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Does an evidence-based healthy relationships program for 9th graders show similar effects for 7th and 8th graders? Results from 57 schools randomized to intervention

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Abstract

Integrating social and emotional learning (SEL) programming throughout curricula to support the development of healthy behaviors and prevent violence is critical for a comprehensive approach to school health. This study used a post-test comparison design to evaluate a healthy relationships program for eighth grade students that applies a SEL approach. The program was adapted from the Fourth R, an evidence-based program for ninth graders, but matches the curriculum and developmental context for eighth graders. Surveys were collected post-intervention from 1012 students within 57 schools randomized to intervention or control conditions. Multivariate multilevel analysis accounted for the nested nature of students within schools. There were significant group differences on three of four outcomes following intervention, including improved knowledge about violence, critical thinking around the impact of violence, and identification of more successful coping strategies. There was no group difference on general acceptance of violence. Overall, students learned relevant information and strategies and were able to apply that knowledge to demonstrate critical thinking, suggesting that adapting an evidence-based approach for use with younger students provided similar benefits. These findings build a case for 2 years of consecutive evidence-based healthy relationships programming in grades 8 and 9, consistent with best practice guidelines.

Introduction

Many health-compromising behaviors emerge during adolescence [1], making schools ideal settings for universal prevention programing. Healthy relationships are related to positive outcomes, including positive mental health and adjustment [2], whereas unhealthy relationships are associated with mental health problems and substance use [3, 4]. Reviews have identified effective school-based prevention programs for dating violence [5] and bullying [6]; however, many effective programs have been evaluated only with one particular grade or age group. There is a need to continue evaluating evidence-based approaches as they are applied to new contexts and age groups.

Health education too often emphasizes the negative behaviors that youth should avoid and omits discussion of the assets that youth can build. Focusing on positive youth development goes

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beyond avoiding negative outcomes by also focusing on building strong, core capacities among adolescents. In the field of education, an emphasis on social and emotional learning (SEL) has emerged, promoting the processes through which children and adults attain core capacities that are critical to positive development and buffer against the development of risk behaviors [7]. SEL focuses on the processes through which children and adults acquire and effectively apply the knowledge, attitudes and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions [8]. The Collaborative for Social and Emotional Learning (CASEL; www.casel.org) defines five specific SEL competency domains: self-awareness, self-management, social awareness, relationship skills and responsible decision making. Students who have strong social and emotional skills have more positive relationships with peers and adults and have more positive emotional adjustment and mental health [9]. These capacities are also linked to school success [10]. A meta-analytic review indicated that students in schools that implemented specific SEL programs performed better academically than their peers in schools without such programs, by an average of 11% points on achievement [11].

The Fourth R is a school-based, universal program that promotes healthy relationships and targets peer and dating violence. Rather than focusing solely on negative behaviors to avoid, the program takes a SEL approach by developing the capacities youth require to be well-adjusted and succeed in school. Using role plays, students are given multiple opportunities to practice ways to resolve conflict as both participants and bystanders [12].The original ninth grade version included 21 lessons delivered by health teachers and was evaluated with a cluster randomized controlled trial (RCT) involving >1700 youth in 20 schools. Intervention students reported less physical dating violence compared with students in the control group at 2.5-year follow-up [13], increased relationship and peer resistance skills post-intervention [14], and buffering effects on the perpetration of peer violence for intervention participants who had experienced child maltreatment [15, 16]. In this brief report, we examine outcomes for the eighth grade Fourth R program, also using a cluster RCT. The eighth grade program applies the same principles as the evidence-based ninth grade program, but meets eighth grade learning expectations. For example, there is a greater focus on the impact of bullying and peer violence (compared with dating violence), and on developing healthy coping strategies in response to stress. The themes of healthy relationships and strong decision-making capacity underlie both the grade 8 and 9 versions. It was hypothesized that students in intervention schools would demonstrate greater knowledge about violence, higher awareness of the impact of violence, higher awareness of healthy coping and report lower acceptance of violence in general compared to control students.

Method

Participants were drawn from 57 schools across eight school divisions in a Western Canadian province who volunteered in response to an invitation sent out by their division. Schools were separated into two envelopes based on size (i.e. 500 + students versus smaller) and each envelope was randomized by drawing names and alternating between intervention and control conditions. Many of the schools were small rural schools with only one eligible class ($n = 48$), whereas the urban schools ($n = 9$) had multiple classes. All eligible teachers agreed to participate in the research, with the exception of one in each condition from larger schools (i.e. they implemented the curriculum but did not agree to facilitate consent forms and surveys for their students). Although the curriculum was designed for eighth grade, many of the schools ($n = 25$) included both seventh and eighth graders.

The mean (SD) age of participants was 13.59 (4.42) years and they were evenly distributed by sex (52.2% male). Most participants reported their ethnicity as Caucasian (73.4%), followed by First Nations, Métis or Inuit (FNMI; 16.9%); Asian Canadian (4.7%); African Canadian (1.8%);

Table I. *Demographic descriptive statistics for survey respondents*

Variable	Intervention condition %/*M* (SD)	Control condition %/*M* (*SD*)	*P* value
Individual level variables	$n = 522$	$n = 490$	
Male	52.0	52.5	0.483
Female	48.0	47.5	0.456
Grade 8 (versus grade 7)	**82.2**	**88.8**	**0.002**
Age	13.46 (1.17)	13.72 (6.23)	0.356
Caucasian	**69.2**	**77.8**	**0.000**
First Nations, Métis, or Inuit	**19.8**	**13.8**	**0.015**
Other	11.0	8.3	0.225
Family affluence	**10.11 (1.72)**	**10.51 (1.66)**	**0.000**
School level variables			0.645
School size			0.645
Small (<200)	40.7%	50.0%	
Medium (200-400)	48.1%	35.7%	
Large (>400)	11.1%	14.3%	
Urbanicity			0.634
Rural	40.7%	53.6%	
Small urban	22.2%	17.9%	
Large urban	37.4%	28.5%	

Note: Bolded values indicate a statistically significant difference between students in the intervention and control conditions ($P < 0.05$), calculated with an ANOVA (for continuous variables) or a chi-square (for categorical variables).

Hispanic or Latino (1.8%); and Arab Canadian (1.5%). Altogether, 490 students were in the control condition and 522 students were in the intervention condition ($n = 1012$ total). As reported in the top panel of Table I, the conditions were largely comparable, with a few differences in composition by grade of student, ethnicity and family affluence. The bottom panel of Table I shows that there were no differences between groups at the cluster level with regard to school size or urbanicity. The recruitment, consent, assent and completion rates for both conditions are presented in a CONSORT table in Figure 1.

The intervention was implemented by regular classroom teachers who had attended one day of training. After each class teachers completed a tracking sheet indicating their level of completion of the session and any modifications. Almost all (94.3%) reported implementing 81% or more of the program (the remaining 5.7% of respondents implemented between 61 and 80%). Teachers were also asked specifically if they had completed the role plays in the five sessions that include this activity, and the mean completion rate was 4.24 (SD = 0.93). Student surveys were completed during class time in the month following intervention. This study was approved by the Research Ethics Board of the Centre for Addiction and Mental Health and the school divisions involved.

Measures

Acceptability of violence was assessed using ten items: six from the Attitudes Toward Conflict scale developed by Lam [17] (e.g. If I back down from a fight, everyone will think I'm a coward) and four designed for this study to measure the acceptability of social aggression (e.g. It is O.K. for my group of friends to ignore someone in our group if we are mad at that person). The combined scale had good internal reliability ($\alpha = 0.87$) and correlated with self-reported perpetration of physical, social and verbal bullying ($r = 0.31$, 0.22 and 27, respectively). Knowledge questions were developed for this study by a panel of teachers according to mandated curriculum outcomes. Students responded to eight multiple choice questions measuring knowledge about violence (e.g. identifying the definition of homophobia as 'making comments, gestures or actions toward someone because of their real or perceived sexual orientation') and the correct answers were summed ($\alpha = 0.78$). One open-ended question measured critical thinking regarding the impact of violence (i.e. 'A group of girls have begun to make fun of Amanda. They send her nasty text messages and post embarrassing things on the web. What are some of the emotional, physical, school and family impacts this could have on Amanda?'). Another open-ended response identified effective coping strategies (i.e. 'Describe three healthy ways to cope with stress'). Students' responses were scored by a research assistant blinded to condition based on a detailed codebook and ambiguous answers were resolved by consensus with the first author. Students did not receive points for redundant answers (e.g. 'sad' or 'upset and

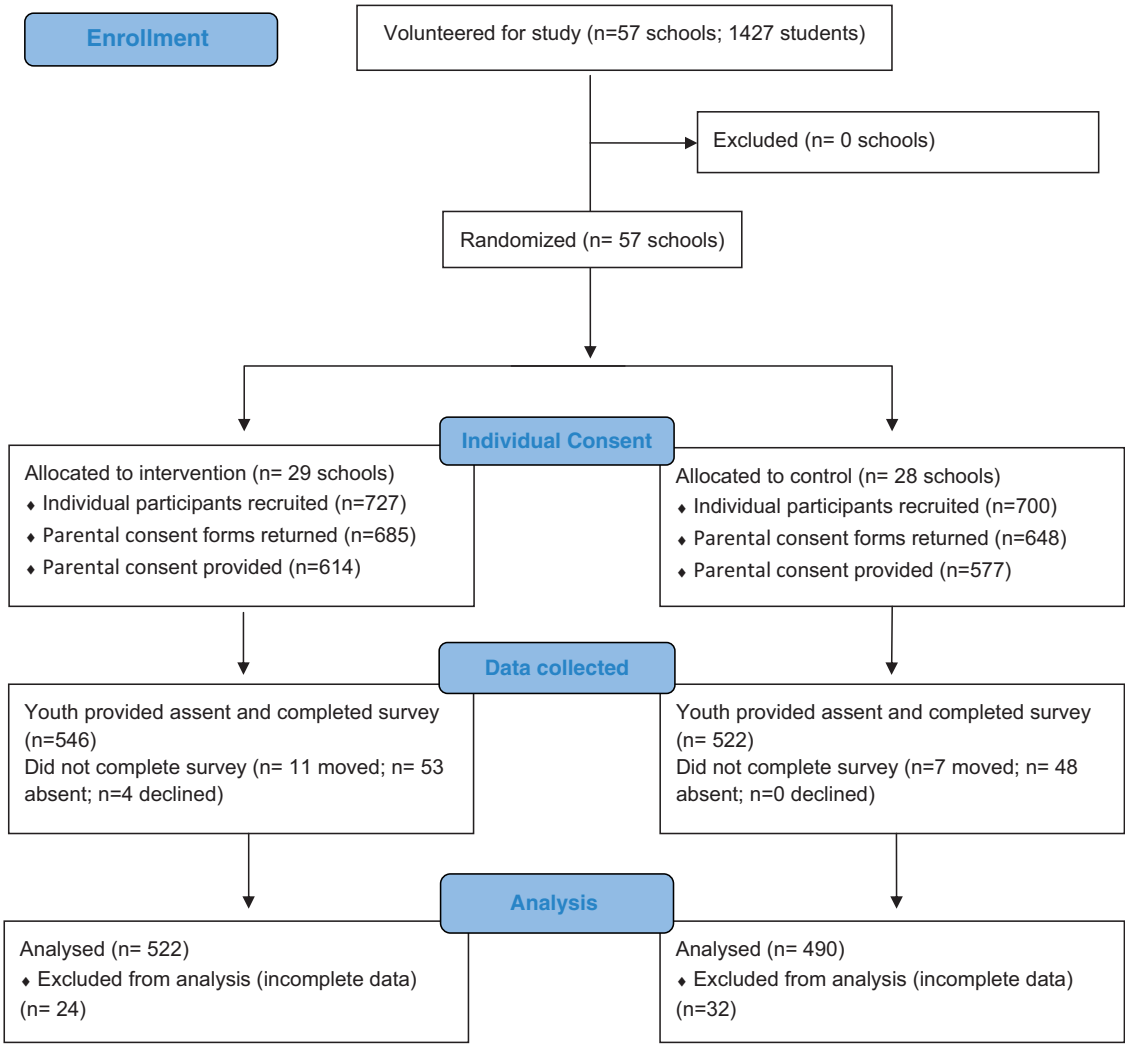

Fig. 1. CONSORT flow diagram depicting recruitment, consent and participation rates.

lonely' or 'feel bad about herself' would be worth only one point for emotional distress on the question about impacts of violence). Student sex, age, grade and ethnicity were also collected. SES was measured with the Family Affluence Scale [18].

Analysis

To account for the hierarchical structure of the data (students nested in schools), multivariate multilevel models were used to examine intervention effects. At the school level of analysis, only the condition variable (control versus treatment) was used. At the student level, we chose *a priori* to include three variables: sex, grade (7 or 8) and family affluence. Given noted differences in the intervention and control samples, ethnicity was also included as an individual level control variable. At the cluster level, school size and urbanicity were included as potentially important to understanding variance in outcome between schools. All analyses were

Table II. *Estimates of the impact of grade, gender, family affluence, ethnicity, school size, urbanicity and intervention condition on adolescent self-reported knowledge, awareness and acceptance of bullying*

	Person variables (Level 1)				Classroom variables (Level 2)		
Parameter estimates	Sex	Grade	Family affluence	Ethnicity	School size	Urbanicity	Intervention Condition
Knowledge							
Estimate	**0.578**	0.117	**0.075**	**0.742**	0.078	0.082	**1.074**
Standard error	**0.149**	0.210	**0.036**	**0.208**	0.115	0.078	**0.170**
P value	**0.000**	0.557	**0.040**	**0.000**	0.496	0.292	**<0.001**
Awareness of impact							
Estimate	**0.510**	**0.313**	**0.041**	0.144	0.111	−0.016	**0.232**
Standard error	**0.069**	**0.092**	**0.017**	0.092	0.073	0.040	**0.095**
P value	**0.000**	**0.001**	**0.016**	0.116	0.127	0.689	**0.015**
Coping strategies							
Estimate	**0.525**	−0.104	0.008	**0.180**	−0.004	0.061	**0.287**
Standard error	**0.055**	0.091	0.019	**0.077**	0.085	0.045	**0.117**
P value	**0.000**	0.258	0.660	**0.019**	0.961	0.174	**0.014**
Acceptance of violence							
Estimate	**−2.982**	**1.026**	−0.062	**−1.948**	−0.106	−0.254	−0.217
Standard error	**0.362**	**0.453**	0.091	**0.392**	0.306	0.162	0.363
P value	**0.000**	**0.023**	0.494	**0.000**	0.729	0.117	0.550

performed in MPlus using full information maximum likelihood estimates. The final model was estimated with observed variables, random intercepts and a fixed slope. Adjusted parameter estimates are reported for all individual and school level variables in Table II, including parameter estimates for the adjusted (but not standardized) effects of intervention condition in the last column.

Results

Table II presents the results for the four outcomes of interest. At post-test, students in intervention schools reported higher average knowledge of violence, demonstrated greater critical thinking and awareness related to the impact of violence on victims and identified a great number of positive coping strategies for stress than students in control schools. Students in intervention schools did not endorse lower acceptance of violence overall. Several individual characteristics also influenced student outcomes. Specifically, female students were more likely than male students to answer knowledge questions correctly, to have greater critical thinking and awareness of the impact of violence, to report greater knowledge of coping strategies and were less accepting of violence. Students in eighth grade were more aware of impact and less accepting of violence than those in seventh grade. More affluent students had greater knowledge of violence and were more aware of its impact. Finally, students who identified as Caucasian were more likely than non-Caucasian students to answer knowledge questions correctly, to have greater awareness of the impact of violence, and were less accepting of violence.

Discussion

Overall, the findings of this study provide preliminary evidence that the eighth grade Fourth R program promotes student knowledge, critical thinking regarding the awareness of the impact of violence, and coping strategies among seventh and eighth graders. These effects map onto the critical SEL domains of social awareness and relationships skills (e.g. knowledge, awareness of impact of violence), and self-management (e.g. coping skills). Acceptability of violence did not show group differences at post-test, possibly due to social desirability

(i.e. students were asked if they endorsed attitudes that were face valid). Most students are aware of the socially appropriate response to such items. In comparison, the other measures required applied knowledge and critical thinking to score higher.

The primary limitation of this study is the absence of pre-intervention and follow-up data; however, the data were collected in the context of a province-wide implementation that did not offer the opportunity to collect these data. Individual-level gains were limited to the identification of short-term learning outcomes rather than longer-term behavioral ones. Again, the timing of the data collection did not facilitate the opportunity to assess behavioral outcomes, which typically are evident further out from the end of the intervention. For example, in the initial RCT of the grade 9 program, behavioral outcomes were evident two years post-intervention [13].

However, even without long-term outcomes, the results of this study are important in the context of being a downward extension of an evidence-based program. As the eighth grade version of a ninth grade program that has demonstrated long-term benefits, the Fourth R meets the standard of two consecutive years of programming identified by CASEL as a best practice. A considerable body of research in prevention and positive youth development has shown a significantly greater impact of programming across two or more consecutive years [19]. Furthermore, the promotion of SEL competencies provides benefits across a wide range of domains, including emotional, mental health and academic.

In summary, this brief report provides preliminary evidence for the effectiveness of the adapted eighth grade version of an evidence-based healthy relationships and violence prevention program when implemented with seventh and eighth graders in a wide range of urban and rural schools. Identifying effective developmentally appropriate approaches that can be integrated into school-based curricula across grades is an important step towards integrating SEL throughout the education system.

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Conflict of interest statement

None declared.

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