

Observations of Adolescent Peer Resistance Skills Following a Classroom-Based Healthy Relationship Program: A Post-intervention Comparison

David A. Wolfe · Claire V. Crooks · Debbie Chiodo · Raymond Hughes · Wendy Ellis

© Society for Prevention Research 2011

Abstract This study examines peer resistance skills following a 21-lesson classroom-based intervention to build healthy relationships and decrease abusive and health-risk behaviors among adolescents. The *Fourth R* instructs students in positive relationship skills, such as negotiation and delay, for navigating challenging peer and dating scenarios. Observational data from 196 grade 9 students participating in a larger cluster randomized controlled trial were used to evaluate post-intervention acquisition of peer resistance skills. Pairs of students engaged in a role play paradigm with older student actors, where they were subjected to increasing pressure to comply with peer requests related to drugs and alcohol, bullying, and sexual behavior. Specific and global measures of change in peer resistance responses were obtained from two independent sets of observers, blinded to condition. Specific peer resistance responses (negotiation, delay, yielding to pressure, refusal, and compliance) were coded by research assistants; global peer resistance responses were rated by teachers from other schools (thinking / inquiry, application, communication, and perceived efficacy). Students who

received the intervention were more likely to demonstrate negotiation skills and less likely to yield to negative pressure relative to controls. Intervention students were also more likely to use delay than controls; control girls were more likely to use refusal responses; the number of times students complied with peer requests did not differ. Teacher ratings demonstrated significant main effects favoring intervention youth on all measures. Program and research implications are highlighted.

Keywords Adolescent relationships · Observational data · Behavioral skills · Adolescent risk behavior · School-based prevention · Dating violence · Substance use · Safe sex

The nature and intensity of relationships change rapidly during adolescence, with peer relationships taking on unprecedented importance and complexity, and dating relationships beginning to emerge. Health-compromising behaviors such as substance use, unsafe sexual practices, and peer and dating violence emerge within this relationship context (Irwin et al. 2002). Because these behaviors occur in a developmental context, they pose significant risks to the formation of healthy relationships and lifestyle choices. Alcohol use, for example, influences the practice of or involvement in a number of high-risk behaviors, such as unsafe sexual activity, smoking, drinking and driving, and violence (Baler and Volkow 2011; Guo et al. 2002). Similarly, girls who report dating aggression (as a victim or offender) are five times more likely to use alcohol than girls in non-violent relationships, and boys are 2 1/2 times as likely (Pepler et al. 2002). Teens who use alcohol and drugs are more likely to have sexual intercourse, to initiate sexual intercourse at an earlier age, to have multiple sex partners, and to be at greater risk for sexually transmitted diseases

D. A. Wolfe
CAMH Centre for Prevention Science and Department of Psychiatry,
University of Toronto,
Toronto, Ontario, Canada

D. A. Wolfe (✉) · C. V. Crooks · D. Chiodo · R. Hughes
CAMH Centre for Prevention Science,
100 Collip Circle, Suite 100,
London, Ontario, Canada N6G 4X8
e-mail: david_wolfe@camh.net

W. Ellis
Department of Psychology,
King's University College at The University of Western Ontario,
London, Canada

and pregnancy (Brookmeyer and Henrich 2009; Calvert et al. 2010). The emerging picture is of a *triad* of adolescent risk behaviors—violence, sexual behavior and substance use—with complex transactional influences among them. Given the overlap across these behaviors, there is great interest in prevention initiatives that target more than one problem behavior (e.g., Botvin et al. 2006). Prevention of these behaviors is a priority both to minimize harm occurring during adolescence and also to ensure that youth develop the requisite foundation of prosocial skills and attitudes for success during adulthood.

Relationships are of such central importance in adolescence that researchers have coined them the “organizing principle” of adolescence and their peer networks (Collins and Sroufe 1999). Understanding the dynamics and rules behind relationships with same- and opposite-sex peers has important implications for understanding adolescent choices and behavior, because adolescents often base their decisions on perceived peer norms and influences (Gifford-Smith et al. 2005). Consequently, prevention programs for adolescents must emphasize the development of healthy relationships and promote the specific skills required for adolescents to navigate difficult relationship interactions. Adolescents are most likely to be offered drugs and alcohol by peers or close relations (e.g., same-sex friends, romantic partners, siblings; Trost et al. 1999), and need to develop resistance skills to avoid harmful health behaviors while maintaining important relationships (Epstein et al. 2007; Gottfredson et al. 2010).

The issue of what constitutes these necessary resistance skills is the source of some debate. Many prevention program developers have emphasized teaching adolescents to use prosocial, assertive responses to peer pressure. These responses are typically characterized as brief, declarative statements such as a simple refusal or negative judgment (i.e., “No, I don’t do that. It’s wrong”; Wright et al. 2004). These socially appropriate responses have been associated with healthier choices in relation to sexual behavior and substance use, and more effective conflict resolution skills (Caplan et al. 1992; Wills et al. 1989). However, there is increasing recognition that an effective response in one situation may not translate to another context. One study of youth in Mexico found that adolescents used different combinations of drug refusal strategies taught in a prevention program (i.e., refuse versus avoid) depending on the specific substance being offered (Kulis et al. 2008). Furthermore, the ability to generate multiple responses (also known as divergent responding) may be more important than the ability to respond consistently in assertively prosocial ways (Wright et al. 2004). These debates underscore a larger issue of whether the goals of prevention efforts are to increase adolescents’ prosocial, as opposed to most effective, responses to peer pressure; that

is, responses considered less prosocial (such as sarcasm or passive avoidance) may in fact be highly effective under certain conditions. While there is a need to assess whether adolescents learn the skills that prevention programs are attempting to teach, it is equally important to assess whether the acquisition of these skills results in more effective responding. The use of behavioral observation data is critical in making these assessments (Snyder et al. 2006).

Thus, effective prevention programs for adolescent risk behaviors simultaneously seek to increase peer resistance skills that can be used in a range of contexts and relationships, while decreasing specific harmful behaviors (Botvin et al. 2006). The complementary frameworks of prevention science and positive youth development provide a comprehensive map for achieving both of these goals (Catalano et al. 2003).

The *Fourth R* school-based prevention program applies this approach of developing positive youth competencies while targeting negative behaviors (Wolfe et al. 2009). It involves an intensive classroom-based curriculum component, and to a lesser degree peer, school, and parental components. Classroom-level intervention is directed by a 21-lesson curriculum with complete lesson plans, video resources, role-play exercises, rubrics, and handouts. The curriculum includes seven lessons (75-min each) on each topic of violence prevention, substance abuse, and sexual behavior, delivered by teachers with specialized training in Grade 9 Physical and Health Education classes.

The intervention was designed to present accurate information in an interesting and engaging format, to enhance youth motivation, and to teach (with guided practice) skills that promote healthy relationships and reduce conflict and risk behaviors. It extends beyond traditional didactic approaches to include strategies that have been successfully used to address adolescent risk behaviors, such as positive skills related to negotiation, delay, and refusal. To illustrate, the intervention engages students with exercises to define healthy relationships and includes many examples of the type of conflicts faced by teens daily, in the context of peer relationships (friendships and dating). The program uses extensive role-play instruction, with feedback from peers and teachers, to increase interpersonal skills and problem solving. The program involves slightly different exercises and activities for boys and girls that are intended to raise their level of awareness and minimize defensive or hostile reactions, and also to be reflective of the distinct social and culturally grounded pressures that boys and girls face. Adolescents receive ample practice role playing ways to resolve conflict and resist peer pressure, both as participants and in the role of bystander. Furthermore, they learn to apply the skills in each of the three areas. For example, instead of learning

assertive communication in general, they learn to practice assertive communication during realistic situations such as dating and peer conflict, pressure to use drugs or alcohol, and pressure to engage in sexual behavior.

The *Fourth R* was evaluated in a cluster randomized controlled trial (RCT) of 1722 Grade 9 students in Health classes nested in 20 schools (Wolfe et al. 2009). At 2-year follow-up in Grade 11, control students used more acts of physical violence toward a dating partner compared to intervention students, with a more pronounced effect for boys than girls. The program also resulted in increased condom use among sexually active boys. In addition to the RCT findings, the impact of cumulative forms of childhood maltreatment on risk for engaging in violent delinquency was greater among those schools that had not participated in the program, suggesting a school-wide buffering effect for the most vulnerable students (Crooks et al. 2007). This protective impact of *Fourth R* schools among maltreated youth with respect to violent delinquency was still evident 2-years post-intervention (Crooks et al. 2011).

While the prevention aspects of the *Fourth R* have been documented, the positive youth development aspects remain to be explored. The purpose of this paper is to evaluate the acquisition of skills demonstrated in a realistic role-play analog paradigm. Consistent with the literature emphasizing the need for divergent responding, the current study was designed to elicit behavioral responses by students in a range of scenarios, and to use these observational data to supplement broader outcome variables examined in the larger RCT evaluation.

Methods

Participants

Parent and youth consent for the observational study were obtained as part of the larger RCT study. All role-play participants received \$10 compensation. This study was approved by the Institutional Review Boards at the Centre for Addiction and Mental Health and the University of Western Ontario.

Approximately 3-months post-intervention, a subsample of 196 (96 intervention, 100 controls; 56% females) Grade 9 students from 6 of the 20 schools (3 per condition) involved in the RCT participated in the observational study. These six schools were selected for convenience (i.e., larger Grade 9 student population and closer in proximity to the research team) to ease the logistics in videotaping and transporting student actors to and from schools. These 6 schools were compared with the remaining 14 schools in the full sample on pre-intervention involvement in 1) sexual activity (“had sexual intercourse”); 2) problem substance

use (i.e., drinking 1–2 days a week or more; having five or more drinks at one time in past 30 days; using marijuana 1–2 days a week or more; *or* having tried any other illicit drug in the past 3 months); 3) peer violence perpetration (i.e., “hit, slapped or punched another peer in the past 30 days”), and 4) practicing safe sex (“Did you use a condom the last time you had sexual intercourse?”). Students in the six schools that participated in the observational study differed only on sexual activity, with those in the observational study reporting more sexual activity than those in the full sample [$F(1, 1546) = 4.63, p < .04$].

A research assistant attended Grade 9 classrooms at these six schools to explain the observational study and ask consenting students to participate; 295 of 454 (65%) consented, and 196 were asked to participate on the basis of feasibility of conducting observations during class time. Baseline comparisons of the selected intervention and control groups were conducted to ensure group equivalence in terms of sex composition and pre-intervention involvement in three risk behaviors targeted in the program (sexual activity, problem substance use, and peer violence perpetration, based on the same criteria used to compare schools). The two groups did not differ significantly on baseline risk behaviors or male/female composition.

Observational Procedure

A research assistant met with participants in their classrooms to explain the role play and ask them to write down the names of two friends from class to participate in the role play with them (dyads were used to increase the realism of the scenario). For each participating youth, one of the two nominated friends was randomly selected by the researchers to participate with their peer in the role-play scenario (if one of the friends had not consented to the study the other was chosen). The observational role plays took place at school during class time. Participants were sent in pairs to a designated room at school, where researchers informed them that they would role play with three unfamiliar student actor confederates from another school. Each role play lasted approximately 5 min, followed by debriefing.

Behavioral Role Play The role plays for this study were created by older male and female students in Grades 11 and 12 from a different school, with the assistance of a drama teacher: Scenarios were designed to elicit from the Grade 9 participants opportunities for decision-making and effective resistance strategies to peer pressure. Student actors were instructed to create two gender-specific scenarios of typical adolescent pressures related to sex, substance use, and violence, as well as to use escalating pressure tactics. Prior to the start of the present study, student actors practiced and piloted the role-play scenarios with Grade 10 students to

ensure that they captured realistic situations faced by Grade 9 students and were not too demanding or uncomfortable for students. The standard scenarios for boys and girls began with an invitation to a senior party and a request to bring alcohol, followed by pressure to use or bring marijuana. For girls, actors then included an enticement to meet and spend some ‘alone time’ with a senior male student who was secretly attracted to her; for boys, actors included an invitation to bring “a guy from your class” to the party, stating “don’t you know that guy’s gay”; “bring him so we can shave his head and have some fun with him.”

Students were given the following instructions: “The scenario you will be participating in takes place at school. The two of you are good friends and both of you are on the junior boys football/ junior girls field hockey team. You are hanging out in the hallway of your school during lunch. In the hallway are two senior football/field hockey players. You know these seniors and respect and look up to them. They are going to invite you to a party Friday night and both of you agree to go to the party and to bring something to eat or drink.” They were further instructed to act as if the situation was real and to respond as they normally would. After a few introductory comments and exchanges the actors began with the prompt, “So there is a big party planned for Friday night, are you interested in coming?” The actors then asked, “Do you think you can bring something? Maybe some food or drinks?” Once they had established that the students were planning on attending the party and would bring something, the actors pressured them to bring alcohol or money for alcohol (e.g., “Can you bring some beer?,” “Come on, it’s no big deal”: “Grab some from your parents”).

The confederates were skilled student actors who were creative and persistent in overriding the younger students’ attempts to navigate the situation. For example, if the younger students said they did not have alcohol, then the older students suggested bringing their parents’ beer. If the younger students said that their parents did not drink or have beer in the house, then the older students suggested they bring five dollars to contribute to a “beer run” to the liquor store. In addition, right in the middle of the scenario, the older students told the younger pairs to take a minute and talk it over with each other, and retreated to give the younger pair of students some privacy. The younger students would have a hurried conversation at this point, which provided an interesting window into their thought processes and concerns. Often they would generate strategies to try once the older students returned and resumed the conversation. The scenario ended when all questions/topics had been covered by the actors.

The interactions were videotaped with two cameras for coding purposes. Students were orally debriefed to ensure they had no concerns or distress following the role play.

Measures

The behavioral observations were analyzed in two ways. Specific and global measures of behavior change in peer resistance responses for each youth in the videotaped role-play scenarios were assessed by two different sets of observers, blinded to condition. Trained research assistants (RAs) coded each student on five specific behavioral responses related to the intervention, including positive (i.e., negotiation, delay, and refusal) as well as negative peer (i.e., yielding to pressure, compliance) resistance. Classroom teachers independently rated each student on four global indices of peer resistance, based on similar methods used in the classroom (i.e., thinking inquiry, application, communication, and perceived efficacy). Details of the coding and rating methods follow.

Specific Peer Resistance Responses The three positive peer resistance skills coded by research assistants are part of curriculum standards for all Grade 9 students in Ontario (i.e., negotiation, delay, and refusal), and reflect positive gains from the intervention; two negative peer resistance responses were also assessed (i.e., compliance and yielding to pressure) to evaluate post-intervention changes relative to controls. Specific definitions and examples for each of the codes are summarized in Appendix A. Event recording was used to measure the frequency that each of the above responses was used, such that the coding task was to count the number of times each problem solving strategy was used. This coding approach captured the fact that youth often use many strategies to manage peer-based problems (i.e., youth could have more than one code). Three trained RAs coded the role-play interactions separately for each target student. Training of specific responses took place over a 5-month period, and included training with The Observer[®] XT version 6.0 software program for observational coding (www.noldus.com). Ten percent of participants were randomly selected and coded by a “gold standard” RA. Interrater agreement was calculated according to exact match with gold standard scores on categorical scores. The omnibus interrater agreement (kappa) for each of the four specific responses to actor prompts was .89 (range .87–.91).

Global Peer Resistance Responses Eleven high school teachers volunteered to observe and rate 98 randomly selected role plays, to obtain their independent ratings of student peer resistance skills. Teachers are logical raters because they are familiar with the nuances of peer interactions in this age group, and witness effective and ineffective responses to conflict on a daily basis. Five teachers were drawn from intervention schools and six from control schools; no teacher was from any of the schools

from which the student participants or actors were drawn. Teacher ratings were global, using the marking scheme for scoring student effort in Grade 9 health classes that includes three categories of skills (i.e., thinking/inquiry, application, communication). Each skill was rated on a four-point scale corresponding to effectiveness (i.e., 1 = limited effectiveness or clarity; 4 = high degree of effectiveness or clarity). Teachers also rated how confident they were (1 = not at all confident to 4 = very confident) that the student would make appropriate and safe decisions if this were a real situation (labeled *perceived efficacy*). Four scales were created by summing teacher ratings on each skill and on perceived efficacy. Each scale had a possible range from 11 to 44; agreement among 11 teacher ratings was high for each of the four scales ($\alpha \geq .96$).

Results

The percentages of participants exhibiting each of the five specific peer resistance responses are shown in Table 1, by sex and condition. Three responses (negotiation, delay, and yielding) were coded dichotomously (occurred/did not occur) because they were low frequency events with a mean of less than one. On average, 70% of boys and girls in both conditions showed delay on at least one occasion, with negotiation and yielding shown less often (34% and 33%, respectively). The other two responses were treated as continuous variables due to their normal distribution (refusal, $M=3.77$, $SD = 3.41$; compliance, $M=2.45$, $SD=2.15$ across conditions and sex).

Effect of Intervention on Specific Peer Resistance Responses

The effects of the classroom intervention on positive and negative peer resistance responses were analyzed using

logistic and multiple regression analyses. Regression models included condition and sex in the first block, with the interaction term (sex X condition) entered on the second block.

Results of logistic regressions are shown in the first nine rows of Table 2. Consistent with our hypotheses, intervention students were seven times more likely to show delay responses ($OR = 7.01$, $CI = 3.16-15.54$) than control students. There was also a significant interaction of condition by sex for delay responses ($OR = 5.61$, $CI = 1.04-30.24$; $p < .05$). This interaction was analyzed according to the guidelines outlined by Aiken and West (1991) and simple slopes were plotted following the procedures outlined by Preacher et al. (2006). To decipher the overall pattern of each interaction, separate regression lines were computed and plotted for individuals one standard deviation above (+1 SD) and below (-1 SD) the mean of the predictor. As shown in Fig. 1, whereas both intervention girls and boys showed more delays skills than their counterparts in the control condition, intervention girls were mostly likely to exhibit delay skills.

Consistent with our hypotheses, students in the intervention group were more than twice as likely as those in the control group to demonstrate negotiation during the role play ($OR = 2.14$, $CI = 1.16-3.96$; $p < .05$). Finally, control students were four times more likely than intervention students to respond to the pressure of the actors by yielding ($OR = 4.05$, $CI = 2.45-16.50$; $p < .05$).

Multiple regressions were used for refusal and compliance as these were continuous variables. There was no significant main effect of condition for refusal responses. A significant main effect of sex indicated that girls were more likely to use refusal skills than boys, which was qualified by a significant interaction term. The interaction between condition and sex is plotted in Fig. 2, indicating that girls from control schools showed more refusal skills than girls

Table 1 Descriptive statistics for behaviors shown by students during role play with actors, by condition and sex

	Total sample ($N=196$)		Boys ($N=86$)		Girls ($N=110$)	
	Intervention ($n=96$) n (%)	Control ($n=100$) n (%)	Intervention($n=48$) n (%)	Control ($n=38$) n (%)	Intervention($n=48$) n (%)	Control($n=62$) n (%)
Behaviors						
Delay ^a	87 (91)	57 (57)	42 (88)	27 (71)	45 (94)	30 (48)
Negotiation ^a	40 (42)	26 (26)	18 (36)	7 (18)	22 (46)	19 (31)
Yielding ^a	27 (28)	38 (38)	14 (29)	20 (53)	13 (27)	18 (30)
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Refusal ^b	3.38 (3.02)	4.16 (3.73)	3.4 (2.61)	2.89 (2.57)	3.35 (3.41)	4.93 (4.11)
Compliance ^b	2.43 (1.97)	2.48 (2.34)	2.54 (1.91)	2.66 (2.1)	2.31 (2.04)	2.38 (2.48)

^a Student responses to these skills were coded as occurring or not occurring during the interaction

^b Student responses to these skills were coded continuously during the interaction

Table 2 Regression analyses of students' specific peer resistance responses during role play with actors, by sex and condition

	β	Odds ratio	95% CI
Delay			
Condition	1.95**	7.01	3.16–15.54
Sex	-.50	.61	.30–1.24
Condition X sex	1.73*	5.61	1.04–30.24
Negotiation			
Condition	.76*	2.14	1.16–3.96
Sex	.49	1.63	.88–3.04
Condition X sex	-.35	.70	.20–2.50
Yielding			
Condition	1.40*	4.05	2.45–16.5
Sex	-.52	.59	.31–1.80
Condition X sex	.82	2.27	.70–8.15
Refusal			
Condition	-.67	.49	
Sex	.99*	.49	
Condition X sex	-.97*	.41	
Compliance			
Condition	-.09	.31	
Sex	-.26	.31	
Condition X sex	-.03	.26	

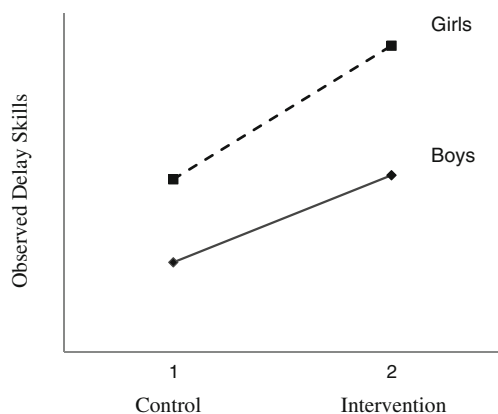
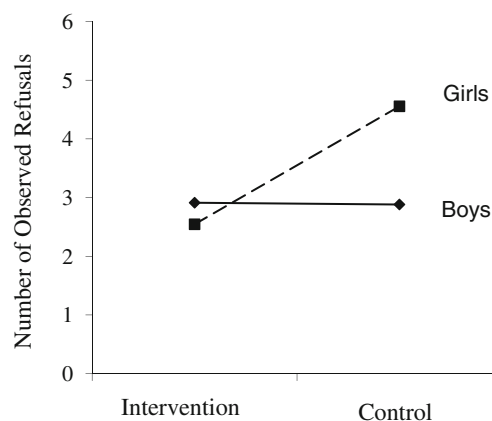
Condition (1 = Control group, 2 = Intervention group), Sex (1 = Male, 2 = Female)

* $p < .05$; ** $p < .01$

from intervention schools. The regression model for compliance did not reveal significant differences by condition or sex.

Effect of Intervention on Global Peer Resistance Responses

Means and standard deviations are shown in Table 3 for teacher ratings of global peer resistance behavior during the

**Fig. 1** Plot of the interaction of condition X sex on delay skills**Fig. 2** Plot of the interaction of condition X sex on refusal skills

role play with actors. A two-way (condition X sex) multivariate analysis of variance (MANOVA) was conducted with three similar scales to control for multicollinearity (i.e., thinking/inquiry, application, communication). Main effects were found for condition [$F(3, 92) = 2.61, p < .05$], but not for sex [$F(3, 92) = 2.18, p = .09$]. The main effect of condition was qualified by a significant interaction effect [$F(3, 96) = 2.99, p = .035$]. Subsequent univariate analyses revealed significant differences for condition on all three categories of skills, indicating students from intervention schools were rated higher by teachers (all $ps < .05$). A significant sex X condition interaction for the application scale ($p < .05$) indicated that boys in the intervention condition ($M = 28.63, SD = 9.2$) were rated significantly higher in application compared to control boys ($M = 20.26, SD = 9.3$), but were not different from girls in either condition.

The fourth scale asked teachers to rate how confident they were that students would make appropriate and safer decisions if this were a real situation (i.e., perceived efficacy). A two-way ANOVA was conducted on this scale. Main effects were found for both condition and sex [$F(1, 94) = 4.23$ and 4.35 , respectively; $p < .05$]. Teachers were more confident that intervention students ($M = 29.23, SD = 9.12$) would make safer and more appropriate decisions in a similar real-life situation, compared to control students ($M = 26.17, SD = 10.59$). Teachers were also more confident that girls ($M = 29.24, SD = 8.75$) would make safer decisions in real life compared to boys ($M = 25.89, SD = 11.0$).

Correlations between Skills and 2-Year Outcomes

Because these results are part of the larger RCT, we examined the zero-order correlations between the specific peer resistance responses post-intervention and problem substance use at 2-year follow-up. As shown in Table 4, correlations indicate that for control subjects problem

Table 3 Means (standard deviations) for teacher ratings of student’s global peer resistance responses role plays with actors, by sex

	Girls		Boys		Total sample		<i>F</i> _{cond}	<i>F</i> _{cond X sex}
	Intervention (<i>n</i> =19) <i>M</i> (<i>SD</i>)	Control (<i>n</i> =32) <i>M</i> (<i>SD</i>)	Intervention (<i>n</i> =28) <i>M</i> (<i>SD</i>)	Control (<i>n</i> =19) <i>M</i> (<i>SD</i>)	Intervention (<i>n</i> =47) <i>M</i> (<i>SD</i>)	Control (<i>n</i> =51) <i>M</i> (<i>SD</i>)		
Thinking/inquiry	30.79 (7.65)	29.59 (10.13)	28.95 (10.14)	21.26 (10.71)	29.69 (9.17)	26.49 (11.02)	4.74*	2.53
Application	29.05 (6.40)	28.16 (8.82)	28.63 (9.21)	20.26 (9.30)	28.80 (8.12)	25.22 (9.71)	6.69*	4.35*
Communication	28.21 (6.83)	26.94 (8.61)	27.77 (9.79)	19.79 (9.02)	27.95 (8.64)	24.27 (9.34)	6.50*	3.41
Perceived efficacy	29.68 (7.25)	28.97 (9.67)	28.91 (10.37)	21.45 (10.62)	29.23 (9.12)	26.17 (10.59)	4.23*	2.90

Each scale was based on the sum of 11 teacher ratings (see text)
df= 1, 94; **p*<.05

substance use at 2-year follow-up was associated with less negotiation, more yielding, less refusal, and more compliance at the end of Grade 9. There were no significant correlations between responses and substance use for the intervention group, suggesting that the program may have prevented the development of substance use problems relative to controls.

Discussion

Prevention science and positive youth development have been touted as complementary frameworks for programming (Catalano et al. 2003). With adolescents in particular, there is an opportunity to promote the development of healthy relationship skills and patterns that will serve youth well in a multitude of settings as they enter adulthood. At

the same time, there is a need to target specific, negative behaviors (such as interpersonal violence and unsafe sexual behavior) or personality traits (e.g., sensation-seeking; Conrod et al. 2011) that have a host of negative short- and long-term implications. The findings presented in this study demonstrate that a teacher-delivered program to reduce dating violence, unsafe sex, and substance abuse among younger adolescents also promotes the acquisition of healthy relationship skills.

Compared to youth in control schools, youth from intervention schools demonstrated more negotiation, more delay, and less yielding responses in realistic group peer pressure scenarios. A significant sex by condition interaction for delay skills indicated that girls in the intervention condition demonstrated this response at much higher rates than their control school counterparts. Youths in both conditions complied to peer pressures at similar rates, but

Table 4 Zero-order correlations for post-intervention skills and year 2 outcomes, by condition

	1.	2.	3.	4.	5.	6.	7.
Intervention (<i>n</i> =96)							
1. Delay							
2. Negotiation	.06						
3. Yielding	.12	-.03					
4. Refusal	.11	.03	-.11				
5. Compliance	-.11	.19	.33**	-.27*			
6. Physical dating violence	.03	.07	-.20	-.19	.11		
7. Problem substance use	-.13	.22	-.04	-.07	.17	.15	
8. Safe sex	-.18	-.34	-.21	.06	-.18	-.20	-.16
Control (<i>n</i> =100)							
1. Delay							
2. Negotiation	-.13						
3. Yielding	-.09	-.13					
4. Refusal	.05	.13	-.18				
5. Compliance	-.31**	-.09	.08	-.45**			
6. Physical dating violence	.15	-.01	-.08	-.07	.08		
7. Problem substance use	-.03	-.22*	.21*	-.34**	.23*	.31*	
8. Safe sex	-.08	.06	-.20	-.01	-.01	-.02	-.14

**p*<.05; ** *p*<.01

this finding might be an artifact of the role-play paradigm in that escape or termination of the interaction was impossible (i.e., the role plays often continued until some degree of compliance was achieved by the older actors). At a more global level, teachers rated intervention youths as more skilled across a number of socially valid indices, and indicated a higher level of confidence that these youth would be effective against unwanted peer pressures.

Notably, control group girls were more likely to use refusal than intervention girls. However, this finding does not necessarily indicate lack of program effectiveness. Virtually all prevention programs teach refusal skills; however, it may be that the use of refusal is politically and philosophically attractive to adults (i.e., teaching youth to “just say no”), but not terribly effective for youth. One longitudinal analysis found that divergent thinking and responding was more effective than simple refusal at preventing delinquency 1 year later (Wright et al. 2004). Furthermore, refusal may be ineffective given the relational context of the interactions. Youth need to be able to generate strategies that can help them avoid the negative behaviors, yet maintain the peer and/or romantic relationships within which they are occurring. An analysis of drug offer and resistance interactions of more than 2,000 youth indicated that simple refusal may not be effective, and that different strategies may have differential effectiveness across relationships (Trost et al. 1999). More recently, a study comparing adult and adolescent ratings of effectiveness of different responses demonstrated that youth judged short, simple answers to be ineffective, and that just saying “no” was not considered reasonable (Nichols et al. 2010).

There is an interesting sex discrepancy when these behavioral observation findings are contrasted to the 2-year follow-up results of the RCT (Wolfe et al. 2009). The behavioral data suggest that girls may have learned the strategies more effectively than boys, based on the sex by condition interaction finding for delay skills (even if a main effect was found for boys), and teachers’ ratings favored girls as behaving more effectively than boys. Whereas the RCT data documented a decrease in dating violence and increase in condom use among intervention participants, these main effects were largely attributable to differences between boys in intervention and control schools.

Understanding the difference in relationship context for adolescent boys and girls might help explain why the program appears to have had more of an impact on skills acquisition with girls, yet more of an impact on reducing negative behaviors with boys. It is possible that Grade 9 girls were less likely to be dating boys the same age, and

there are myriad risks associated with older boyfriends, beyond the fact that these boys would not have participated in the program (Marin et al. 2000; Young and d’Arcy 2005). There is also evidence that girls may face a dilemma by increasing their assertiveness and interpersonal skills in dating relationships. Complex socialization dynamics mean that girls have to increase their power and assertiveness with dating partners (to negotiate condom use, for example), but in doing so, might be at higher risk for experiencing dating violence (Banister et al. 2003). Furthermore, desire to have a dating partner can outweigh the threat of health risks and violence faced by girls. That is, safety in relationships may be less a matter of skills and more a matter of agency for girls. The relationship between the social disempowerment of girls and their experiences of violence and unsafe sexual behavior is even more pronounced for culturally marginalized girls (Miller and White 2003). Importantly, while adolescent boys and girls both experience sexual coercion in dating relationships, girls find it much more upsetting (Sears and Byers 2010). These different studies build a picture of girls who are willing to endure health risks and violence for the sake of having a dating partner, and who may not be able to apply new assertiveness skills for fear of increasing violence and coercion. At the very least, it is clear that the positive youth development aspects and prevention aspects of the program may result in different types of benefits for different participants.

Limitations and Implications

Although this study involved innovative role-play data collection and increased the validity of the findings by utilizing two approaches to coding rating, there are a number of limitations. First, we do not have a pre-measure of student skills and therefore we cannot say with certainty that the *Fourth R* program improved student’s acquisition of decision-making skills. Second, cost and time involved with collecting the observational data precluded collecting behavioral data from the entire RCT sample of over 1,700 youth. The smaller sample size used in this study allows the identification of main effects and some sex by condition interactions, but is too small to assess the extent to which these relationship skills mediate the decrease in dating violence and increase in condom use reported among the full sample. Nevertheless the correlations presented here do suggest a link between lower skills and elevated substance use 2 years later. In the control condition, students who showed fewer negotiation skills, less refusal and more yielding and compliance had higher rates of substance use at follow-up. Third, we used convenience sampling of schools, and teacher volunteers to rate student behavior. Although the

validity of the observations was strengthened by using teacher raters in addition to trained researcher coders, utilizing peer raters might have provided additional or different information on the perceived effectiveness of the behavioral responses depicted (see Nichols et al. 2010). Moreover, our teacher volunteers may have presented a somewhat biased picture of what works in an adolescent's world. Finally, although our analyses show few differences between this sample and the larger RCT sample, it is still likely that we did not sample the most at-risk students. As such, our results may not generalize to high-risk populations of youth.

While role plays are a closer proxy to genuine behavior and decision making than are self-reported behaviors and intentions, there is still a gap between skills demonstrated in role-play observations and actual youth behavior. For example, a study of alcohol prevention found that refusal skills were effective only when combined with beliefs that drinking was socially unacceptable (Donaldson et al. 1995). There are few studies available to clarify the relationships among skills demonstrated in role plays, attitudes, and actual behavior, and this area of inquiry warrants further research. Allowing the Grade 9 youth to engage in the role play in pairs increased the realism of the scenario. In addition, building in some consultation time for the younger pair mid-scenario allowed coders to evaluate the thinking and

generation of possible strategies that occurred when the older students removed themselves for a minute.

Several program and research implications emerge from this study. First and foremost, it is evident that relationship skills can be taught effectively in a classroom setting by teachers with some special training. Youth were able to learn these skills over the course of a semester and then apply them in complex group peer scenarios with older youth. Furthermore, they were able to apply these skills with enough fluency that they appear more competent and effective than peers, as rated by teachers. Perhaps most importantly, the current study demonstrates that while prevention and positive youth development approaches are complementary, they are not merely opposite sides of the same coin. If programs are being developed to address both of these approaches, then evaluation also needs to measure both the prevention and promotion aspects, as different patterns may occur for each. Observational data play a unique role as part of an overall evaluation strategy of program efficacy and effectiveness (Snyder et al. 2006).

Acknowledgments This research was funded in part by a grant from the Canadian Institutes for Health Research (CIHR). We recognize RBC Financial Group for their support of the Chair in Children's Mental Health (D. Wolfe), and the Royal LePage Shelter Foundation for their generous support for violence prevention efforts with adolescents.

Appendix A

Table 5 Summary and examples of coded problem-solving strategies

Name of strategy	Description of strategy	Examples of strategy
Positive		
Delay	Delay behaviors are coded when the subject makes statements about delaying the activity or avoiding the situation. Delay behaviors are also coded when the subject changes the topic of conversation to delay responding to the pressure-type situation.	"Maybe in a couple years" "I don't know where they keep it (alcohol)"
Refusal	Refusal behaviors are coded when the subject refuses to engage or participate in a pressure type situation. Refusal behaviors are also coded when the subject gives a reason or excuse for not participating in the activity.	"We don't have any alcohol/money" "I don't really drink"
Negotiation	Negotiation behaviors are coded when the subject proposes alternative solutions to engage or participate in the activity. Negotiation skills are also coded when the subject discusses the consequences of participating in the activity.	"We will come but we don't want to bring anything" "Why do we have to drink to have a good time?"
Negative		
Yielding	Yielding behaviors are coded when the subject appears to be giving into/caving to the pressure situation. In some instances, yielding behaviors are a combination of behaviors that signify the possibility to engage in the activity.	"I will try" "We'll see how it goes"
Compliance	Compliance behaviors are coded when the subject goes along or agrees with the pressure situation or gives in to what the actors are requesting.	"Sure, I'll bring ten bucks" "Yeah, I would like to meet that guy"

References

- Aiken, L. A., & West, S. G. (1991). *Multiple regressions: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Banister, E. M., Jakubec, S. L., & Stein, J. A. (2003). "Like, what am I supposed to do?": Adolescent girls' health concerns in their dating relationships. *Canadian Journal of Nursing Research, 35*, 16–33.
- Baler, R. D., & Volkow, N. D. (2011). Addiction as a systems failure: Focus on adolescence and smoking. *Journal of the American Academy of Child and Adolescent Psychiatry, 50*, 329–339.
- Botvin, G. J., Griffin, K. W., & Nichols, T. R. (2006). Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science, 7*, 403–408.
- Brookmeyer, K. A., & Henrich, C. C. (2009). Disentangling adolescent pathways of sexual risk taking. *The Journal of Primary Prevention, 30*, 677–696.
- Calvert, W. J., Bucholz, K. K., & Steger-May, K. (2010). Early drinking and its association with adolescents' participation in risky behaviors. *Journal of the American Psychiatric Nurses Association, 16*, 239–251.
- Caplan, M., Weissberg, R. P., Grober, J. S., Sivo, P. J., Grady, K., & Jacoby, C. (1992). Social competence promotion with inner-city and suburban young adolescents: Effects on social adjustment and alcohol use. *Journal of Consulting and Clinical Psychology, 60*, 56–63.
- Catalano, R. F., Hawkins, J. D., Berglund, M. L., Pollard, J. A., & Arthur, M. W. (2003). Prevention science and positive youth development: Competitive or cooperative frameworks? *Journal of Adolescent Health, 31*, 230–239.
- Collins, W. A., & Sroufe, L. A. (1999). Capacity for intimate relationships: A developmental construction. In W. Furman, C. Feiring, & B. B. Brown (Eds.), *Contemporary perspectives on adolescent romantic relationships* (pp. 123–147). New York: Cambridge University Press.
- Conrod, P. J., Castellanos-Ryan, N., & Mackie, C. (2011). Long-term effects of a personality-targeted intervention to reduce alcohol use in adolescents. *Journal of Consulting and Clinical Psychology, 79*, 296–306. doi:10.1037/a0022997.
- Crooks, C. V., Scott, K., Wolfe, D. A., Chiodo, D., & Killip, S. (2007). Understanding the link between childhood maltreatment and violent delinquency: What do schools have to add? *Child Maltreatment, 12*, 269–280.
- Crooks, C. V., Scott, K., Ellis, W. E., & Wolfe, D. A. (2011). Impact of a universal school-based violence prevention program on violent delinquency: Distinctive benefits for youth with maltreatment histories. *Child Abuse & Neglect, 35*, 393–400. doi:10.1016/j.chiabu.2011.03.002
- Donaldson, S. I., Graham, J. W., Piccinin, A. M., & Hansen, W. B. (1995). Resistance-skills training and onset of alcohol use: Evidence for beneficial and potentially harmful effects in public schools and in private Catholic schools. *Health Psychology, 14*, 291–300.
- Epstein, J. A., Zhou, X. K., Bang, H., & Botvin, G. J. (2007). Do competence skills moderate the impact of social influences to drink and perceived social benefits of drinking on alcohol use among inner-city adolescents? *Prevention Science, 8*, 65–73.
- Gifford-Smith, M., Dodge, K. A., Dishion, T. J., & McCord, J. (2005). Peer influence in children and adolescents: Crossing the bridge from developmental to intervention science. *Journal of Abnormal Child Psychology, 33*, 255–265.
- Gottfredson, D. C., Cross, A., Wilson, D., Rorie, M., & Connell, N. (2010). An experimental evaluation of the All Stars prevention curriculum in a community after school setting. *Prevention Science, 11*, 142–154.
- Guo, J., Chung, I., Hill, K. G., Hawkins, J. D., Catalano, R. F., & Abbott, R. D. (2002). Developmental relationships between adolescent substance use and risky sexual behavior in young adulthood. *Journal of Adolescent Health, 31*, 354–362.
- Irwin, C. E., Jr., Burg, S. J., & Cart, C. U. (2002). America's adolescents: Where have we been, where are we going? *Journal of Adolescent Health, 31*, 91–121.
- Kulis, S., Marsiglia, F. F., Castillo, J., Becerra, D., & Nieri, T. (2008). Drug resistance strategies and substance use among adolescents in Monterrey, Mexico. *Journal of Primary Prevention, 29*, 167–192.
- Marin, B. V., Coyle, K. K., Gómez, C. A., Carvajal, S. C., & Kirby, D. B. (2000). Older boyfriends and girlfriends increase risk of sexual initiation in young adolescents. *Journal of Adolescent Health, 27*, 409–418.
- Miller, J., & White, N. A. (2003). Gender and adolescent relationship violence: A contextual examination. *Criminology, 41*, 1207–1248.
- Nichols, T. R., Birmel, S., Graber, J. A., Brooks-Gunn, J., & Botvin, G. J. (2010). Refusal skill ability: An examination of adolescent perceptions of effectiveness. *Journal of Primary Prevention, 31*, 127–137.
- Pepler, D. J., Craig, W. M., Connolly, J., & Henderson, K. (2002). Bullying, sexual harassment, dating violence, and substance use among adolescents. In C. Wekerle & A. Wall (Eds.), *The violence and addiction equation: Theoretical and clinical issues in substance abuse and relationship violence* (pp. 153–168). New York: Brunner-Routledge.
- Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437–448.
- Sears, H. A., & Byers, E. S. (2010). Adolescent girls' and boys' experiences of psychologically, physically, and sexually aggressive behaviors in their dating relationships: Co-occurrence and emotional reaction. *Journal of Aggression, Maltreatment & Trauma, 19*, 517–539.
- Snyder, J., Reid, J., Stoolmiller, M., Howe, G., Brown, H., Dagne, G., et al. (2006). The role of behavior observation in measurement systems for randomized prevention trials. *Prevention Science, 7*, 43–56.
- Trost, M. R., Langan, E. J., & Kellar-Guenther, Y. (1999). Not everyone listens when you "just say no": Drug resistance in relational context. *Journal of Applied Communications Research, 27*, 120–138.
- Wills, T. A., Baker, E., & Botvin, G. J. (1989). Dimensions of assertiveness: Differential relationships to substance use in early adolescence. *Journal of Consulting and Clinical Psychology, 57*, 378–473.
- Wolfe, D. A., Crooks, C. V., Jaffe, P., Chiodo, D., Hughes, R., Ellis, W., Stitt, L., & Donner, A. (2009). A school-based program to prevent adolescent dating violence: A cluster randomized trial. *Archives of Pediatric and Adolescent Medicine, 163*(8), 692–699.
- Wright, A. J., Nichols, T. R., Graber, J. A., Brooks-Gunn, J., & Botvin, G. J. (2004). It's not what you say, it's how many different ways you can say it: Links between divergent peer resistance skills and delinquency a year later. *Journal of Adolescent Health, 35*, 380–391.
- Young, A. M., & d'Arcy, H. (2005). Older boyfriends of adolescent girls: The cause or a sign of the problem? *Journal of Adolescent Health, 36*, 410–419.