

Excellence in Prevention – descriptions of the prevention programs and strategies with the greatest evidence of success

Name of Program/Strategy: Project EX

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1. Overview and description

Project EX is a school-based smoking-cessation clinic program for adolescents that stresses motivation, coping skills, and personal commitment. Consisting of eight 40- to 45-minute sessions delivered over a 6-week period, the program curriculum includes strategies for coping with stress, dealing with nicotine withdrawal, and avoiding relapses. Project EX uses engaging and motivating activities such as games and yoga to reduce or stop smoking among adolescents and teach self-control, anger management, mood management, and goal- setting techniques. Adolescents are provided with accurate information about the social, emotional, environmental, and physiological consequences of tobacco use. The first four sessions are intended to prepare students for an attempt at quitting smoking, which should take place between sessions 4 and 6. The remaining sessions are designed to maintain quit status and enhance quit attempts. Project EX clinics operate during school hours. Each clinic group can accommodate 8 to 15 students.

2. Implementation considerations (if available)

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3. Descriptive information

| | |
|----------------------------------|---|
| Areas of Interest | Substance abuse prevention |
| Outcomes | 1: Tobacco use 2: Motivation to quit tobacco use |
| Outcome Categories | Tobacco |
| Ages | 13-17 (Adolescent) 18-25 (Young adult) |
| Genders | Male Female |
| Races/Ethnicities | Asian Black or African American Hispanic or Latino White Race/ethnicity unspecified |
| Settings | School |
| Geographic Locations | No geographic locations were identified by the applicant. |
| Implementation History | Project EX has been implemented in about 25 sites with about 1,000 individuals, in addition to those sites where the program developers have conducted experimental trials. Approximately 12 U.S. sites have been evaluated for outcomes. Project EX also has been implemented and evaluated in Wuhan, China. |
| NIH Funding/CER Studies | Partially/fully funded by National Institutes of Health: No Evaluated in comparative effectiveness research studies: Yes |
| Adaptations | Project EX has been implemented/adapted for use with adolescents in China. |
| Adverse Effects | No adverse effects, concerns, or unintended consequences were identified by the applicant. |
| IOM Prevention Categories | Indicated |

4. Outcomes

Outcome 1: Tobacco use

| | |
|--------------------------------|---|
| Description of Measures | Thirty-day use of cigarettes, smokeless tobacco, and cigars was measured at baseline and again at follow-up using time-anchored rating scales, the Nicotine Dependence Scale, and carbon monoxide measurement in expired breath samples. Participants |
|--------------------------------|---|

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| | |
|-----------------------------------|--|
| | were asked to rate their use of cigarettes, cigars, and smokeless tobacco over the prior 30 days. Participants were coded either as "quitters" (had not used at all over the prior 30 days) or "non-quitters" (had used at all over that period). The outcome of interest was the proportion of participants in the conditions categorized as "quitters" versus "non-quitters" at the follow-up time-point (about 3 months post-intervention). |
| Key Findings | At follow-up about 3 months post-intervention, the 30-day abstinence rate for Project EX participants completing the clinic was 30%, compared with 16% for the control group ($p < .05$). Using a more conservative intent-to-treat analysis that included those who dropped out of the clinic yielded similar results (30% and 16% for the clinic and control groups, respectively; $p < .05$). Using the most conservative approach and counting all those not contacted at follow-up as still using tobacco produced a 30-day quit rate of 19% across all clinic participants, compared with the 10% found in the control group. |
| Studies Measuring Outcome | Study 1, Study 2 |
| Study Designs | Experimental |
| Quality of Research Rating | 3.0 (0.0-4.0 scale) |

Outcome 2: Motivation to quit tobacco use

| | |
|-----------------------------------|---|
| Description of Measures | Motivation to quit was measured with 16 items, each measured on 4-point Likert scale. Although the development of this measure was based upon a theoretical conceptualization of motivation as comprising three underlying factors, factor analyses indicated that all the items loaded onto a single factor, and thus the measure was analyzed as a single construct. |
| Key Findings | The results indicate that motivation to quit smoking changed significantly ($p < .01$) as a function of undergoing the treatment, even taking into account the observed differences in motivation at the pretest. In addition, post-treatment motivation (level of motivation at posttest) significantly predicted nonuse of tobacco in the past 30 days ($p < .05$). |
| Studies Measuring Outcome | Study 2 |
| Study Designs | Experimental |
| Quality of Research Rating | 3.3 (0.0-4.0 scale) |

5. Cost effectiveness report (Washington State Institute of Public Policy – if available)

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6. Washington State results (from Performance Based Prevention System (PBPS) – if available)

7. Who is using this program/strategy

| Washington Counties | Oregon Counties |
|---------------------|-----------------|
| | |

8. Study populations

The studies reviewed for this intervention included the following populations, as reported by the study authors.

| Study | Age | Gender | Race/Ethnicity |
|----------------|---|------------------------|--|
| Study 1 | 13-17 (Adolescent) 18-25 (Young adult) | 66% Male 34% Female | 48% Hispanic or Latino 30% White 7.5% Black or African American 7% Asian 6.5% Race/ethnicity unspecified |
| Study 2 | 13-17 (Adolescent) 18-25 (Young adult) | 66% Male 34% Female | 48% Hispanic or Latino 30% White 7.5% Black or African American 7% Asian 6.5% Race/ethnicity unspecified |

9. Quality of studies

The documents below were reviewed for Quality of Research. Other materials may be available. For more information, contact the developer(s).

Study 1

McCuller, W. J., Sussman, S., Wapner, M., Dent, C., & Weiss, D. J. (2006). Motivation to quit as a mediator of tobacco cessation among at-risk youth. *Addictive Behaviors*, 31, 880-888.

Study 2

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Sussman, S., Dent, C. W., & Lichtman, K. L. (2001). Project EX: Outcomes of a teen smoking cessation program. *Addictive Behaviors*, 26,425-438.

Supplementary Materials

Sussman, S., McCuller, W. J., Zheng, H., Pflingston, Y. M., Miyano, J., & Dent, C. W. (2004). Project EX: A program of empirical research on adolescent tobacco use cessation. *Tobacco Induced Diseases*, 2, 119-132.

Sussman, S., Sun, P., & Dent, C. W. (2006) A meta-analysis of teen cigarette smoking cessation. *Health Psychology*. 25 (5), 549-557.

Zheng, H., Sussman, S., Chen, X., Wang, Y., Xia, J., Gong, J., et al. (2004). Project EX: A teen smoking cessation initial study in Wuhan, China. *Addictive Behaviors*, 29, 1725-1733.

Quality of Research Ratings by Criteria (0.0-4.0 scale)

External reviewers independently evaluate the Quality of Research for an intervention's reported results using six criteria:

1. Reliability of measures
2. Validity of measures
3. Intervention fidelity
4. Missing data and attrition
5. Potential confounding variables
6. Appropriateness of analysis

For more information about these criteria and the meaning of the ratings, see Quality of Research.

| Outcome | Reliability of Measures | Validity of Measures | Fidelity | Missing Data/Attrition | Confounding Variables | Data Analysis | Overall Rating |
|--|-------------------------|----------------------|----------|------------------------|-----------------------|---------------|----------------|
| 1: Tobacco use | 2.8 | 3.3 | 2.5 | 4.0 | 3.0 | 2.8 | 3.0 |
| 2: Motivation to quit tobacco use | 2.0 | 2.0 | 3.8 | 4.0 | 4.0 | 4.0 | 3.3 |

Study Strengths

The studies used a standard measure for assessing tobacco use, one that has been in use since 1975 and has reasonable evidence of reliability and validity, together with an additional self-report measure of smoking behavior, the Nicotine Dependence Scale, and the measurement of carbon monoxide in expired breath samples. Appropriate research design and choice of statistical analysis further strengthen confidence in the findings. Authors controlled for the effects of potential confounding variables, and analyses were selected and utilized to adjust for attrition and the over-reporting of quitting. The motivation measure developed by the authors exhibited an acceptable level of reliability, and factor analysis was used to determine the appropriate means of using the measure in the analysis. Appropriate analyses

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were also used to test mediating effects of motivation on tobacco use behavior.

Study Weaknesses

Low retention and small effect size weaken confidence in program effectiveness, even where statistical procedures to adjust for attrition and over-reporting of quitting were employed. The use of a single-item self-report of 30-day smoking as a major outcome is not ideal, but the inclusion of other indicators of smoking, such as level of addiction, and an objective measure of smoking behavior compensated for this weakness in measurement.

10. Readiness for Dissemination

The documents below were reviewed for Readiness for Dissemination. Other materials may be available. For more information, contact the developer(s).

Dissemination Materials

Project EX pretest and posttest student surveys

Project EX Web site, <http://tnd.usc.edu/ex/>

Sussman, S., & Lichtman, K. (2004). Project EX: A teen tobacco use cessation program. Student workbook. Los Angeles: University of Southern California.

Sussman, S., & Lichtman, K. (2004). Project EX: A teen tobacco use cessation program. Teacher's manual with CD (1st ed.). Los Angeles: University of Southern California.

Readiness for Dissemination Ratings by Criteria (0.0-4.0 scale)

External reviewers independently evaluate the intervention's Readiness for Dissemination using three criteria:

1. Availability of implementation materials
2. Availability of training and support resources
3. Availability of quality assurance procedures

For more information about these criteria and the meaning of the ratings, see Readiness for Dissemination.

| Implementation Materials | Training and Support Resources | Quality Assurance Procedures | Overall Rating |
|---------------------------------|---------------------------------------|-------------------------------------|-----------------------|
| 3.0 | 2.3 | 1.5 | 2.3 |

Dissemination Strengths

The program curriculum is interactive, yet structured and sequenced so that sessions build on one another. The teacher manuals are printed in large font and have teacher prompts that make them easy to reference during real-time implementation. A toll-free number is available for implementation assistance. In-person training is provided to support implementation, and pre-test/post-test student surveys are

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available to assess program outcomes and thus assist in quality assurance.

Dissemination Weaknesses

Materials do not provide implementation information or suggested strategies for gaining cooperation from other teachers and/or on-site administrators. Materials also do not provide any information on assessing the quality of training and support nor do they present any fidelity measure to ensure the program is implemented as intended. The pre-test/post-test survey does not include scoring information so that teachers can interpret findings.

11. Costs (if available)

The information below was provided by the developer and may have changed since the time of review. For detailed information on implementation costs (e.g., staffing, space, equipment, materials shipping and handling), contact the developer.

| Item Description | Cost | Required by Program Developer |
|--------------------------------|---|--------------------------------------|
| Teacher's manual with audio CD | \$60 each | Yes |
| Student workbook | \$35 for five | Yes |
| 1-day, on-site training | \$1,100-\$1,300 for up to 25 participants, plus travel expenses | No |
| 2-day, on-site training | \$1,800-\$2,000 for up to 25 participants, plus travel expenses | No |
| Student surveys | Free | No |

12. Contacts for more information

For information on implementation or research:

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