ARTICLE

# Components of Effective Youth Violence Prevention Programs for 7- to 14-Year-Olds

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**Objective:** To classify features of effective violence prevention programs for 7- to 14-year-olds according to children's risk groups and targeted behaviors.

**Data Sources:** Articles published between 1980 and 1999 were identified via electronic databases (MEDLINE, ERIC, PsychINFO) using the key words *violence*, *violence prevention*, *youth violence*, or *aggressive behavior*. Reference lists were hand-searched for additional publications.

**Study Selection:** One hundred fifty-three articles were reviewed with a modified scale by one of the principal investigators/authors (W.O.C. or M.L.) and a research assistant (K.F.); the other principal investigator resolved any discrepancies. Articles were included if they reported prevention efforts in 7- to 14-year-olds and compared outcome measures, met requirements for scientific rigor, and reported significant improvements (effect size, >0.1 or $P \leq .05$). Sixty-seven percent (n=102) did not meet the inclusion criteria. Of the remaining 51 articles (33%), 38 met requirements for scientific rigor, and 32 articles describing 25 programs reported significant improvements in at least 1 area.

**Results:** Twenty-five programs indicated significant improvements in attitudes, knowledge, or intentions (n=10) and/or reduction in delinquency rates and violent and/or aggressive behavior (n=11); significant changes in both types of outcomes were indicated in 4 programs. Most programs (n=13) targeted older children (aged 11-14 years) and focused on fighting (n=13) and conflict management (n=14). Classroom teaching was the most common process (n=18) used. Few programs (n=7) involved family intervention.

**Conclusions:** Although limited in number, effective youth violence prevention programs were identified from current literature. Study findings were compiled into a database outlining effective processes for specific sociodemographic and risk behavior groups that will be helpful to future program planning.

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YOUTH VIOLENCE is a serious public health problem with far-reaching impact and consequences for our country. In recent years, a large percentage of violent acts among youth has resulted in serious injury or death,[1] most often from a firearm. Along with the human suffering related to violence are the tremendous economic expenses associated with medical care, injury complications, and the enduring emotional effects.[2,3] The juvenile justice system also incurs major expenses for intervention, prosecution, incarceration, and rehabilitation.[4] Behavioral problems occurring in school settings impair the educational process for the offending youth and their peers. Media focus on recent school shootings has highlighted the issue and youth violence is now capturing the attention of many sectors of our communities.

National, federal, state, and local initiatives have focused many efforts, involving billions of dollars, on preventing violence. *Healthy People 2000*[5] and *Healthy People 2010*[6] both included objectives related to the implementation of violence prevention programs. This led to the prolific development of programs by schools, police, courts, social services, health care agencies, and community organizations. However, there is still very limited empirical program evaluation in the area of youth violence prevention programs, with major gaps between the most frequently used strategies and the most frequently evaluated ones.[7,8]

There is a substantial body of literature describing the behavioral processes associated with changing risk behaviors.[9-11] Theoretical models used to guide the development of risk behavior interventions include the States of Behavioral

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## MATERIALS AND METHODS

### DATA SOURCES

Data for this descriptive study were obtained from a review of articles and reports published between 1980 and 1999. A literature search was conducted to identify studies that reported results of violence prevention efforts in 7- to 14-year-old children. MEDLINE (OVID JAVA client; OVID Technologies, New York, NY), ERIC (WebSPIR; SilverPlatter Information Inc, Norwood, Mass), and PsychINFO (WebSPIR) databases were searched in October 1998 and July 1999 using the key words *violence*, *violence prevention*, *youth violence*, or *aggressive behavior* to identify relevant articles. After the initial electronic database searches, the studies' reference lists were reviewed by us to identify other potential studies and programs. Reports describing multiple prevention programs from the University of Maryland[4] and the federal government[16,17] were obtained and hand-reviewed by us to identify other potential articles.

### STUDY SELECTION

One of the principal investigators (W.O.C. or M.L.) and the third author (K.F.) independently reviewed retrieved articles; the other principal author reviewed discrepancies, and group consensus was used to resolve any remaining differences. References were initially screened for inclusion by identifying programs that (1) included a specific statement that the program was designed to prevent violent or aggressive behavior in children; (2) included 7- to 14-year-old children; (3) involved primary or secondary prevention efforts (defined as targeting entire populations of children, or children at risk for violence); (4) provided information on age or grade of recipients; (5) identified and measured outcomes; and (6) provided comparisons (eg, randomization to treatment and/or comparisons states, matched comparison groups, multiple measurements of children participating in the program).

Study quality was evaluated using a modification of a previously published scientific rigor scale[4] that rated an article in 5 domains and assigned a numerical value to the article for each of the domains. The domains used to evaluate methodologic rigor (selection bias, performance bias, attrition bias, and detection bias)[18] are similar to scales used to evaluate methodologic rigor in previous studies.[19,20] An overall score was assigned using the domain values, with a cutoff score of 3 indicating an article's demonstration of appropriate scientific rigor. Domains of the scientific rigor score were the presence and quality of the comparison group, the use of control variables to account for group differences, psychometric quality and/or soundness of variables, controls for the effects of attrition from the study, and the use of appropriate statistical tests. For the current study, Sherman's scale was modified by scoring the use of statistical tests from 1 to 5 rather than 0 to 1 as originally published. The composite score for each article was derived from a sum of the domain scores, with a possible score ranging from 5 to 25. For the current study, articles having a methodologic rigor score greater than 10 were eligible for inclusion.

Study outcomes were evaluated for each article meeting requirements for methodologic rigor. Effect sizes were calculated using the method of Cohen and Cohen.[21] Programs were considered to be effective if at least one study showed intervention effects of at least one tenth of 1 SD (effect size, $\geq 0.1$) better than comparison effects. When insufficient data were available to calculate effect size, programs were considered to be effective if at least one study demonstrated significant differences, with appropriate statistical analysis and $P \leq .05$.

### DATA COLLECTION AND ANALYSIS

Data collected on programs showing significant improvements included program contact information, sample size, subject sociodemographic information, risk behaviors targeted, program processes used, outcomes measured, and program effects for each outcome. Unpublished data were requested from authors when necessary. Program processes and outcomes were identified from previously published literature describing violence prevention programs.[4,7,8] Previous literature has suggested that changes in knowledge, attitudes, and intentions to use violence alone are insufficient to sustain behavior change.[10] Therefore, outcomes were grouped into whether the study measured improvements in knowledge, attitudes, and intentions to use violence or whether the study measured reductions in actual violent behavior defined as delinquency, violence and/or aggression, or injuries caused by violence. Data were entered into a commercially available database on a personal computer. Cross-references between risk groups, target behaviors, and program processes were constructed from database queries.

Change,[9] the Theory of Reasoned Action,[10] and the Information, Motivation, Behavioral Skills Model.[11] These models have guided the planning, implementation, and evaluation of several programs targeting a wide variety of risk behaviors.[12-15] Even though the risk behaviors targeted by youth violence prevention efforts share similarities with the behaviors targeted by these theoretically based programs, much of the literature describing youth violence prevention lacks specific measures of violent behavior.[8] In addition, little has been done to articulate the specific programmatic components of successful violence prevention efforts.[4,16] The purpose of the current study was to classify features of effective violence prevention programs for 7- to 14-year-olds according to the children's risk groups and targeted behaviors.

## RESULTS

### STUDY SELECTION

Fifty-one of 153 identified articles met inclusion requirements because they measured and compared outcomes in the target population (**Table 1**). Excluded from the study were 102 articles that did not include specific statements that the program targeted violence (n=28), 7- to 14-year-old children (n=28), primary or secondary pre-



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**Table 1. Program Inclusion for Articles Describing Youth Violence Prevention Efforts in 7- to 14-Year-Old Children**

| Articles | No. of References |
|---|---|
| References reviewed, total | 153 |
| Meeting inclusion requirements* | 51 |
| Meeting methodologic rigor requirements† | 38 |
| Studies showing significant improvements in knowledge, attitudes, intentions, or reductions in aggressive behavior, violent acts, and injuries caused by violence | 32 |
| Individual programs described in references showing significant improvements | 25 |

*Programs that target violence, include 7- to 14-year-old, provide primary or secondary prevention, and include outcome measures.

†Based on inclusion of comparison group, use of control variables, use of high-quality variables, control for attrition, and use of significance tests.

vention efforts (n=18), or outcome measures/comparisons among groups (n=76). Articles may have been excluded for more than one reason. Of the 153 references reviewed, 2 (1.3%) were included on second review after the second reviewer identified a specific statement that the reference targeted violent behavior. A list of articles not meeting the inclusion criteria is available on request from the authors. Of the remaining 51 articles, 38 met requirements for scientific rigor. Discrepancies in scoring of scientific rigor between the 2 independent reviewers occurred in 7 references (4.6%). Resolution of discrepancies in the scientific rigor score did not result in any study changing from a score of greater than 10 or less than 10, the inclusion and exclusion cutoff score, respectively. Thirty-two of the 38 articles meeting requirements for scientific rigor reported significant improvements in measured outcomes.[22-53] These 32 articles reported results for 25 separate violence prevention programs, which serve as the unit of analysis for the remainder of the current study. There were no discrepancies between the 2 independent reviewers on inclusion of studies based on significant effects.

## CHARACTERISTICS OF PROGRAMS

Sample sizes for the studies ranged from 22 to 94762. Of the 25 programs described by the selected studies, 13 (52%) were implemented in school settings only, 6 (24%) were implemented in community settings only (these included interventions in health care settings), and 6 (24%) were implemented in both school and community settings. Seven programs (28%) involved families as a part of the program. Ten (40%) of the 25 programs were reported to improve attitudes, knowledge, and intentions to use violence (**Table 2**). Eleven of the programs (44%) were reported to reduce delinquency, injuries caused by violence, or reported or observed violent and/or aggressive behavior. Four programs (16%) were reported to change both types of study outcomes.

**Table 2. Programs Found to Improve Attitudes, Knowledge, and Intentions or Reduce Aggressive Behavior, Violent Acts, and Injuries Caused by Violence in 7- to 14-Year-Old-Children**

| Outcome Measured (Author[s], Year of Publication) | No. of Subjects |
|---|---|
| Attitudes toward violence | |
| All Stars (Hansen, 1996)[22] | 200 |
| Cabrini Green Youth Program/Children Teaching Children (Sheehan et al, 1999)[25] | 125 |
| Fighting Fair Model (Powell et al, 1995)[30] | 171 |
| I Have a Future (Greene et al, 1995)[34] | 442 |
| Knowledge of violence | |
| Puppet Show for Youth (Schinke et al, 1994)[38] | 290 |
| Second Step (Grossman et al, 1995; Orpinas et al, 1997)[43,44] | 1013 |
| Skills for violence-free relationships (Krajewski et al, 1996)[45] | 239 |
| SMART Talk (Bosworth et al, 1998)[46] | 81 |
| Teen Dating Violence Prevention Program (MacGowan, 1997)[50] | 440 |
| Washington Community Violence Prevention Program (Gainer et al, 1993)[53] | 250 |
| Intention to use violence | |
| Attribution Intervention Program (Hudley and Graham, 1993)[23] | 108 |
| Program Development Evaluation (Gottfredson, 1987)[37] | 1631 |
| Puppet Show for Youth (Schinke et al, 1994)[38] | 290 |
| Resolving conflict creatively (Aber et al, 1998)[40] | 5053 |
| SMART TALK (Bosworth et al, 1998)[46] | 81 |
| Teaching Students to Be Peacemakers (Johnson et al, 1995)[47-49] | 495 |
| Delinquency (delinquent acts, including violence) | |
| Participate and Learn Skills (Jones and Offord, 1989)[35] | 905 |
| Injuries caused by violence | |
| Harlem Hospital Injury Prevention Program (Durkin et al, 1996)[33] | 94 762 |
| Peace Builders (Krug et al, 1997)[36] | 3899 |
| Safe Kids/Healthy Neighborhoods (Davidson et al, 1994)[42] | 4492 |
| Violent/aggressive behavior (reported or observed) | |
| Attribution intervention (Hudley and Graham, 1993)[23] | 108 |
| BASIS (Gottfredson et al, 1993)[24] | 5719 |
| Cabrini Green Youth Program/Children Teaching Children (Sheehan et al, 1999)[25] | 125 |
| Catch 'Em Being Good (Hawkins et al, 1991)[26] | 458 |
| Cognitive-behavioral therapy (Lochman et al, 1984, 1985, 1992)[27-29] | 452 |
| Good Behavior Game (Dolan et al, 1993; Kellam et al, 1994)[31,32] | 1557 |
| Program development evaluation (Gottfredson, 1987)[37] | 1631 |
| Peace Builders (Krug et al, 1997)[36] | 3899 |
| Reach for Health Community Youth Service Program (O'Donnell et al, 1999)[39] | 972 |
| Safe Dates (Foshee et al, 1998)[41] | 1700 |
| Second Step (Grossman et al, 1995; Orpinas et al, 1997)[43,44] | 1013 |
| Violence Prevention Curriculum for Adolescents (Farrell and Meyer, 1996; DuRant et al, 1997)[51,52] | 1007 |

## RISK GROUPS AND RISK BEHAVIORS TARGETED

Programs were cross-referenced by the age of children included and the risk behaviors targeted. Results of cross-referencing are shown in **Table 3**. Fewer programs targeted 7- and 8-year-old children than older children. Several programs targeted poor conflict management skills and fighting in all age groups, while very few programs



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**Table 3. Risk Groups and Risk Behaviors Targeted by Youth Violence Prevention Programs Found to Improve Attitudes, Knowledge, and Intentions or Reduce Aggressive Behavior, Violent Acts, and Injuries Caused by Violence in 7- to 14-Year-Old Children***

| Age, y | Anger | Poor Conflict Management Skills | Fighting | Poor Impulse Control | Lack of Empathy/ Social Concern | Weapon Carrying† |
|---|---|---|---|---|---|---|
| 7-8 | | | | | | |
| Attitudinal | 22 | 16, 22 | 16, 22 | 22 | 22 | |
| Behavioral | 5, 8 | 8 | 5, 8, 12 | 8 | 5, 8, 11, 12 | |
| Both | 19 | 19 | 19 | 19 | 19 | |
| 9-11 | | | | | | |
| Attitudinal | 10, 21, 22, 25 | 7, 10, 16, 20, 21, 22 | 10, 16, 21, 22 | 10, 22 | 10, 21, 22 | 25 |
| Behavioral | 6, 15, 24 | 15, 17, 23, 24 | 6, 7, 12, 15, 24 | 6, 24 | 11, 12, 13, 15 | 15, 24 |
| Both | 2, 19 | 2, 19 | 2, 4, 19 | 2, 19 | 2, 19 | 19 |
| 12-14 | | | | | | |
| Attitudinal | 10, 21, 22, 25 | 10, 16, 20, 21, 22 | 10, 16, 21, 22 | 10, 22 | 10, 21, 22 | 25 |
| Behavioral | 5, 15, 24 | 15, 17, 23, 24 | 15, 24 | 24 | 11, 15 | 15, 24 |
| Both | 2, 19 | 2, 19 | 2, 4, 19 | 2, 19 | 2, 13, 19 | 19 |

**22 indicates Teaching Students to Be Peacemakers[47-49]; 16, Resolving conflict creatively[40]; 5, Catch 'Em Being Good[26]; 8, Good Behavior Game[31,32]; 12, Peace Builders[36]; 11, Participate and Learn Skills[35]; 19, Second Step[43,44]; 10, I Have a Future[34]; 21, SMART TALK[46]; 25, Washington Community Violence Prevention Program[53]; 7, Fighting Fair Model[30]; 20, skills for violence-free relationships[45]; 6, cognitive-behavioral therapy[27-29]; 15, Reach for Health Community Youth Service[39]; 17, Safe Dates[41]; 23, Teen Dating Violence Prevention Program[50]; 24, Violence Prevention Curriculum for Adolescents[51,52]; 13, program development evaluation[37]; 2, attribution intervention[23]; and 4, Cabrini Green Youth Program.[25]*

*†Weapon carrying in 7- and 8-year-old was not targeted by any programs.*

**Table 4. Risk Behaviors Targeted and Processes Included in Effective Youth Violence Prevention Programs Targeted to 7- to 14-Year-Old Children***

| Effectiveness by Age, y | Classroom Teaching | Peer Mediation | Family Intervention | Life Skills Training | Alternate Activities | Change of School Organization | Peer Education |
|---|---|---|---|---|---|---|---|
| Anger | | | | | | | |
| 7-10 | 5, 8 | 8 | 5 | 5 | 15 | 8 | 6, 19 |
| 11-14 | 1, 15, 21, 24 | 24 | 6 | 10 | 10 | | |
| Both | 2, 19, 22, 25 | 22 | | | | | |
| Poor conflict management skills | | | | | | | |
| 7-10 | 8 | 8 | 17, 23 | 10 | 15 | 8 | 17 |
| 11-14 | 15, 17, 20, 21, 23, 24 | 24 | | | 10 | 16 | 19 |
| Both | 2, 4, 7, 16, 19, 22 | 7, 16, 22 | | | | | |
| Fighting | | | | | | | |
| 7-10 | 5, 8 | 8 | 5, 12 | 5 | 15 | 8 | 12 |
| 11-14 | 15, 21, 24 | 24 | 6 | 4, 10 | 10 | 16 | 6, 19 |
| Both | 2, 7, 12, 16, 19, 22 | 7, 16, 22 | | | | | |
| Poor impulse control | | | | | | | |
| 7-10 | 8 | 8 | 6 | 10 | 10 | 8 | 6, 19 |
| 11-14 | 24 | 24 | | | | | |
| Both | 2, 19, 22 | 22 | | | | | |
| Lack of empathy/social concern | | | | | | | |
| 7-10 | 5, 8, 12 | 8 | 5, 12 | 5 | 15 | 8 | 12 |
| 11-14 | 13, 15, 21, 22 | 22 | | 10 | 10, 11 | 13 | 19 |
| Both | 2, 19 | | | | | | |
| Weapon carrying | | | | | | | |
| 11-14 | 15, 24, 19, 25 | 24 | | | 15 | | 19 |

**5 indicates Catch 'Em Being Good[26]; 8, Good Behavior Game[31,32]; 15, Reach for Health Community Youth Service[39]; 6, cognitive-behavioral therapy[27-29]; 19, Second Step[43,44]; 1, All Stars[22]; 21, SMART TALK[46]; 24, Violence Prevention Curriculum for Adolescents[51,52]; 10, I Have a Future[34]; 2, attribution intervention[23]; 22, Teaching Students to Be Peacemakers[47-49]; 25, Washington Community Violence Prevention Program[53]; 17, Safe Dates[41]; 20, skills for violence-free relationships[45]; 23, Teen Dating Violence Prevention Program[50]; 16, Resolving conflict creatively[40]; 4, Cabrini Green Youth Program[25]; 7, Fighting Fair Model[30]; 12, Peace Builders[36]; 13, program development evaluation[37]; and 11, Participate and Learn Skills.[35]*

targeted anger and weapon carrying. No programs targeted weapon carrying in 7- and 8-year-olds.

## PROGRAM PROCESSES FOUND TO BE EFFECTIVE IN TARGETING RISK BEHAVIORS

Comparisons between risk behaviors and program processes are shown in **Table 4**. Classroom teaching was the most frequently used process in effective programs. Classroom teaching and peer mediation were included together in several effective programs targeting anger, poor conflict management skills, and fighting. Family interventions were used in a smaller number of programs targeting anger, fighting, conflict management, poor impulse control, and lack of social concern.



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## COMMENT

This study identified components of effective youth violence prevention programs by identifying articles meeting requirements for scientific rigor and reporting significant improvements in youth violence outcomes. Of 153 articles identified from multiple sources, only 32 articles, describing 25 programs, met inclusion requirements and reported significant changes in violence-related outcomes. Some program types and program components were found to be most effective in certain age groups of children. Classroom teaching was the most commonly used process in effective programs targeting all age groups.

Several factors have been shown to predict a child's risk for violence.[54] These include individual factors (eg, children who have been victims of violence or witnesses to violence, poor academic skills or learning problems, substance abuse)[7,8,55-57]; family factors (eg, poor parenting, lack of supervision, inconsistent discipline)[7,8,57]; and societal and/or community factors (eg, social acceptance of violence, high rates of crime).[7,8,57] While children with many of the recognized risk factors for violence were included in the programs described in the current study, few programs specifically targeted clearly defined patterns of risk behavior.

The task of designing and implementing effective violence prevention programs for 7- to 14-year-olds can be an overwhelming project for many providers. In some areas, evaluative information is available; however, results indicating limited or no improvement in outcomes have had little impact on the continued use of some programs. An example of this is the Drug Abuse Resistance Education (DARE) program that is still widely and often exclusively used in some schools, despite several studies reporting only marginal results.[4,58] Process evaluations are frequently reported rather than outcome evaluations. In addition, existing evaluative information may not be in a format that is useful to program planners.

Most of the selected programs reported an improvement indicating an increase in knowledge or improved attitudes, lowered delinquency or injury rates, or less observed violent or aggressive behavior. Caution must be made when considering the measurement of knowledge and/or attitudes as successful outcomes in violence prevention. Researchers often use indirect behavioral measures as proxy measurements for actual behaviors. Behaviors do not necessarily follow indicated attitudes or knowledge levels. However, many studies still strictly rely on indirect measures rather than the use of other measures to indicate success (eg, injuries or crime reports identifying individual perpetrators/victims), because attitudes and knowledge are often easier to measure.

In addition to identifying successful programs for the targeted population, we classified the features of the program into a database. The overall goal was to create a database that would bridge current knowledge into current practice. Identifying processes or components found to be effective for specific sociodemographic and risk behavior groups may provide important information to help guide program planning. The results of the current study partially achieved this goal. A grid was developed that describes risk groups based on age and risk behaviors targeted by prevention programs to improve attitudes, knowledge, and intentions, or reduce aggressive behavior, violent acts, and injuries caused by violence in 7- to 14-year-old children. Thus, a provider trying to develop a program for 7- and 8-year-old children with a focus on poor impulse control could locate those programs shown to be effective in children with these particular characteristics. Other sources of information available to providers might include the sourcebook on the best practices for youth violence prevention, under development by the Centers for Disease Control and Prevention.[59]

Several potential limitations of this study warrant consideration. Although separating the components or features of programs from the whole program is a strength of the current study, it is also a potential limitation. Identifying the various risk behaviors and risk groups may make it easier for planners to match programs with the various groups and behaviors in their population. However, the potential synergistic or additive effect of the combination of the components within a program is often unknown. Therefore, implementing selected components from various programs may result in different outcomes.

An additional limitation of the current study may be the inadvertent exclusion of relevant studies. Klassen et al[60] indicate that electronic searches of the literature identify only 50% of all relevant articles. In addition, while many of the reference databases from various academic disciplines (medicine, education, psychology) overlap to a certain degree, overlap is not always complete. As part of the current study, information from databases from several disciplines was augmented with additional hand-searching to strengthen the inclusion of all relevant articles. Some studies that potentially may be successful were excluded because they did not report comparisons between groups. This was true of several studies conducted in health care settings. Future design of interventions should include measures of actual behaviors and reporting of results for treatment and comparison groups.

This study has several implications. First, the study demonstrated that it is possible to identify components of prevention programs found to be effective for specific subgroups of children. Second, while some programs may have been shown to be effective, they may not target a particular target group or risk behavior. It is crucial that program planners receive and understand information related to both applied and scientific measures of a program's effectiveness. Efforts at creating practical program evaluation should be continued, with the notion that application of evidence-based practice to planning for youth violence prevention will result in more efficient use of increasingly scarce resources.

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