



Original article

## A Latent Transition Model of the Effects of a Teen Dating Violence Prevention Initiative



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### A B S T R A C T

**Purpose:** Patterns of physical and psychological teen dating violence (TDV) perpetration, victimization, and related behaviors were examined with data from the evaluation of the *Start Strong: Building Healthy Teen Relationships* initiative, a dating violence primary prevention program targeting middle school students.

**Methods:** Latent class and latent transition models were used to estimate distinct patterns of TDV and related behaviors of bullying and sexual harassment in seventh grade students at baseline and to estimate transition probabilities from one pattern of behavior to another at the 1-year follow-up. Intervention effects were estimated by conditioning transitions on exposure to *Start Strong*.

**Results:** Latent class analyses suggested four classes best captured patterns of these interrelated behaviors. Classes were characterized by elevated perpetration and victimization on most behaviors (the *multiproblem* class), bullying perpetration/victimization and sexual harassment victimization (the *bully–harassment victimization* class), bullying perpetration/victimization and psychological TDV victimization (*bully–psychological victimization*), and experience of bully victimization (*bully victimization*). Latent transition models indicated greater stability of class membership in the comparison group. Intervention students were less likely to transition to the most problematic pattern and more likely to transition to the least problem class.

**Conclusions:** Although *Start Strong* has not been found to significantly change TDV, alternative evaluation models may find important differences. Latent transition analysis models suggest positive intervention impact, especially for the transitions at the most and the least positive end of the spectrum.

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A small but growing body of literature shows the effectiveness of various programs in reducing teen dating violence (TDV). To date, evaluations of TDV program effects have used variable-centered approaches that focus on the associations between two or more variables [1–4]. These approaches include common

evaluation analyses such as correlations, regression, and structural equation modeling.

Complementing these methods are person-centered approaches that group individuals who show similar patterns of association among variables [5]. Early person-centered studies examined substance use and derived homogenous groups of adolescents based on their alcohol and drug use [6]. This initial work relied primarily on latent class analysis (LCA), which uses data from a single time point. Latent transition analysis (LTA) is a longitudinal extension of LCA, which identifies profiles or classes and looks at transitions over time across these classes [7,8]. LCA and LTA can also identify classes across multiple behaviors that may be conceptually interrelated. One illustration was a study applying

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LCA to identify discrete classes of externalizing and depressive symptoms among adolescents [9]. In this way, LCA and LTA can be useful to empirically derive classes when behaviors co-occur and may be multidimensional.

Numerous studies highlight the complexity of TDV. Studies show that TDV behaviors are interrelated with bullying and sexual harassment [10,11]. Conceptually, these forms of interpersonal violence may represent antisocial tendencies that promote aggressive interactions across development. Aggressive interactional patterns and antisocial tendencies extend to key relationships, including both peers and partners [12,13]. In addition, victimization and perpetration may co-occur, with numerous studies showing that some children are both bullies and are victimized by others [14–16]. A few studies also show how victimization and perpetration may co-occur for TDV behaviors [17,18]. This complexity highlights the applicability of person-oriented analytic approaches, such as LTA, that take into account the multidimensional nature of these interrelated behaviors. LTA is also relevant to test program effects. Results highlight specific behavioral patterns that are differentially related to program outcomes. One illustration was the use of LTA to examine effects of a prevention program targeting emotional and behavioral problems in at-risk preschoolers over a 2-year period from ages 2 to 4 years [19]. Analyses yielded four classes of preschoolers: externalizing only, internalizing only, co-occurring externalizing and internalizing, and normative. Children in the internalizing or the co-occurring classes (who were in the treatment condition) were mostly likely to transition to the normative class over a 2-year period (whereas this pattern was not evidenced for the control condition). Nonsignificant results can also inform our understanding of developmental processes. In the same study, preschoolers in both the control and intervention conditions with externalizing problems only transitioned to a nonproblem class (i.e., the program was not effective for externalizing-only children as transitions did not differ across conditions). Taken as a whole, findings suggested that declines in internalizing problems were driving program effects and that externalizing problems among preschoolers (without concomitant internalizing problems) may be temporary.

Person-centered approaches, such as LTA, can also inform prevention of health-compromising behaviors, such as TDV. One recent illustration used data from the present study's comparison sample to examine profiles or classes based on dating violence, bullying, and sexual harassment perpetration and victimization [20]. Five classes emerged, most of which were characterized by both perpetration and victimization (multi-problem victimization and perpetration; bullying and sexual harassment victimization and perpetration; bullying victimization and perpetration and sexual harassment victimization only; bullying victimization and perpetration; and low problem class). These findings illuminate the interrelationships among TDV, bullying, and sexual harassment and distinct profiles of youth with these behaviors. However, it is not known whether this class structure holds for the entire sample or if certain classes respond better to preventive interventions.

The present study used LTA to examine effects of the TDV prevention initiative *Start Strong: Building Healthy Teen Relationships (Start Strong)*, a multicomponent program including school-based TDV prevention curricula (*Safe Dates*, [21]), social marketing, and policy/environmental changes (Miller et al. [22]). Treatment-related outcomes were stability and transitions in relational violence classes. Latent classes or profiles of perpetration and victimization of TDV, bullying, and sexual harassment

were estimated in the entire sample using baseline data. Using these classes, an LTA model examined change over time in class membership as a function of exposure to *Start Strong*. It was hypothesized that, in relation to comparison group students, membership in low problem classes would be more stable for *Start Strong* students. In addition, *Start Strong* students were predicted to be more likely to transition to lower problem classes over time.

## Methods

### Intervention

The evaluation component of the full *Start Strong* initiative encompassed three sites with a total of eight schools. Intervention schools within these sites implemented *Safe Dates* [21] during the 2010–2011 school term with seventh graders (who were followed for four total assessment across 2 years), had a minimum of 100 students per grade, and could feasibly participate in the evaluation. Evaluation sites collectively represented midsized and large urban areas, racial/ethnic diversity, and regional diversity. The quasiexperimental design matched four comparison schools to the intervention schools on the following criteria: school size; percent students on free or reduced lunch; race/ethnicity; and metropolitan area characteristics. Across the schools, the percentage of students on free/reduced school lunch ranged from 43% to 95%.

### Participants

This study used survey data from 1,517 middle school students participating in the evaluation [22]. Data were from the baseline (Fall 2010) and 1-year follow-up (Fall 2011) assessments. All students in the study were in seventh grade at baseline. The sample was racially and ethnically diverse (23% white, 28% African-American, 33% Latino, and 16% other or multiple races) and equally balanced by gender. A total of 717 (48%) students were in the *Start Strong* condition.

### Measures

Models for this study focused on eight behaviors: victimization and perpetration for psychological TDV, physical TDV, sexual harassment, and bullying. Measures were coded dichotomously with a positive indication of the behavior if any of the items on a scale were endorsed. All items were self-report, asked about experiences in the past 6 months, and included parallel questions for perpetration and victimization.

*Psychological and physical teen dating violence perpetration and victimization.* Psychological and physical TDV items were derived from the Families for Safe Dates Psychological and Physical Violence Perpetration scales [1] and were rated on a four-point scale: “never,” “1–3 times,” “4–9 times,” and “10 or more times.” Each question asked about behavior or experiences in the past 6 months. Psychological TDV (e.g., “insulted you/them in front of others”) perpetration and victimization was assessed with five items each with baseline Cronbach  $\alpha$  of .81 (perpetration) and .86 (victimization). Physical TDV measures also included five items (e.g., “pushed, grabbed, shoved, or kicked them”) with reliability estimates of .90 and .89, respectively, for perpetration and victimization.

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