

Public Abstract

First Name: Jenna

Middle Name: J.

Last Name: Wintemberg

Adviser's First Name: Alex

Adviser's Last Name: Waigandt

Co-Adviser's First Name:

Co-Adviser's Last Name:

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Title: The Development and Evaluation of ACES: A Web-Based Training to Enhance School Nurses' Attitude, Subjective Norm, Perceived Behavioral Control, and Intention to Provide Adolescent Cessation Services

A substantial amount of research supports the provision of adolescent tobacco cessation services, and school nurses are situated to effectively provide these services in the school-based setting. However, few evidence-based adolescent cessation tools and trainings exist. The Adolescent Cessation in Every School (ACES) toolkit and training were developed by the researcher to fill this gap. The Theory of Planned Behavior (TPB) served as a guide for both the development and the evaluation of ACES. The purpose of this study was to test the efficacy and acceptability of the Adolescent Cessation in Every School (ACES) training video to enhance Missouri school nurses' attitude, subjective norm, perceived behavioral control, and intention to provide adolescent tobacco cessation services.

A total of 122 school nurse participants completed the pre-intervention questionnaire (time 0). Participants were then randomized to immediate intervention (II) or waitlist control (WC). The II group received the intervention and post-intervention questionnaire at time 1, while the WC group completed a second pre-intervention questionnaire. The WC group completed the intervention and post-intervention questionnaire at time 2. Each group also received a four-week follow-up questionnaire (time 3 for II, time 4 for WC).

Reliability analyses using Cronbach's alpha were conducted for each TPB construct at each timepoint. Dependent sample T-tests analyzed constructs at pre-intervention and at post-intervention and follow-up. Independent T-tests of TPB constructs were conducted by group and timepoint. Point-biserial correlational analyses were conducted for each theory construct scale at pre-intervention, post-intervention, and follow-up. A multiple linear regression model predicting intention at each study timepoint using TPB constructs and demographics was conducted. Additional multiple linear regression models predicting intention at post-intervention and follow-up using pre-intervention TPB constructs were conducted.

Each scale was found to be reliable at pre-, post-, and following the intervention, with Cronbach's alpha level ranging from 0.66 to 0.90. Attitude, subjective norm, perceived behavioral control, past behavior, and demographic factors accounted for 25-61% of the variance in nurses' intention to provide cessation depending on the timepoint. There was a significant increase in perceived behavioral control from pre- to post-intervention (22.7 vs 23.8, $p < 0.05$) and from pre-intervention and follow-up (22.7 vs 23.5, $p < 0.05$). The two groups' TPB construct mean scores were compared at time 1 (post-intervention for II, pre-intervention for WC). Although the two groups did not differ statistically, the II nurses' reported slightly higher mean scores compared to the WC nurses for each construct (attitude: 45.7 vs 44.9; subjective norm: 23.3 vs 22.1; perceived behavioral control: 24.2 vs 22.6; and intention: 9.2 vs 8.8, for II and WC, respectively). Correlational analyses demonstrated that TPB constructs were significantly and positively correlated with intention at pre-, post- and following the intervention. Multiple linear regression models identified predictors of intention. At time 0 and time 1, subjective norm and perceived behavioral control significantly predicted intention. Perceived behavioral control also predicted intention at time 2. Years of service in school nursing, district enrollment, and past behavior predicted intention at time 3. At time 4, subjective norm, perceived behavioral control, and district enrollment predicted intention.

This study provides an understanding of Missouri school nurses' intention to provide adolescent tobacco cessation services and may serve as a guide for developing other evidence-based health programs. This study indicated that the provision of adolescent tobacco cessation services by Missouri school nurses is uncommon; however, the current study also found moderate levels of intention to provide adolescent

tobacco cessation services among school nurses at each timepoint. This lends support for the implementation of adolescent tobacco cessation programs by school nurses in the school setting. The developed TPB-ACES questionnaire works with school nurses and for measuring intention to provide adolescent tobacco cessation services. The provision of tobacco cessation training and tools, such as the ACES toolkit, may effectively enhance school nurses' perceived behavioral control over providing adolescent tobacco cessation services. Providing trainings and evidence-based tools offers tobacco cessation professionals with a new opportunity to partner with school nurses for the purpose of reaching an underserved population – adolescent tobacco users.