

Trends and Correlates of Youth Violence-Prevention Program Participation, 2002–2016



Millan A. AbiNader, LCSW,¹ Christopher P. Salas-Wright, PhD,¹ Michael G. Vaughn, PhD,^{2,3} Sehun Oh, MSW, MA,⁴ Dylan B. Jackson, PhD⁵

Introduction: Adolescent participation in violence-prevention programming is critical in addressing the nation's elevated rates of youth fighting and violence. However, little is known about the secular trends and correlates of violence-prevention program participation in the U.S. Using national data, the authors examined the year-by-year trends and correlates of participation among American adolescents over a 15-year span.

Methods: National trend data (2002–2016) were analyzed on non-Hispanic black/African American ($n=35,216$), Hispanic ($n=45,780$), and non-Hispanic white ($n=153,087$) youth aged 12–17 years from the National Survey on Drug Use and Health in 2018. Consistent with the Centers for Disease Control and Prevention's trend analysis guidelines, the authors conducted logistic regression analyses with survey year specified as an independent variable and youth violence-prevention program participation specified as the dependent variable, while controlling for sociodemographic factors and other key correlates.

Results: Youth participation in violence-prevention programs decreased significantly from 16.7% in 2002 to 11.7% in 2016, a 29% relative decrease in participation. A significant declining trend in participation over time was found across all sociodemographic subgroups examined and among youth reporting the use of violence and no use of violence in the past year. Participation among black/African American youth was significantly greater than Hispanic youth who, in turn, had significantly higher participation rates than white youth.

Conclusions: Youth participation in violence-prevention programming has decreased in recent years, with particularly large declines observed among younger adolescents (aged 12–14 years), youth in higher-income households, and youth reporting no past-year use of violence.

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INTRODUCTION

Youth violence is a serious public health concern that impacts the lives of millions of youth and their families across the U.S. Nearly one in four American adolescents is involved each year in fighting and violence,^{1,2} and estimates indicate that the annual cost of youth violence—resulting from productivity losses and medical expenses—is more than \$14 billion.³ Moreover, substantial research has shown that youth violence is related to numerous adverse outcomes, including serious injury, mental health problems, and criminal justice system involvement.^{4,5} Beyond its impact on those directly involved in violence, there is

compelling evidence that youth violence can negatively affect the health of neighborhoods and communities.^{4–6}

However, recent evidence suggests that youth violence is decreasing. Findings from the National Survey on

From the ¹School of Social Work, Boston University, Boston, Massachusetts; ²School of Social Work, College for Public Health and Social Justice, Saint Louis University, St. Louis, Missouri; ³Yonsei University, Seoul, Republic of Korea; ⁴Steve Hicks School of Social Work, University of Texas at Austin, Austin, Texas; and ⁵Department of Criminal Justice, College of Public Policy, University of Texas at San Antonio, San Antonio, Texas

Address correspondence to: Millan A. AbiNader, LCSW, School of Social Work, Boston University, 264 Bay State Road, Boston MA 02215. E-mail: millan@bu.edu.

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Drug Use and Health (NSDUH) found that the proportion of youth involved in violence dropped by nearly 30% between 2002 and 2014.¹ Similarly, arrests for violent crime have decreased nationally⁷ and international data suggest that youth violence is decreasing worldwide.⁸ Notably, similar reductions have been observed in other externalizing behaviors, such as substance use,^{9,10} drug selling,¹¹ and truancy.¹² A recent study found that overall rates of abstention from a wide range of risky behaviors has increased substantially since the early 2000s.¹³

Despite an overall decrease in youth violence, critical disparities persist. Male youth are more likely to engage in violence than female youth¹⁴ and, although rates of violence are decreasing among all racial/ethnic groups, non-Hispanic black/African American and Hispanic youth continue to be far more likely than non-Hispanic white youth to report involvement in violence.¹ Youth who are part of a gang or endorse psychopathic symptomology additionally report higher use of and exposure to violence than their peers.^{15–18} Scholars have offered various explanations for the decline in youth violence over the last two decades. Some suggest that an increased gender equity is associated with reduced violence due to a decrease in the normalization of violent conflict resolution.⁸ It may also be part of a larger downward trend of risky and antisocial behaviors, such as crime¹¹ and drug use,¹⁹ among youth. A decrease in violence may additionally be associated with the implementation of effective violence-prevention programs across the country.²⁰ Prevention programs can vary in format and scope, but the majority of programs have addressed violence at the individual or familial level and are either universal programs (delivered to all youths/families in a community) or programs targeted to at-risk youth.^{21,22}

The extant literature has examined the efficacy of individual youth violence-prevention programs (e.g., Swaim and Kelly²³), compared programs (e.g., Fagan and Catalano²⁰), and estimated cross-sectional participation prevalence (e.g., Finkelhor et al.²⁴). Several programs have been found to be effective,²⁰ even among youth who are engaged in chronic, serious violence.²⁵ Importantly, however, there remains a dearth of knowledge regarding trends in participation in these programs at the population level. As such, the objective of the present study is to employ national data to examine trends and correlates of violence-prevention program participation of youth aged 12–17 years in the U.S. between 2002 and 2016. Additionally, differences in participation rates across gender and racial/ethnic subgroups are examined. Increased knowledge of differential participation in prevention programming among key subgroups has implications for program delivery and policies determining

resource allocation and program access. Moreover, understanding changes in participation over time can aid in measuring the potential relationship between prevention programming and the decrease in violence seen in the extant literature.

METHODS

Study Sample

Data from the Substance Abuse and Mental Health Services Administration's NSDUH from the years 2002 to 2016 were used for this study. The NSDUH data are collected annually from a national survey of civilian, non-institutionalized people aged ≥ 12 years.²⁶ The NSDUH sampling methodology identifies potential participants who are living in traditional residences, without a permanent residence (e.g., homeless people in shelters), or are living in non-institutionalized group homes; and oversamples youth aged 12–17 years. The survey is administered in participants' own homes using computer-assisted interviewing technologies. Participants answer the majority of questions on audio computer-assisted interviewing devices, which permits privacy for the respondent and potentially decreases any social desirability bias in their survey responses. All other questions are asked by the interviewer and entered directly into a computer. The Boston University IRB did not require IRB approval for this study as it used de-identified, secondary data.

Measures

To measure youth violence participation, all participants were asked: *During the past 12 months have you participated in a violence-prevention program, where you learn ways to avoid fights and control anger?*²⁶ Youth were coded as having participated in a program (1) or not (0) in the past year.

Several sociodemographic variables were used as controls in the analyses. Four dichotomous variables were included: age (12–14 years, 15–17 years), gender (male, female), urbanicity (nonmetropolitan, metropolitan—based on Office of Management and Budget guidelines²⁷), and father's presence in the home. Youth race/ethnicity was restricted to non-Hispanic white (hereafter white; $n=153,087$), non-Hispanic black/African American (hereafter black/African American; $n=35,216$), and Hispanic youth ($n=45,780$) who represented the majority (92.45%) of the sample. Annual family income was divided into four segments ($< \$20,000$, $\$20,000$ – $\$39,999$, $\$40,000$ – $\$74,999$, and $\geq \$75,000$).

Religiosity was measured by four questions examining the centrality of religious practice to the youth's life, consistent with prior studies (e.g., Farrington and Loeber²⁸, Salas-Wright and colleagues²⁹). Risk propensity was composed of two items, *How often do you get a real kick out of doing things that are a little dangerous?* and *How often do you like to test yourself by doing something a little risky?*²⁶ Consistent with recent NSDUH-based research, the responses were summed to generate an ordinal scale of low-, medium- and high-risk propensity (see Vaughn et al.¹³).

As in prior research, an endorsement of parental conflict was defined as ten or more fights with youth's parents in the past year (see Salas-Wright and colleagues³⁰ and Shook and colleagues³¹). Parental affirmation was defined on a continuous scale based on two items measuring youth's perception of their parents' verbal displays of support (e.g., the parent says "good job" to them).

Three school-related variables were included in the analyses: enrollment, average grades, and school engagement. If participants had attended any form of school in the last year, they were considered enrolled. Average student grade was treated as a dichotomous variable (A–C, D or lower). Five items from the NSDUH about youth's experiences at school composed a continuous measure of school engagement (Cronbach's $\alpha=0.77$). Items included questions like, *How often did you feel that the school work you were assigned to do was meaningful and important?*²⁶ These items are described in greater detail elsewhere (e.g., Maynard and colleagues³²).

Seven risky behaviors were included as dichotomous variables. Participants were asked if they had engaged in any of the following behaviors in the past year: stolen something worth $> \$50$, sold illicit drugs, been involved in a serious fight at school or work, been in a group fight, attacked someone with serious intent to harm, or carried a handgun. Participants were also asked if they had been arrested or booked for a law violation in the past year. A summative dichotomous variable indicating any past-year use of violence (fight, group fight, or attack with intent to harm) was created.

Statistical Analysis

First, logistic regression analyses using the pooled 2002–2016 data were conducted to examine the association between program participation and demographic characteristics (Table 1). Annual participation prevalence estimates were then generated for the full sample and by racial/ethnic and gender subgroups (Figures 1 and 2, Appendix Figure 1, available online). Then, the significance of the linear trend was tested across subgroups, controlling for sociodemographic factors (Table 1). In the tests of trend, survey year was included as a continuous variable according to the methods outlined by the Centers for Disease Control and Prevention.³³ Tests of trend were also examined among youth who did and did not engage in risky behavior. The tests of trends were repeated with all psychosocial, parental, school, and risk behavioral correlates included in the models. Interaction effects between sociodemographic variables X survey year (e.g., gender X year) and violence use X year (i.e., violence X year) were also examined. Next, a series of logistic regressions were performed to examine the association between each of the psychosocial, parental, school, and risk behavioral correlates, while controlling for sociodemographic controls and survey year (Table 2). All estimates were weighted to account for NSDUH's sampling design based on the guidelines provided by Substance Abuse and Mental Health Services Administration.³⁴ All analyses were performed in Stata SE, version 13 in 2018.

RESULTS

Table 1 displays the sociodemographic characteristics of youth reporting participation versus no participation in violence-prevention programming. Younger adolescents were significantly more likely than older adolescents to report participation (AOR=1.936, 95% CI=1.876, 1.997). Girls had higher odds of participation than boys (AOR=1.038, 95% CI=1.007, 1.069). Black/African American youth (AOR=1.986, 95% CI=1.911, 2.065)

and Hispanic youth (AOR=1.183, 95% CI=1.131, 1.239) were significantly more likely to participate in prevention programs than their white peers. Supplementary analyses revealed that black/African American youth also had significantly higher odds of participation than Hispanic youth (AOR=1.679, 95% CI=1.591, 1.770). Youth residing in low- to moderate-income households were significantly more likely to report participation compared with youth residing in households with incomes of $\geq \$75,000$ per year. Nonmetropolitan youth had higher odds of participation than metropolitan youth (AOR=1.070, 95% CI=1.007, 1.136). Youth who used violence in the past year had higher odds of participating in prevention programming than youth who had not used violence (AOR=1.487, 95% CI=1.439, 1.537). The presence of the father in a household was not significantly associated with participation.

Youth participation in violence-prevention programs decreased significantly from 16.7% in 2002 to 11.7% in 2016 (Figure 1; AOR=0.975, 95% CI=0.972, 0.978). A significant declining trend in participation over time was found across all sociodemographic subgroups examined and among youth reporting the use of violence and no use of violence in the past year (Table 1).

Although participation across all racial/ethnic groups decreased, participation among black/African American youth was significantly greater than Hispanic youth who, in turn, had significantly higher participation rates than white youth (as evidenced by the nonoverlapping 95% CIs; Figure 2). Boys and girls participated at similar rates between 2002 and 2016 (as evidenced by the overlapping 95% CIs). All tests of trend described above and displayed in Table 1 were adjusted for sociodemographic factors (e.g., age, gender); however, supplementary analyses were also conducted that controlled for sociodemographic factors and all of the psychosocial, parental, school, and risk behavioral correlates examined in Table 2. Results from these supplementary tests revealed that the direction, significance, and magnitude of the annual trends among the whole sample and across the subgroups did not change when these additional variables were included as statistical controls. Among youth involved in risky behavior, there was a significant decrease in participation from 2002 to 2016 among those who engaged in theft (AOR=0.978, 95% CI=0.961, 0.996), serious fights (AOR=0.989, 95% CI=0.981, 0.996), or group fights (AOR=0.991, 95% CI=0.983, 0.999). The trend was not significant among those who had been arrested (AOR=0.994, 95% CI=0.976, 1.013), sold drugs (AOR=1.006, 95% CI=0.983, 1.029), attacked someone with the intent to harm (AOR=0.994, 95% CI=0.981, 1.008), or carried a handgun (AOR=1.001, 95% CI=0.983, 1.019).

Table 1. Overall Prevalence and Tests of Trends for Past-Year Violence-Prevention Program Participation, 2002–2016

During the past 12 months, have you participated in a violence-prevention program, where you learn ways to avoid fights and control anger?				
Variable	No, % (95% CI) (n=198,213; 85.5%)	Yes, % (95% CI) (n=33,658; 14.5%)	Pooled data, AOR ^a (95% CI)	Test of trend ^b (year by year data), AOR (95% CI)
All adolescents	85.76 (85.57, 85.95)	14.24 (14.05, 14.43)	—	0.975** (0.972, 0.978)
Sociodemographic factors				
Age, years				
12–14	46.67 (46.18, 46.75)	62.85 (62.16, 63.53)	1.936** (1.876, 1.997)	0.969** (0.965, 0.973)
15–17	53.53 (53.25, 53.82)	37.15 (36.47, 37.84)	—	0.985** (0.979, 0.991)
Sex				
Female	48.88 (48.59, 49.18)	49.21 (48.53, 49.89)	1.038* (1.007, 1.069)	0.972** (0.968, 0.976)
Male	51.12 (50.82, 51.41)	50.79 (50.11, 51.47)	—	0.978** (0.973, 0.983)
Race/ethnicity				
White	64.62 (64.17, 65.06)	51.92 (51.09, 52.74)	—	0.971** (0.967, 0.976)
Black	14.14, (13.88, 14.40)	25.93 (25.18, 26.69)	1.986** (1.911, 2.065)	0.981** (0.973, 0.989)
Hispanic	21.25 (20.88, 21.62)	22.16 (21.42, 22.91)	1.183** (1.131, 1.239)	0.977** (0.968, 0.987)
Income				
<\$20,000	16.09 (15.79, 16.39)	23.78 (23.15, 24.43)	1.413** (1.339, 1.491)	0.982** (0.973, 0.990)
\$20,000–\$39,999	20.71 (20.44, 20.98)	23.65 (22.97, 24.33)	1.206** (1.150, 1.264)	0.982** (0.974, 0.991)
\$40,000–\$74,999	28.20 (27.92, 28.48)	25.89 (25.25, 26.53)	1.073** (1.029, 1.119)	0.973** (0.966, 0.980)
≥\$75,000	35.00 (34.56, 35.44)	26.69 (26.04, 27.35)	—	0.966** (0.959, 0.972)
Father in household				
No	25.54 (25.26, 25.83)	31.82 (31.17, 32.49)	—	0.982** (0.976, 0.988)
Yes	74.46 (74.17, 74.74)	68.18 (67.51, 68.83)	0.996 (0.961, 1.032)	0.972** (0.968, 0.976)
Urbanicity				
Nonmetropolitan	93.48 (93.25, 93.70)	93.28 (92.84, 93.70)	—	0.980** (0.967, 0.994)
Metropolitan	6.52 (6.30, 7.16)	6.72 (6.30, 7.16)	1.070* (1.007, 1.136)	0.975** (0.971, 0.978)
Use of violence				
Past year				
No	73.54 (73.31, 73.76)	62.35 (61.62, 63.09)	—	0.970** (0.966, 0.974)
Yes	24.46 (26.24, 26.69)	37.65 (36.91, 38.38)	1.487** (1.439, 1.537)	0.985** (0.979, 0.992)

Note: Boldface indicates statistical significance (* $p < 0.05$, ** $p < 0.01$).

^aAORs for pooled data adjusted for age, gender, race/ethnicity, household income, father in household, urbanicity, and survey year.

^bTests of trends conducted while controlling for all sociodemographic factors.

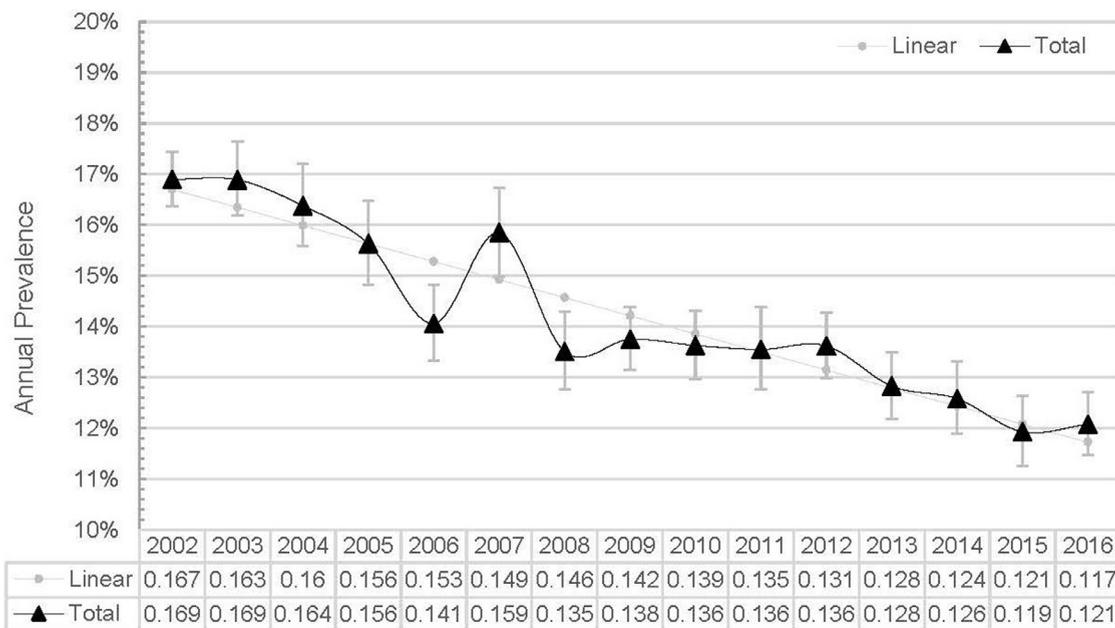


Figure 1. Survey-adjusted prevalence estimates and 95% CIs for annual adolescent (aged 12–17 years) participation in violence-prevention programming in the U.S.

Interaction effects were identified for age, income, and presence of father in the household (results available on request). Specifically, this study found that the downward trend was significantly more pronounced among

younger adolescents (compared with older adolescents), adolescents in higher-income households (compared with adolescents in lower-income households), and adolescents with a father in the home (compared with those

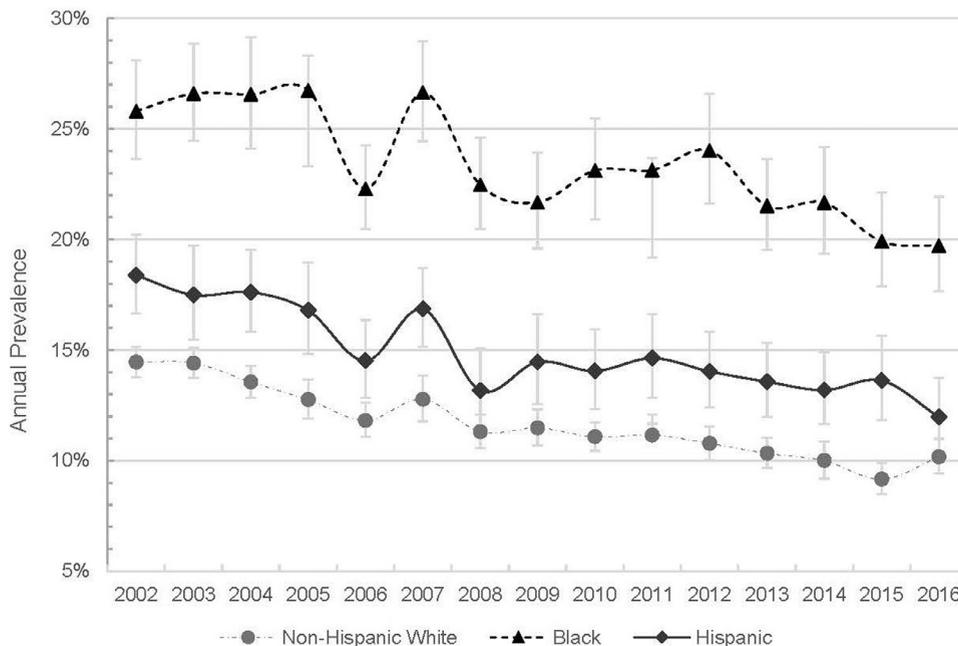


Figure 2. Survey-adjusted prevalence estimates and 95% CIs for annual adolescent (aged 12–17 years) participation in violence-prevention programming in the U.S., by race/ethnicity.

Table 2. Correlates of Youth Violence-Prevention Program Participation, 2002–2014

Variable	During the past 12 months, have you participated in a violence-prevention program, where you learn ways to avoid fights and control anger?		Pooled data, AOR ^a (95% CI)
	No, % or mean (95% CI) (n=198,213; 85.5%)	Yes, % or mean (95% CI) (n=33,658; 14.5%)	
Intrapersonal factors			
Risk propensity			
Low	60.03 (59.37, 60.69)	57.81 (57.56, 58.07)	—
Medium	18.78 (18.22, 19.35)	18.35 (18.15, 18.55)	1.020 (0.978, 1.063)
High	21.19 (20.70, 21.69)	23.84 (23.60, 24.08)	0.995 (0.962, 1.028)
Religiosity (mean)	2.179 (2.161, 2.197)	2.004 (1.995, 2.013)	1.068 ** (1.055, 1.081)
Parental factors			
Parental conflict, past year			
<10 fights	79.96 (79.42, 80.49)	77.52 (77.30, 77.74)	—
≥10 fights	20.04 (19.51, 20.58)	22.48 (22.26, 22.70)	1.008 (0.975, 1.043)
Parental affirmation (mean)	1.768 (1.760, 1.777)	1.711 (1.707, 1.714)	1.143 ** (1.114, 1.173)
School factors			
School enrollment, past year			
No	8.21 (7.84, 8.60)	6.72 (6.57, 6.89)	—
Yes	91.79 (91.40, 92.16)	93.28 (93.11, 93.43)	1.074 * (1.017, 1.135)
Average grades			
A–C	93.73 (93.34, 94.09)	94.35 (94.19, 94.49)	—
D or lower	6.27 (5.91, 6.66)	5.65 (5.51, 5.81)	1.040 (0.967, 1.117)
School engagement (mean)	3.213 (3.205, 3.220)	3.046 (3.042, 3.049)	1.459 ** (1.421, 1.500)
Risk behavior			
Arrested/booked			
No	95.29 (95.00, 95.56)	97.07 (96.97, 97.18)	—
Yes	4.71 (4.44, 5.00)	2.98 (2.82, 3.03)	1.744 ** (1.621, 1.876)
Stole >\$50			
No	94.99 (94.68, 95.29)	96.26 (96.13, 96.28)	—
Yes	5.01 (4.71, 5.32)	3.74 (3.62, 3.87)	1.261 ** (1.156, 1.375)
Sold drugs			
No	96.83 (96.58, 97.07)	96.92 (96.81, 97.02)	—
Yes	3.17 (2.93, 3.42)	3.08 (2.98, 3.19)	1.430 ** (1.321, 1.548)
Serious fight			
No	71.47 (70.77, 72.16)	80.85 (80.64, 81.05)	—
Yes	28.53 (27.84, 29.23)	19.15 (18.95, 19.36)	1.485 ** (1.431, 1.541)
Group fight			
No	80.65 (80.11, 81.17)	86.79 (86.60, 86.97)	—
Yes	19.35 (18.83, 19.89)	13.21 (13.03, 13.40)	1.439 ** (1.385, 1.496)
Attacked with intent to harm			
No	89.64 (89.14, 90.11)	93.94 (93.82, 94.06)	—
Yes	10.36 (9.89, 10.86)	6.06 (5.94, 6.18)	1.601 ** (1.514, 1.693)
Carried a handgun			
No	95.65 (95.37, 95.91)	96.52 (96.41, 96.63)	—
Yes	4.35 (4.09, 4.63)	3.48 (3.37, 3.59)	1.376 ** (1.278, 1.481)

Note: Boldface indicates statistical significance (*p<0.05, **p<0.01).

^aAOR for pooled data adjusted for age, gender, race/ethnicity, household income, father in household, urbanicity, and survey year.

without a father present in the home). No significant interactions were identified for gender or race/ethnicity. Additionally, although participation decreased among youth reporting use (AOR=0.985, 95% CI=0.979, 0.992)

and no use of violence (AOR=0.970, 95% CI=0.966, 0.974), decreases among those not using violence were significantly greater than those of youth reporting past-year use of violence.

As shown in Table 2, several prosocial correlates, like parental affirmation (AOR=1.143, 95% CI=1.114, 1.173) and school engagement (AOR=1.459, 95% CI=1.421, 1.500), were associated with the increased likelihood of youth participation in a violence-prevention program. Risk behavioral correlates, like being involved in a fight at work/school (AOR=1.485, 95% CI=1.431, 1.541) and carrying a handgun (AOR=1.376, 95% CI=1.278, 1.481), were also found to be related to an increased odds of participation in a violence-prevention program.

DISCUSSION

The findings provide clear and compelling evidence that youth participation in violence-prevention programs declined significantly between 2002 and 2016, decreasing by nearly 30% over a 15-year period. Notably, this downward trend was observed among all demographic subgroups examined, even when controlling for an array of sociodemographic factors, as well as key psychosocial, parental, school, and risk behavioral correlates. Reviews of violence-prevention programming evaluations have found that many school-based prevention programs are universal, meaning that all students at a school engage in the program regardless of their risk or past use of violence.^{20,35} The common implementation of universal programs could account for decreased participation across groups, as access to these programs would decrease evenly among all youth.

Despite overall decreases in participation, black/African American and Hispanic youth were more likely to participate than white youth across all survey years. This disparity may be because of differences in access. A review of prevention programs for aggressive and delinquent behaviors noted that the majority of universal programs tended to be implemented in schools that serve communities with lower SES and higher crime.²¹ Black/African American and Hispanic households are nearly twice as likely as white households to live in poverty³⁶; thus, youth of color may be more likely to attend schools implementing universal prevention programs. Youth of color are also more likely to be exposed to community violence than their white peers.³⁷ It is therefore plausible that black/African American and Hispanic youth may be more likely to participate in programming designed to respond to a need for targeted prevention efforts.

Beyond trends, the examination of the correlates of program participation suggest that there may be two types of adolescents who participated in violence-prevention programs: (1) highly involved youth who may have increased voluntary participation in several extracurricular activities; and (2) youth who are involved in violent and illegal behavior, who may be mandated into

such programs. These two groups parallel risk profiles for youth use of violence.³⁸ Adolescents who report feeling more connected to school, their parents, and religion have lower odds of partaking in violence than youth who report feeling less connected.^{39–41} Among these youth, it may be that participation in prevention programs supports less use of violence, or that they may feel more compelled to contribute to a safe school/neighborhood environment through their participation.

Limitations

Despite the many assets of this study, it is not without its limitations. The cross-sectional nature of the data does not allow for causal conclusions to be drawn about the decrease in prevention programming on violence over time. Meta-analyses indicate that several prevention programs have been successful at reducing violence^{20,21}; therefore, the decrease in program participation may reflect a decrease in community need. However, it may also reflect a decrease in funding for such programs, school districts preferring other types of socioemotional learning programming to violence prevention, or other causes. More research is needed to examine this association. The violence-prevention program participation measure focuses on preventing fights and anger management, which may result in youth not reporting participation in other forms of violence prevention, such as dating abuse prevention. Additionally, the question does not permit the analyses to account for differences in program type, dosage, or quality; all of which may affect program efficacy. Additionally, although the NSDUH can detect what type of youth attends violence-prevention programs, it does not measure the motivations of these youth to participate. Another limitation is the use of self-report data; youth may over- or under-report their involvement in prevention programming. Additionally, the NSDUH does not sample youth in juvenile detention centers or other correctional institutions. It is possible that youth involved in corrections may participate in targeted violence-prevention programs at higher rates than non-institutionalized youth; their lack of representation in the sample could lead to underestimation of participation rates. The NSDUH data also lack geocoding, which limited the assessment of neighborhood- or state-level factors. Future studies of more localized patterns of violence-prevention program participation could address this limitation. Household surveys, including the NSDUH, have had decreased response rates in recent years.⁴² Although the NSDUH response rate has declined less than that of its peers,⁴² it is possible that youth in households that did not participate may differ from those who do, introducing endogeneity bias into the sample.

CONCLUSIONS

Results from the present study, conducted with data from a large national survey designed and implemented by Substance Abuse and Mental Health Services Administration, indicate youth violence-prevention program participation rates decreased by nearly 30% between 2002 and 2016. Significant declines were observed among youth across age, gender, racial/ethnic, family income subgroups, but evidence also indicated that declines were most marked among youth aged 12–14 years and those in higher-income families. Although rates of participation decreased significantly among those reporting recent use and no use of violence, declines were significantly greater among the majority of youth reporting no past-year fighting or attacks. Future research should focus on differences in participation at the city and state level and examine the characteristics and motivations of participants in programs designed to target violence. Such research could inform policymakers as to whether programs aimed at preventing violence are accessible to target populations and inform program design and implementation.

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SUPPLEMENTAL MATERIAL

Supplemental materials associated with this article can be found in the online version at <https://doi.org/10.1016/j.amepre.2018.12.016>.

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