Original Study

Video Intervention to Increase Perceived Self-Efficacy for Condom Use in a Randomized Controlled Trial of Female Adolescents

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A B S T R A C T

Study Objective: To assess the effects of the Seventeen Days interactive video on young women's perceived self-efficacy for using condoms 6 months after being offered the intervention, relative to a control.
Design: Multisite randomized controlled trial.
Setting: Twenty participating health clinics and county health departments in Ohio, Pennsylvania, and West Virginia.
Participants: Sexually active female adolescents ages 14 to 19 years.
Interventions: Seventeen Days (treatment intervention; sex education) vs Driving Skills for Life (control intervention; driving education).
Main Outcome Measures: Perceived self-efficacy for condom use.
Results: Participants in the Seventeen Days group reported higher perceived condom acquisition self-efficacy after 6 months than those in the driving group. This finding held after controlling for baseline self-efficacy scores and other covariates.
Conclusion: The Seventeen Days program shows promise to improve perceived self-efficacy to acquire condoms among sexually active female adolescents—an important precursor to behavior change.
Key Words: Pregnancy prevention, Self-efficacy, Condoms

Introduction

Although teen birth rates in the United States have decreased 61% since 1991 and 8% since 2014,[1,2] they remain the highest among industrialized countries.[3,4] Nearly 750,000 teen pregnancies occur annually, most unintended (mistimed, unplanned, or unwanted).[1,4] A review of relevant literature reveals how challenging it is to intervene successfully in adolescent sexual behavior with only a few dozen programs showing promise for preventing teen pregnancy.[5]

The Teen Pregnancy Prevention (TPP) Evidence Review commissioned by the US Department of Health and Human Services (DHHS) in 2009 with findings later updated in 2012 reviewed 452 program evaluations conducted between 1989 and 2011 on programs attempting to affect teen pregnancy, sexually transmitted infections (STIs), or other associated sexual risk behaviors.[5] The review identified just 31 programs that had shown evidence of favorable effect with a moderate or high-quality evaluation design. Only 5 showed a reduction in STIs.

In an effort to increase evidence-based teen pregnancy prevention programming, in 2010 the US DHHS began funding evaluations of large-scale replications of programs that have shown promise in research trials as part of the Teen Pregnancy Prevention Program. The failure of past replications has prompted pessimism about the viability of all behavioral interventions.[6,7] Replication of an intervention in “the real world” with fidelity is a challenge, especially when it requires trained, motivated personnel—a common feature of most interventions with success in clinical trials.[5] In fact, nearly all of the successful interventions identified by the review deliver their content through group discussion sessions that are facilitated by instructors or other trained personnel. Such programs are expensive and are vulnerable to reduced fidelity as they scale up because of less closely supervised personnel and

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implementation. Replications often fail to reproduce promising results because of poor fidelity, with many of the problems arising from low adherence and inconsistent delivery by personnel.[8–10]

One way to improve fidelity is to standardize as much of an intervention as possible. High-quality, user-friendly media technology now allows presentation of interactive material consistently to wide audiences with low distribution costs after the initial investment has been made in their creation.[11,12] Computer-based HIV prevention programs have been reported to have efficacy similar to in-person interventions.[13,14] Even before digital video made accessibility and interactivity trivial, video interventions were reported to be particularly effective in changing knowledge and attitudes about sexual risk[15] and other precursors to behavior change.[16] More generally, video has been reported to be effective in changing a variety of behaviors, especially ones requiring modeling of new behavior.[17]

In the domain of sexual health, interventions incorporating video have been reported to increase intentions to use female condoms,[18] proximal behaviors such as condom coupon redemption, and HIV testing,[19,20] longer-term behaviors including self-reported condom use several months after initial intervention,[21–23] and clinical outcomes.[24,25] However, even these interventions typically incorporate video as part of facilitator-led group sessions, leaving them vulnerable to the challenges of cost and fidelity.[26]

One of the 31 programs identified by the TPP Evidence Review for its promising findings was our 1990s video-based intervention, “What Could You Do?” (WCYD). WCYD was designed for use on a self-contained platform to promote ease and fidelity in field implementation. It focused on increasing young women's self-protective decision-making about sex to reduce STIs. In a randomized controlled trial (RCT), participants assigned to view the video reported increased abstinence and reduced condom failures and STI diagnoses post-intervention compared with participants in 2 comparison groups—one that received a print version of the intervention and one that received equivalent topics from printed materials.[27] The video group outperformed the equivalent print group, suggesting a unique effect of video as the medium for delivery.

WCYD targeted STI prevention by focusing on behaviors that are also effective for preventing pregnancy. After identification by the TPP Evidence Review as promising for teen pregnancy prevention, WCYD was funded for update and large-scale evaluation in 2010 by the Office of Adolescent Health. The characters and production value were updated, the content was expanded to include pregnancy prevention material, and the program underwent medical accuracy review in 2011 to create a new interactive video, “Seventeen Days.”

This article reports the results of an individual-level RCT across multiple clinical sites evaluating the effect of Seventeen Days on perceived condom use self-efficacy. We hypothesized that the experimental intervention, Seventeen Days, would increase perceived condom use self-efficacy 6 months post-intervention relative to a control, the interactive video intervention. “Driving Skills for Life.”

Materials and Methods

Participants

The sample included female adolescents at high risk for pregnancy—primarily patients from 20 urban, suburban, and rural health clinics in Ohio, Pennsylvania, and West Virginia between June 2012 and December 2014. Sites included hospital-affiliated adolescent health clinics, county health clinics, and nonprofit family planning clinics. Participants met 5 eligibility criteria: (1) female sex; (2) age 14-19 years; (3) reported sexual activity (participant-defined) in the previous 6 months; (4) not married; and (5) not currently pregnant.

Power calculations revealed that we would require 1628 participants for 90% power to detect a difference in our behavioral outcome measure. Of the 5272 young women screened, 2814 were eligible for the study, of whom 1957 consented to participate and 1317 completed the baseline measures and were randomized to a group. There was an even distribution ($P = .983$), with 653 in the Seventeen Days group and 664 in the driving group. Despite efforts to maximize participant enrollment, fewer clients than expected were available and eligible to participate in the study. Additionally, attrition rates were higher than anticipated, but within DHHS standards. Recruitment was extended longer than originally planned, but was halted to accommodate all necessary follow-up windows before the end of the funding period. This analysis reports on results from the 674 participants who completed the 6-month outcome survey. The Consolidated Standards of Reporting Trials diagram in Fig. 1 shows recruitment and follow-up information.

Research Design

The research design is a multicenter individual RCT (Clinical Trials NCT02049710). Institutional review board approval was obtained from Carnegie Mellon University, West Virginia University, University of Pittsburgh, and Nationwide Children's Hospital of Columbus, Ohio. Consent was obtained for participation, including assent from minors and consent by their parents. A waiver of parental consent was obtained for minors who had no parent or guardian accompanying them at the clinic.

Immediately after a baseline survey was completed, an automated computer program provided the individual randomization of the participant to group, stratified according to clinic site. Participants were then routed to the appropriate video. Study personnel were blind to participants' assignment.[28] Because of a programming glitch in an early version of the evaluation software, 3 participants in the sample were inadvertently rerandomized 3 months after baseline and shown a portion of the video from the alternate group. For analysis, all participants were retained in their originally assigned group.

Data Collection Procedures

Upon enrollment, all participants in both groups were given access to the study site at teenvideostudy.com, where