MULTICOMPONENT PROGRAMS FOR REDUCING PEER VICTIMIZATION IN EARLY ELEMENTARY SCHOOL: A LONGITUDINAL EVALUATION OF THE WITS PRIMARY PROGRAM

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Past research demonstrates the promise of multicomponent programs in reducing peer victimization and bullying in older elementary and middle school children, however little research focuses on young children. The current study examines the effectiveness of the WITS Primary program on trajectories of victimization and social responsibility in children in Grades 1 to 3 (n = 830). A quasi-experimental design is used to compare schools with well-established programs to nonprogram control schools, using three waves of data collected over 18 months. Children in the WITS program (n = 422) showed more rapid declines in peer victimization over time compared with children in control schools (n = 418). In addition, teachers of children in program schools reported higher average levels of social responsibility at each time point, compared with control schools. This study adds to support for the multicomponent program in reducing peer victimization among young children. Teachers' important roles in monitoring program implementation are discussed. © 2011 Wiley Periodicals, Inc.

Victims of bullying—particularly those who are repeatedly victimized or who also behave aggressively toward their peers—are at increased risk for psychosocial and behavioral adjustment problems, including loneliness, low self-esteem, anxiety and depression, externalizing problems, peer rejection, and disengagement from school.

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Past research with community-based samples estimates that between 10% and 40% of children are chronic victims of bullying and higher percentages are seen in early grades (Hawker & Boulton, 2000).

Many programs have been developed to prevent peer bullying using multi-component approaches and evaluations, and recent reviews of these yield evidence supporting multicomponent approaches (Jenson & Dieterich, 2007; Leff, Waasdorp, & Crick, 2010; Limber, Nation, Tracy, Melton, & Flerx, 2004; Smith, Schneider, Smith, & Ananiadou, 2004). These enlist representatives of the multiple ecologies that surround children (e.g., teachers, parents, principals, bystanders) in efforts to reduce bullying and victimization. However, effect sizes are typically small and most programs are in the early stages of evaluation using pretest posttest designs to establish program feasibility and efficacy in local implementations. To improve this evidence base, Ryan and Smith (2009) suggest that researchers should use more rigorous designs to identify cause-effect relationships (i.e., including control conditions or random assignment), use more advanced methods of analyses such as hierarchical linear modeling with multiple waves of data, and obtain dosage data that can be used in the outcome analyses. These ambitious goals can be met by incremental longitudinal research that justifies further investments in necessary steps of program evaluation (i.e., examining feasibility, efficacy, and effectiveness) and dissemination (Flay et al., 2005). In this article, we build on a previous evaluation of the WITS Primary Program (Giesbrecht, Leadbeater, & MacDonald, 2011; Leadbeater, Hoglund, & Woods, 2003) to assess its affect on peer relational and physical victimization, using hierarchical linear modeling to assess new data from large, carefully matched program and control groups. We also assess program effects on children's social responsibility. Implementation data are collected from teachers.

Past Research on Prevention Programs

Past prevention programs have focused on the prevention of physical aggression in middle school students (Leff et al., 2010). We extend this work by assessing program effects on physical and relational aggression in first-grade to third-grade children. Whereas physical victimization is the consequence of another's intent to hurt, harm, or injure with physical force or threats of force (hitting, shoving, pushing, threatening), relational victimization is the consequence of intentional efforts to disrupt peer relationships by social exclusion, ignoring, spreading malicious rumors, gossiping, or threats to end the relationship (Crick & Grotpeter, 1995). Self-reports from young children reliability distinguish between these two concerns (Desjardins, Yeung, Sukhawathanakul, Mac Donald, & Leadbeater, 2011).

Existing whole-school programs attempt to reach across all elementary grades, including kindergarten to Grade 6 students, or target only middle schools. However, approaches may need to be more attuned to developmental differences in the kindergarten to Grade 6 age span. Moreover, observations of peer and sibling bullying and victimization in preschoolers (Ostrov et al., 2009) suggest that it is important to begin addressing these problems early. Programs that are developmentally appropriate for older elementary school students may not engage young students or address their specific needs for understanding positive socialization and social responsibility in peer relationships. For example, older children may be better able to use their own growing conflict negotiation skills to deal with peer problems, whereas younger children may need more adult assistance to resolve problems (Leadbeater, Ohan, &

Hoglund, 2006). Children's reputations with peers also begin to be established in early elementary school grades (Ladd, 2006) and interventions at this point may have long-term benefits, particularly when followed by sustained developmentally appropriate efforts to reduce peer victimization and bullying in higher grades.

The WITS Primary Program

There are many innovative features in the WITS Primary program for kindergarten to third-grade students. The WITS acronym stands for Walk Away, Ignore, Talk it out, and Seek Help. It is the core of a common language across multiple settings: Using your "WITS" to respond to bullying can quickly become a code word that opens avenues for communication about bullying and victimization between children and adults. The program also creates shared norms for expected behavioral responses to peer physical and relational victimization. The WITS program engages individuals from multiple sites (families, school, communities) in delivering the same clear messages to children. The WITS logo and website (www.witsprogram.ca) has clearly delineated areas that give suggestions to everyone about how to be involved. The program lesson plans for classrooms or home use are based on new publicly available children's literature and lessons are integrated into elementary schools' literacy goals and language arts, social studies, and health curricula. This integration is essential for insuring implementation of the program, particularly by teachers who already feel they have too much to do with too little time. Teachers are asked to use one WITS book per month, while following their usual curricular objectives. A training video and training modules for teachers and community visitors (such as the police) can be accessed online at www.witsprogam.ca. There are very few expenses for implementing the program, mainly the books needed for the lesson plans, making the program available to inner city and rural and remote areas. School-based, city police, or other community visitors are involved in the annual startup of the program, which helps to sustain it and draw importance to and community support for the WITS messages. Community visitors initiate the program each year with the "swearing-in ceremony," in which all children become special constables and promise to use their WITS to help others and to keep their school safe.

A previous evaluation of the WITS program followed 432 Canadian children, (51% boys) across four waves of data collection, from the beginning of first grade to the end of third grade (Leadbeater et al., 2003). The quality of this evaluation has been substantiated in reviews of antibullying programs (Leff et al., 2010; Merrell, Gueldner, Ross, & Isava, 2008; Ryan & Smith, 2009). Results give initial support for the efficacy of the WITS program in reducing classroom and individual levels of peer physical and relational victimization and improving social competence. Classroom levels of relational and physical victimization decreased significantly for children in schools participating in the WITS program compared with control schools, across 2 years. Program effects on classroom levels of victimization were stronger in high-poverty schools—those with *greater* numbers of children from families on income assistance. Findings of Leadbeater et al. (2003) also showed that program participation predicted increases in classroom levels of social competence in low-poverty schools and stability in classroom levels of social competence in high-poverty schools compared with declines in control schools. Recent analyses of the same data (Giesbrecht et al., 2011), using hierarchical linear modeling, indicated that victimization scores declined significantly faster for WITS program children than nonparticipants: An average

child who participated in the WITS program exhibited a 24% decline in physical victimization and 46% decline in relational victimization between baseline at the beginning of first grade and the end of the third grade, relative to nonparticipants. In contrast, an average child who did not participate in the WITS program experienced stable rates of victimization over this period.

In addition, past research has suggested that the program's positive effects are specific to victimization and social competence. Combining the data from Leadbeater et al. (2003) for a meta-analysis, Merrell et al. (2008) confirmed the support for the positive effects of the WITS program on peer victimization, but also called attention to the unexpected small but significant increases in behavioral and emotional problems in the program group relative to the controls. These counter-intuitive findings may reflect the absence of controls for confounds in the meta-analyses (e.g., sex differences, family income, school clustering). However, subsequent research with the same sample also demonstrated the lack of effect of this universal program on children's aggression and internalizing, and point to the need to treat these concerns directly (Giesbrecht et al., 2011; Leadbeater & Hoglund, 2009). Targeted (rather than universal) intervention programs may be needed for young children showing serious behavioral and emotional problems in early elementary school.

In the current study, we sought to evaluate the WITS Primary program in a new sample under real world conditions. Reflecting the specific program objectives, outcome measures included relational and physical victimization as well as a new measure of social responsibility (assessing children's use of social norms for playing fairly, helping others, and solving peer conflicts peacefully). We examined trajectories in physical and relational victimization and social responsibility over an 18-month period across three waves of data. We also examined the effects of individual differences in sex and family income on these trajectories and the effects of program participation after controlling for these individual differences.

METHODS

Participants included 830 first-grade to third-grade children from 67 classrooms in 11 schools in Western Canada. Baseline data were collected in the fall of 2006 (T1). Six program schools ($N = 472$) implemented the WITS Program; five control schools did not have the program ($N = 358$). Follow-up data were collected from 737 children (89%; 422 in program schools) in the fall of 2007 (T2) and from 732 children (88%; 418 in program schools) in the spring of 2008 (T3). The children ranged in age from 5 to 10 years (mean [M] = 6.9, standard deviation [SD] = .86) at T1.

Informed consent and demographic information were gathered from parents at T1. Reports indicated that 76% of children lived in a two-parent household. Forty-eight percent of mothers and 44% of fathers completed "some college or technical training" beyond high school, and 21% of mothers and 15% of fathers earned a bachelor's degree. Thirteen percent of children lived in a household with a total annual income of less than $30,000; 28% of children lived in a household with a total annual income of $91,000 or more (range was less than $10,000 per annum to $91,000 or more per annum). Children lost to follow-up by wave three did not differ from those remaining in the study on levels of victimization or demographic variables (sex, family income, and parental education).

Procedure

Program and control group schools were each recruited from separate but adjacent school districts in the great metropolitan area of the study. No significant differences were found between program and control schools in household income, children's living situation, sex, and number of schools attended since kindergarten. Levels of mothers' and fathers' education were higher in program schools ($z = -3.01$, $p = .003$, and $z = -2.61$, $p = .009$, respectively).

All program schools had implemented the WITS program for at least one year. Control schools were recruited from a neighboring district where no schools had started the program. Following ethics approval from the university and school boards, all school principals who met criteria for a program or control school were invited to participate in the research project (i.e., knowing their assignment to program or control schools in advance). This nonrandom assignment has the advantage of allowing for evaluation of the effects of mature, well-established programs as well as comparisons among schools equally motivated to be in the research project in addition to the intervention program (see McCall, Ryan, & Plemons, 2003). All control schools were offered the opportunity and assistance to implement the program after the evaluation, and all did, based on preliminary positive findings.

Both program and control schools received $400 worth of books for their participation in this evaluation each year of the study, and each participating class received $50 to go towards a class activity at each data collection point. Books for program schools were selections from the WITS program booklist. Control schools selected their own books on general topics. All program schools received 40-minute training review sessions. School-based police liaisons connected with WITS program schools received 1-hour to 2-hour training sessions to implement the program initiation ceremony in a school assembly and to do monthly to 6-week follow-up classroom visits, as well as provide small gifts (bookmarks, fridge magnets, and pencils) to give to the children to take home as reminders to use their WITS. Program school parents received information pamphlets about using WITS at home each year of the study and were given an opportunity to meet a member of the research team at a school-family open house at the beginning of the first year.

At the end of each data collection session, school principals received school-specific summary reports on average levels of victimization reported by the children in their schools compared with all other program and control schools. Families of participating children also received reports of average levels of victimization (in either all program or control schools depending on their participation), along with appreciation for their continued assistance with the research.

Teachers sent home parent consent forms to first-grade to third-grade children in both program and control schools. Parents provided written permission for their child to participate and completed a demographic questionnaire, returning both to the classroom in a sealed envelope for pick-up by a research assistant. Data were collected from participating children in their classrooms. Teachers or a research assistant read aloud questions pertaining to children's experiences with physical and relational victimization to their classes and children completed their ratings individually and privately. Teachers rated participating children's social responsibility. Teachers were also asked to report on their use of the WITS program (e.g., books, activities, and strategies used). Teacher questionnaires took approximately 30 minutes to complete.

All but one of the program schools were also participating in a feasibility study that implemented the recently developed WITS LEADS program in the fourth to sixth grades (see WITS LEADS Manual at www.witsprogram.ca). This program is directed particularly at reducing relational victimization and bystander effects in older elementary school children and it is in the early stages of development and evaluation, so findings are not reported here.

Measures

Peer victimization was measured using an adaptation (Desjardins et al., 2011) of the Social Experience Questionnaire (SEQ; Crick & Grotpeter, 1996). Children rated how often they experienced *relational victimization* (e.g., ''How often does another kid tell lies about you to make others not like you anymore?'') and *physical victimization* (e.g., ''How often do you get pushed or shoved by another kid at school?''). Five items for each subscale were rated on a 3-point scale depicted pictorially to help younger children understand the scaling: □ (*never*), □ (*sometimes*), □ (*almost all the time*). Victimization scores were positively skewed (ratios ranged from 8.34 to 24.00) and were transformed by taking the natural logarithm. Analyses using the transformed variables yielded results similar to analyses with untransformed data. For ease of interpretation, analyses involving these measures were conducted with the untransformed data. The reliability was adequate for relational and physical victimization at each time point (see Table 1), and the factor structure for the victimization subscales was invariant across program and control groups, boys and girls, and time of assessment (Desjardins et al., 2011). Children's self-reports of victimization were also correlated with parents' reports of physical and verbal victimization at all time points (*r*s ranged from .17 to .29, *p* < .01).

Children's social responsibility was measured using five items based on the British Columbia Ministry of Education's *Performance Standards*: *Social Responsibility Framework* (BC Ministry of Education, 2001). Teachers rated children's social responsibility levels on a 4-point Likert scale used by teachers on the children's report card: 0 (*not yet within expectations*), 1 (*meets expectations*), 2 (*fully meets expectations*), 3 (*exceeds expectations*). Items

Table 1. Psychometric Properties and Mean Levels (and Standard Deviations) of Peer Victimization and Social Responsibility for Girls and Boys

Variables	α	Range	Boys (N = 344)	Girls (N = 347)	Total (N = 830)
Physical victimization					
T1	.80	0–10	2.38 (2.26)[a]	2.04 (2.19)	2.26 (2.30)
T2	.77	0–10	2.24 (2.13)[a]	1.85 (1.91)	2.09 (2.07)
T3	.78	0–10	2.03 (2.07)[a]	1.61 (1.71)	1.85 (1.94)
Relational victimization					
T1	.80	0–10	2.33 (2.36)	2.31 (2.49)	2.39 (2.43)
T2	.80	0–10	2.11 (2.20)	2.22 (2.20)	2.22 (2.23)
T3	.82	0–10	1.91 (2.26)	1.97 (2.13)	1.98 (2.19)
Social responsibility					
T1	.93	0–15	7.99 (3.46)	9.24 (3.05)[a]	8.51 (3.32)
T2	.93	0–15	8.01 (3.30)	9.18 (2.89)[a]	8.54 (3.12)
T3	.93	0–15	8.03 (3.48)	9.46 (3.08)[a]	8.71 (3.31)

Note: T1 = Baseline, fall of Grade 1; T2 = Time 1, fall of Grade 2; T3 = Time 2, spring of Grade 2.
[a]Mean levels differ significantly (*p* < .05) between girls and boys.

included "looks for chances to help and include others," "helps to solve peer conflicts," "is friendly to others," "knows when to seek help from an adult," and "identifies own and others' behaviors."

Confirmatory factor analysis (CFA) and invariance testing was used to determine whether the factor structure for the victimization and social responsibility measures were stable at each time point and for children in both program and control schools. All hypothesized factor and unique error loadings were significant ($ps < .05$) at T1, T2, and T3, and the factor correlations between constructs were all significant at all time points. Results indicated an acceptable fit (root mean square errors of approximation < .07, CFI values of .95 or higher) for the three-factor model for physical and relational victimization and social responsibility at all time points. Following Byrne (2001), invariance testing was conducted to examine whether the hypothesized factor structure of the three measures fit equally well across groups of program and control school children. Findings revealed that at T1 and T2, the structure of the model (including path loadings, variances, and covariances) was invariant across groups, indicating that children in both program and control schools interpreted the constructs similarly at each time point. For T3, the factor structure was invariant across groups only when the path for the item, "say mean things," was unconstrained. These findings replicate Desjardin et al. (2011) with the inclusion of the social responsibility construct.

Implementation Fidelity

Implementation in program schools was assessed using teachers' ratings of their training, perceptions of school involvement with the program, and frequency of WITS usage in their own classroom. Of the 80% of teachers who responded to the question at T1, 35% of teachers reported receiving WITS training specifically through WITS program workshops and 39% reported previous experience having worked in a WITS school.

Of the 60% of teachers who responded to requests for implementation information, 65% reported that the program was made visible to the school through the police deputizing ceremony, school-wide assemblies (65%), using the WITS language (69%), and displaying classroom posters in halls and classrooms (32%). Teachers also rated how often (i.e., "never," "1–2 times," "3–4 times," or "5+ times") they used the WITS program curriculum or activities in their classrooms. Teachers reported that they recognized a student for using her or his WITS, five or more times (33%), read a book from the WITS booklist three to four times (24%), displayed WITS projects one to two times (26%), received a visit from a community police officer one to two times (56%), and received a visit from a student athlete one to two times (4%) in the past 3 months.

DATA ANALYTIC STRATEGY

Multilevel models (Raudenbush & Bryk, 2002) were used. These models represent how variation in physical and relational victimization and social responsibility is allocated across three different levels: individual growth trajectories, individual differences in sex and income, and variation among schools by program participation.

Level One Model: Within Child Change Over Time

Time was coded as a continuous variable representing time in study (T1, baseline = 0, T2 = 1, T3 = 1.5). The first level (Equation 1) represents variation in individual levels of relational of physical victimization or social responsibility across time plus a random error:

$$Y_{ijk} = \pi_{0jk} + \pi_{1jk}\text{Time}_{ijk} + \varepsilon_{ijk} \tag{1}$$

Where Y_{ijk} is victimization or social responsibility at Time i in Child j and School k; π_{0jk} is the intercept for Child j in School k, that is, the expected outcome for that Child at baseline; π_{1jk} is the victimization or social responsibility rate for Child jk during the Time period; and ε_{ijk} is the random error, that is, the variability not explained by Time within each individual.

Level Two Model: Between-Child Differences in Sex and Family Income

The second-level equations use sex (male = 0, female = 1) and family income (range was less than \$10,000 per annum to \$91,000 or more per annum) to predict a child's level of victimization or social responsibility. Specifically, Equation 2 estimates a child's baseline level of victimization or social responsibility (intercept) with sex and family income as predictors. Equation 3 estimates a child's victimization or social responsibility trajectory (slope) with sex and family income as predictors.

$$\pi_{0jk} = \beta_{00k} + \beta_{01k}(\text{Sex}_{jk}) + \beta_{02k}(\text{Family Income}_{jk}) + r_{0jk} \tag{2}$$

$$\pi_{1jk} = \beta_{10k} + \beta_{11k}(\text{Sex}_{jk}) + \beta_{12k}(\text{Family Income}_{jk}) + r_{1jk} \tag{3}$$

β_{00k} is the mean (average) initial victimization or social responsibility score in School k, while β_{01k} is the coefficient for sex and β_{02k} is the coefficient for family income. r_{0jk} represents the residual, that is, variance left unaccounted for in initial levels of victimization or social responsibility by the average child score in school k (i.e., the difference between child j in school k from the average child score in school k). β_{10k} is the average (slope) rate of victimization or social responsibility in School k. β_{11k} represents the difference between the average trajectories of victimization or social responsibility for boys and girls while β_{12k} represents the relationship between family income with the average trajectory of victimization or social responsibility in school k. r_{1jk} represents the residual, that is, variance left unaccounted for in trajectories of victimization or social responsibility by the average child score in school k. These equations represent individual difference predictors that potentially moderate victimization trajectories.

Level Three Model: Between-School Differences in Program Participation

At level 3, the parameters that describe the direction of group curves within each school vary across schools as a function of school-level predictors. Here, each level 2 coefficient becomes an outcome, and we selected participation in the WITS program to predict school-to-school variation in the level 2 coefficients (i.e., child variability).

$$\beta_{00k} = \gamma_{000} + \gamma_{001}(\text{Program})k + u_{00k} \tag{4}$$

$$\beta_{10k} = \gamma_{100} + \gamma_{101}(\text{Program})k + u_{10k} \tag{5}$$

Again here β_{00k} represents the mean initial victimization or social responsibility for children in school k. For the unconditional model, γ_{000} is the overall mean initial

victimization or social responsibility (i.e., grand mean). β_{10k} is the mean rate of change for children in school k. γ_{100} is the overall mean growth rate. u_{00k} and u_{10k} are random error terms associated with the intercept and slope (i.e., deviation of school k's mean from the grand mean). Here, the level 2 coefficients were not permitted to randomly vary across level 3 units to control for sex and family income. As such, β_{01k}, β_{02k}, β_{11k}, and β_{12k} have no associated error terms to control for sex and family income.

We test the hypothesis that change in initial level and rate of victimization or social responsibility varies across schools as a function of program participation. The γ_{001} and γ_{101} are the corresponding coefficients of this school-level predictor that may exert an additional influence on time-related changes in victimization or social responsibility. Under this conditional model, the γ_{000} then represents the predicted average initial victimization or social responsibility for children in a control school (PROGRAM = 0). To predict the average initial victimization or social responsibility for children in the program school (PROGRAM = 1), the γ_{001} coefficient is added and depending on whether the relationship is positive or negative, the starting peer victimization and social responsibility score will be higher or lower than the control group. This is the same when predicting slopes γ_{100}. Further, for the conditional model, u_{00k} and u_{10k} then represent the random "school effect," that is, how much each school differs after taking into account whether they are in the control or program group.

RESULTS

Mean levels, standard deviations, and psychometric properties for victimization and social responsibility scores at each time point are presented in Table 1. Physical and relational victimization and social responsibility are each fitted to Equations 1–5. Standard errors were estimated using full information maximum likelihood. Quadratic trends were estimated and were not significant. Variance terms were trimmed from the model if not reliable (Snijders & Bosker, 1999).

Trajectories of Peer Victimization and Social Responsibility

An unconditional time-based model was fitted to victimization and social responsibility scores to test Equation 1. Initial level of physical victimization was statistically greater than zero ($\beta_{00k} = 2.19$). The negative slope coefficient reflects significant declines in physical victimization ($\beta_{10k} = -0.22 = -0.22$, $p < .05$). An average participant reported a -0.22 (10%) decrease in physical victimization per additional year from baseline assessment, declining from an average initial physical victimization score of 2.19 to a score of 1.97 from baseline to T2 and from 1.97 to 1.86 from T2 to T3. By the end of Grade 3, average levels of physical victimization declined by 15%.

Similarly, initial levels of relational victimization were greater than zero ($\beta_{00k} = 2.34$, $p < .01$). Average rates of relational victimization also declined over time ($\beta_{10k} = -0.23$, $p < .01$). The average participant reported a -0.23 (10%) decrease in relational victimization per additional year such that by the end of Grade 3, average levels of relational victimization declined by 15%. Average rates of social responsibility increased only slightly over time ($\beta_{10k} = 0.08$, NS). Variance component showed that there was significant inter-individual variability in children's social responsibility trajectories. Further, the significant intercept coefficient ($\beta_{00k} = 8.48$) indicated that children varied substantially in their initial levels of social responsibility and that initial levels of social responsibility was greater than zero.

The Effects of Sex, Family Income, and Program Participation

Sex, family income, and participation in the WITS victimization prevention program were included in the level 2 and 3 models as moderators of between-person and between-school sources of variation in victimization and social responsibility trajectories. To control for the influence of one predictor over the other and to determine the unique contributions of each predictor, the variables were modeled simultaneously. To control for sex and family income on interactions with program, only the level 2 coefficients for the average intercept and slope were permitted to randomly vary across level 3 units (i.e., β_{00k} and β_{10k}, respectively). Income was grand mean centered, while sex and program were dummy coded (males and nonparticipants = 0; females and program participants = 1). Consistent with our directional hypotheses, we employed one-tailed probability tests of significance. See Table 2.

For physical victimization, significant intercept tests indicated that at T1 on average males tended to have higher levels of physical victimization ($\beta_{01k} = -0.40$), and those who participated in the program also had higher initial levels of physical victimization ($\gamma_{001} = 0.79$). Similarly, those who participated in the program had higher initial levels of relational victimization ($\gamma_{001} = 0.55$). Further, results indicated that, on average, when controlling for family income and program, males had lower initial levels of social responsibility than females ($\beta_{01k} = 1.18$). When controlling for sex and program, children with higher family income had higher initial levels of social responsibility ($\beta_{02} = 0.17$). Moreover, after controlling for between-person characteristics, children in program schools had higher initial levels of social responsibility ($\gamma_{001} = 0.59$, $p = .059$).

Holding the other predictors constant, gender and family income did not significantly impact trajectories of peer victimization or social responsibility. However, after controlling for sex and family income, participation in the WITS program moderated victimization trajectories such that victimization scores for program participants declined significantly faster than nonparticipants. Specifically, an average child who participated in the WITS program displayed a 31%, (0.06+−0.46)/1.96∗1.5, decline in physical victimization and 28%, (−0.11+−0.26)/2.01∗1.5, in relational victimization between baseline and the end of Grade 3. For the average child who did not participate in the WITS program, trajectories of physical and relational victimization did not significantly change over this time period ($\gamma_{100} = 0.06$ and −.11, respectively, $ps > .05$). Sex, family income, and program participation did not moderate social responsibility trajectories.

DISCUSSION

This study also joins other research in suggesting that comprehensive programs that target the multiple proximal contexts in which children are developing (community, school, family) can reduce young children's experiences of victimization by their peers. Consistent with our past research (Giesbrecht et al., 2011; Leadbeater & Hoglund, 2009; Leadbeater et al., 2003), findings support the effect of the WITS Primary program for the prevention of victimization in young elementary school children.

After controlling for sex and family income, participation in the WITS Primary program was associated with more rapid declines in physical and relational victimization in peers compared with control schools that did not implement the

Table 2. Moderator Models: Fixed and Random Effects of Between-Person and Between-School Moderators of Victimization and Social Responsibility Trajectories

Parameter	Physical victimization				
	Coefficient	SE	T ratio	df	p
Fixed Effects					
Intercept (γ_{000})	1.96	0.25	7.80	9	<.0001
Sex (β_{01})	−0.40	0.17	−2.32	604	<.05
Income (β_{02})	−0.03	0.03	−1.02	604	0.15
Program (γ_{001})	0.79	0.32	2.45	9	<.05
Time slope (γ_{100})	0.06	0.14	0.45	9	0.33
Sex (β_{11})	−0.06	0.13	−0.46	604	0.32
Income (β_{12})	0.02	0.02	0.88	604	0.19
Program (γ_{101})	−0.46	0.17	−2.79	9	<.05
	Variance component		χ^2	df	p
Random effects					
School-level intercept (u_{00})	0.19		33.14	9	<.0001
School-level slope (u_{10})	0.03		14.76	9	0.10
Individual-level intercept (ε_0)	2.41		1,239.02	574	<.001
Individual-level slope (ε_1)	0.47		721.39	574	<.001
Within-person residual (σ^2)	2.16				
Deviance	7,012.30				

Parameter	Relational victimization				
	Coefficient	SE	T ratio	df	p
Fixed Effects					
Intercept (γ_{000})	2.01	0.17	11.57	9	<.0001
Sex (β_{01})	0.03	0.19	0.17	604	0.43
Income (β_{02})	−0.05	0.04	−1.42	604	0.07
Program (γ_{001})	0.55	0.20	2.79	9	<.05
Time slope (γ_{100})	−0.11	0.13	−0.81	9	0.22
Sex (β_{11})	0.04	0.14	0.29	604	0.39
Income (β_{12})	0.04	0.03	0.44	604	0.33
Program (γ_{101})	−0.26	0.15	−1.75	9	0.057
	Variance component		χ^2	df	p
Random effects					
School-level intercept (u_{00})	0.0004		4.53	9	0.50
School-level slope (u_{10})	0.008		12.65	9	0.18
Individual-level intercept (ε_0)	3.29		1,400.92	574	<0.001
Individual-level slope (ε_1)	0.58		736.89	574	<0.001
Within-person residual (σ^2)	2.42				
Deviance	7,302.26				

Parameter	Social responsibility				
	Coefficient	SE	T ratio	df	p
Fixed effects					
Intercept (γ_{000})	7.60	0.28	27.12	9	<.0001
Sex (β_{01})	1.18	0.25	4.63	604	<.0001
Income (β_{02})	0.17	0.05	3.38	604	<.001
Program (γ_{001})	0.59	0.34	1.73	9	0.059

Table 2. Continued

Parameter	Social responsibility				
	Coefficient	*SE*	*T ratio*	*df*	*p*
Time slope (γ_{100})	−0.006	0.17	−0.04	9	0.49
Sex (β_{11})	0.19	0.19	1.01	604	0.16
Income (β_{12})	−0.003	0.04	−0.08	604	0.47
Program (γ_{101})	−0.02	0.19	−0.10	9	0.46
	Variance component		χ^2	*df*	*p*
Random effects					
School-level intercept (u_{00})	0.13		18.45	9	<0.05
School-level slope (u_{10})	0.006		5.86	9	0.50
Individual-level intercept (ε_0)	5.55		1,354.37	574	<0.001
Individual-level slope (ε_1)	1.22		756.54	574	<0.001
Within-person residual (σ^2)	4.24				
Deviance	8,371.73				

Note: SE = standard error; df = degree of freedom. Tests of fixed effects are one tailed.

program. From pretest levels, rates of physical and relational victimization in first-grade to third-grade program students declined 20% and 18%, respectively, during the first year (fall 2006 to fall 2007) and dropped a further 11% and 10%, respectively, by the end of the school year (spring of 2008), suggesting the longer duration of the program is important in reducing victimization. In contrast, rates of victimization for the control group children in first grade to third grade showed a slight but nonsignificant change after controlling for sex and family income. Thus, participation in the WITS Primary program accounted for the significant overall declines in victimization trajectories.

The WITS Primary program targets multiple contexts (police, peer, family, school, classroom). It is not clear whether all these components must work in concert with each other to reduce victimization and support social responsibility or whether some have stronger or even independent effects. The WITS program may provide young children with the necessary skills to remove themselves from victimization/bullying situations (walk away, ignore) and for seeking help to solve the conflicts (talk it out and seek help). The school-wide and family use of WITS language opens lines of communication about victimization may help to enhance both child skills and school and family norms with respect to peer victimization and bullying. The program's books and curricula give both children and adults a window into the world of what bullying experiences look like for children and often provide opportunities to observe, generate, and talk about strategies for solving peer problems. It is also possible that teachers learn to provide better support for victims by changing their attitudes towards children's help seeking, increasing their vigilance for and confidence in intervening in victimization/bullying incidence, or reducing their tolerance for peer victimization and bullying. The involvement of school police liaisons who initiate the program annually and make classroom visits may serve to provide official endorsement of the program and regularly remind teachers and students to use program materials. The effects of the community-based Rock Solid Foundation conducting annual poster contests in WITS schools, reminding schools to renew their membership annually, and sending new curriculum and student gifts annually, may also be central to sustaining the

program. Context-level effects underlying the positive impact of the program (climate change, changes in family involvement, classroom beliefs) clearly need to be assessed in future research engaging all participants.

To allow for the evaluation of established programs, rather than the start up of the program, all but one program school had implemented the WITS program for at least one year prior to the evaluation. As in past research, children in the program schools initially reported higher levels of victimization, possibly reflecting the normalization of reporting victimization to adults, which is advocated by the program efforts to encourage young children to seek help if they are victimized. Research is needed with baseline data for both program and control schools.

Limitations

Our study relied on self-report reflecting children's experiences of victimization. Reviewing multisource assessments of victimization, Ladd and Kochenderfer-Ladd (2002) conclude that self-reports may be superior to peer reports for young children who may be less aware of others' plights compared with middle school children. On the other hand, Cornell and his colleagues (Branson & Cornell, 2009; Cornell & Brockenbrough, 2004) found poor correspondence between self-reports and peers or teacher reports in identifying victimization (and bullying), even in middle school students, although both were associated with school maladjustment. Others have encouraged the use of observational ratings with late elementary and preschool children (Frey, Hirschstein, Edstrom, & Snell, 2009; Osrov et al., 2009) or multi-informant strategies (Rønning et al., 2009; Wienke Totura, Green, Karver, & Gesten, 2009). The self-report assessments used here were modified to simplify and carefully oversee the administration for children in Grades 1 to 3. This measure has good psychometric properties and factor structures that are invariant across grade and time (Desjardins et al., 2011). The children's self-reports were also modestly but significantly correlated with parents' reports of physical and verbal victimization. Programs that aim specifically to reduce children's own experiences and perceptions of victimization are most likely to prevent the negative personal consequences of these experiences that have been repeatedly identified in cross sectional and longitudinal research (Hawker & Boulton, 2000).

Assessing the implementation of the program through teacher reports proved difficult. Although most teachers agreed to rate the children's social responsibility, 30% of the teachers did not return program implementation data. It is out of the ordinary for teachers to document their use of resource materials. They may have been concerned about being negatively evaluated despite assurances of confidentiality. Teachers' may also underestimate the importance of their roles in research efforts to establish evidence-based programs. From the existing data, use of the book-based lesson plans appears lower than the desired reading of one WITS book per month according to teacher reports. This may be because of inadequate access to the books, as one or two copies were typically shared among the whole school. Increased access to lesson plans and online training to use them are included in the updated website. Implementation quality data should also be collected from other sources including parents and children.

All research to date has been conducted with Canadian youth from a mid-size city. It is not known whether positive findings would generalize to samples differing in ethnic or racial makeup or rural or large urban areas (Leadbeater, Sukhawathanakul,

Sklar, & Smith, 2010). A large-scale, random controlled dissemination evaluation is needed as a next step to assess the widespread effectiveness and generalizability of the WITS Primary program.

Continued effort is needed to engage all individuals involved in the care of young children to ensure that their environments are safe for their healthy development and learning. As we continue to seek effective strategies for the prevention of problems of peer victimization in schools, the active participation of school staff, parents, and the community appears essential. Together we can make a difference.

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