

Prompting Discussions of Youth Violence Using Electronic Previsit Questionnaires in Primary Care: A Cluster Randomized Trial

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The authors declare that they have no conflict of interest.

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ABSTRACT

OBJECTIVE: Youth violence (YV) screening during primary care visits is not routinely performed. Electronic previsit questionnaires (PVQs) are viewed favorably by adolescents and can prompt disclosure and discussion of sensitive health topics. This study aimed to determine the efficacy of an electronic PVQ in prompting YV discussions.

METHODS: A 4-month cluster-randomized controlled trial was conducted in a large urban academic primary care clinic. The clinic's 4 practice groups were randomized to intervention or control assignment. A consecutive sample of adolescents aged 13 to 19 years presenting for annual visits were recruited. Participants completed an electronic PVQ (TickiT) either with (intervention) or without (control) YV questions. PVQ results were delivered to physicians before the visit. The frequency of YV discussions was measured using exit surveys of adolescents. Patients who reported YV discussion rated the helpfulness of the discussion. Multilevel mixed effect logistic regression was conducted to compare likelihood of YV discussion between intervention and control groups.

RESULTS: A total of 183 adolescents (90% of eligible) participated. Overall, 30% of adolescents reported some YV involvement. Sixty-five percent of the intervention group and 42% of the control group reported discussing YV during their visit. Thirty-one percent of adolescents in the intervention group who disclosed YV involvement reported not having a YV discussion. The intervention group had 2.6 (95% confidence interval 1.2–5.6) times the odds of discussing YV. Sixty-six percent of adolescents who discussed YV with their doctor rated the discussion as very helpful.

CONCLUSIONS: An electronic PVQ with items related to YV is acceptable and feasible, and it significantly improves frequency of patient–provider YV discussion.

KEYWORDS: doctor–patient communication; health risk behaviors; youth violence

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WHAT'S NEW

Electronic previsit questionnaires have been shown to prompt discussion of some health risk behaviors during primary care visits. Discussions of youth violence (YV) increase when a questionnaire including YV-specific items is utilized for adolescent annual visits.

YOUTH VIOLENCE (YV), defined as physical violence between adolescent and peers, is a major public health problem. Homicide is the second leading cause of death for American youth aged 10 to 24 years and the first leading cause of death for African American youth.¹ Early identification of YV by primary care providers allows recommendation and referral to successful preventive strategies, which may prevent long-term morbidity and mortality from violence.²

The American Academy of Pediatrics (AAP) recommends health risk behavior screening during adolescent

visits and emphasizes the importance of pediatrician screening and counseling to prevent YV, as demonstrated in the AAP's Bright Futures guidelines for prevention and health promotion.³ However, pediatricians report low rates of screening and counseling about YV. According to one large survey of a national sample of 1350 pediatricians, 56% of residents and 70% of physicians practicing for >5 years report never or rarely asking adolescent patients about past-year YV.⁴ Explanations for this include both provider beliefs and skills (eg, low perceived self-efficacy, minimal training), knowledge of community resources, discomfort with topic, and health care system issues (eg, lack of standardized implementation of screening, lack of time, lack of reimbursement for preventive services).^{5,6}

Previously studied interventions to improve adolescent risk behavior screening include physician and staff education, as well as changes to office systems such as electronic medical record prompts and the use of tools to facilitate

screening and/or counseling.⁶ Several studies have found success with the use of previsit questionnaires (PVQs) to prompt physicians to discuss certain topics with adolescents, including tobacco, alcohol,^{7,8} and drug use, and sexual activity⁷; however, YV has been largely omitted from these studies.⁷⁻⁹ The AAP recommends the use of the HEADSSS interview approach (including the third S for safety/violence), as well as the use of PVQs and physician-prompting mechanisms.¹⁰ Despite recommendations, the standard Bright Futures adolescent questionnaires do not include YV screening.

Paper PVQs have a number of limitations, such as limited transportability to an electronic health record and lack of perceived confidentiality by teens. Technology-based screening may be particularly well suited to adolescents, among whom the use of computers, the Internet, social media, and text-messaging is almost ubiquitous.¹¹ Many adolescents report greater comfort revealing sensitive topics to a computer than to a person, and electronic PVQs have been shown to increase reporting for some health risk behaviors.⁸ To our knowledge, no one has studied the utility of a PVQ, paper or electronic, in prompting YV discussions in the primary care setting.

Our study's objectives were to evaluate the impact of an electronic adolescent health risk behavior PVQ on physicians' YV discussion during annual visits, and to examine the patient and physician acceptability and feasibility of the electronic PVQ containing YV items in a busy primary care practice.

METHODS

STUDY SETTING

The study was implemented at the pediatric primary care clinic within one large urban teaching institution in the Northeast United States. This site serves as the outpatient continuity clinic for the pediatric residency program affiliated with the hospital and cares for over 8000 children, of whom 31% are African American and 51% Hispanic ethnicity. Time allotted for annual physicals is 25 minutes for residents and 20 minutes for attendings. The clinic is divided into 4 smaller practice groups, each of which is supervised by a single attending physician or pair of attending physicians. The practice groups are balanced in regard to resident training year and number of residents; there is no crossover of residents between groups and rare crossover of attending supervisors. Each of these practice groups was considered a cluster for the sake of randomization and analysis. The RCT registry number was NCT02041182 ([ClinicalTrials.gov](https://clinicaltrials.gov)).

PARTICIPANTS

The primary outcome was analyzed at the level of individual patients. Eligible patients were individuals aged 13 through 19 presenting to 1 of the 4 pediatric practice groups for an annual visit. Verbal parental consent (if under 18) and participant assent was obtained. Adolescents presenting for follow-up visits or sick visits were excluded, as full HEADSSS assessment may not be appropriate

during these visits. Non-English-speaking adolescents or parents (14 of 225, 6%), adolescents under age 18 without a consenting parent present (4 of 225, 2%), or those with a neurologic condition or severe developmental delay that precluded informed consent (2 of 225, <1%) were also excluded (Figure).

Each of the 4 practice groups (consisting of 48 categorical pediatric residents and 7 attendings in total) were included in the study and are termed "clusters." The term "physician" is used to designate both residents and attendings. Clinic leadership, serving as surrogates for the physicians as a result of the study design and the desire to maintain blinding to the study, agreed to participate on behalf of the practice groups. The number of clusters included in the study was limited by the existing clinic structure of the study site. The number of clusters available for study inclusion constrained the applicability of a power analysis.

STUDY DESIGN

The study utilized a cluster-randomized design in which the use of an electronic PVQ was introduced for adolescent annual visits, either with or without YV items depending on randomization. Because practice groups meet weekly for patient care and general pediatrics discussions, randomization was at the level of the clusters (ie, attending-based practice group) to minimize risk of contamination by cohort effect. Randomization was completed by the primary author before the start of the study and was accomplished by restricted shuffling of opaque envelopes containing intervention and control assignments.

During the study period, adolescents presenting for annual visits were consecutively recruited by a research assistant. Consent was obtained before physician contact. Recruited adolescents were unaware of the experimental or control status of their practice group. Physicians were unaware of the nature of the study and their practice group's experimental or control status. All surveys were administered using Health Insurance Portability and Accountability Act-compliant REDCap electronic data capture tools.¹² The study protocol was approved by the hospital institutional review board.

PHYSICIAN TRAINING

A YV-specific tool kit with provider and patient education sheets and local referral options was developed and made available to all clinic providers electronically (via e-mail and on clinic computer desktop computers) 4 months before the start of the study. This tool kit was created in order to ensure knowledge of resources was standardized in each practice group. This tool kit was based on the best available evidence regarding violence interventions for high-risk adolescents.¹³⁻¹⁵ At the start of the study, we alerted clinic staff that the electronic PVQ would be initiated for consenting adolescent patients presenting for annual visits. Physicians were trained on how to read and interpret the PVQ reports, and a 1-page handout, outlining how to read and understand the PVQ, was given to physicians and posted in clinic workrooms.

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