumstances and diagnoses are causal risk factors. For example, although the rate of depression was found to be higher in early adolescents than in children who died by suicide, it may be that the rate of depression in a prepubertal control group would be even lower and thus would still be a risk factor for suicide in elementary school–aged children. Finally, the study was limited to an analysis of quantitative data elements. The NVDRS also collects detailed incident narratives from coroner/medical examiner reports and law enforcement reports. A qualitative analysis of NVDRS narrative data are currently underway by our research group in an effort to better understand the personal, familial, and social factors that may contribute to suicide in young people.

CONCLUSIONS

Using NVDRS data, we describe both similarities and differences in characteristics and precipitating circumstances of suicide in elementary school–aged children versus early adolescents, suggesting that both common and differential suicide prevention strategies may be applicable during these distinct developmental periods. Important next steps will be to investigate potential factors (eg, mental health, cultural, environmental) that may have contributed to the recent increase in suicide rates among black elementary school–aged children[3] and identify overall and race-specific predictors of suicide in children younger than 12 years.

ABBREVIATIONS

ADD/ADHD: attention-deficit disorder/attention-deficit hyperactivity disorder
NVDRS: National Violent Death Reporting System
PATHS: Promoting Alternative Thinking Strategies program

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