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Effect of a tobacco cessation continuing professional education program on pharmacists' confidence, skills, and practice-change behaviors

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Abstract

Objective—To evaluate the impact of a tobacco cessation training program on pharmacists' confidence, skills, and practice-change behaviors.

Design—Quasiexperimental study.

Setting—Wisconsin during 2002–2003.

Participants—25 community pharmacists.

Intervention—A continuing education training program was developed and implemented using home and live training components consisting of the national tobacco cessation guidelines, including the 5A's counseling process. The home study component included lectures and readings in CD-ROM format. Consistent with self-efficacy theory, the live training was based on exercises that included modeling, rehearsal, and feedback to learners.

Main outcome measures—Knowledge assessment, pre- and postsurveys assessing confidence and skill levels, and service provision indicators.

Results—Self-efficacy and perceived ability to counsel patients to quit using tobacco improved significantly after the combined program. No significant change in confidence or perceived skills occurred following home study alone, suggesting value in using a combination of teaching strategies (problem solving, modeling, rehearsal, and feedback). Of participants, 92% received a passing knowledge score and 75% attempted to implement a tobacco cessation service posttraining; more than 50% assisted patients up to 1 year posttraining. A relationship between self-efficacy and service provision was found when practice settings were considered.

Conclusion—This program increased pharmacists' knowledge and self-efficacy to counsel patients on tobacco use. Further, the majority of pharmacy participants attempted to implement a tobacco cessation service.

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Keywords

Self-efficacy; continuing education; counseling (patient); tobacco cessation

The current U.S. comprehensive tobacco cessation guideline, *Treating Tobacco Use and Dependence: Clinical Practice Guideline*, sets a high priority on conducting research on the effective elements of successful training programs.¹ Issues that should be addressed include whether formal continuing education (CE) is effective and determining which instructional strategies are effective at positively impacting practitioners' skills and, ultimately, at influencing patient outcomes. A 1999 review of continuing medical education (CME) programs by Davis et al.² concluded that didactic programming alone had little or no influence on practitioner behavior and patient outcomes. In contrast, interactive CME modalities that engaged the participants and provided opportunities to practice skills were effective in changing physician performance and, in some instances, were associated with positive health outcomes.²

A training program should also incorporate essential elements of adult education theory and stress skill development and maintenance.^{3–5} As noted by Davis et al.,² didactic lectures can enhance knowledge, skills, or attitudes considerably. However, using interactive techniques such as role play, case discussion, and hands-on opportunities are more effective in influencing the confidence of the practitioner or their perceived self-efficacy to perform specific behaviors. This enhanced self-efficacy, or level of confidence, would lead to a greater likelihood of transferring those skills into their practice.

At a Glance

Synopsis

A tobacco cessation training program using home and live training components was provided to 25 pharmacists in Wisconsin. Pharmacist self-efficacy and perceived ability to counsel patients to quit using tobacco improved significantly after a combined program (live and home training), whereas no change in confidence or perceived skills occurred following home study alone. Of participants, 92% received a passing knowledge score and 75% attempted to implement a tobacco cessation service posttraining; more than 50% assisted patients up to 1 year posttraining.

Analysis

The current findings are consistent with self-efficacy theory, which posits that higher self-efficacy can motivate practitioners to master skills necessary for proficient performance and suggests that a combination of instructional strategies can enhance the learner's self-efficacy. Pharmacy curriculums have become increasingly interactive through the use of laboratory experiences, cooperative learning environments, and experiential rotations with practitioners. These learning environments help support the skill development necessary to flourish in a time when the pharmacist's role is expanding and changing. The profession's movement toward adopting continuing professional development's self-directed, ongoing, systematic, and outcomes-focused approach to learning and professional development will likely influence the skill development and ability of pharmacists to transfer those skills into practice.

Current trends in expanded pharmacy practice rely on pharmacists' enhanced knowledge and skills. During the previous 2 decades, the pharmaceutical care movement has evolved to patient-directed care focusing on providing educational and behavioral interventions that affect patient health outcomes positively.⁶ Tobacco cessation is a major public health concern, as

expressed in Healthy People 2010, and pharmacists are among the health providers who can maximize the impact on Healthy People 2010 objectives.^{7,8} However, if pharmacists lack confidence in their ability to provide consultation and tobacco cessation skills to their patients, it is doubtful that the expected outcome of implementing a program to motivate the patient to consider quitting will be realized.

Researchers in pharmacy CE have attempted to answer whether continuing professional education is effective. In a study evaluating the use and effectiveness of pharmacy CE materials, Maio et al.⁹ determined that despite rating CE programs as very effective in enhancing their knowledge, pharmacist respondents judged all forms of information imparted by CE programs to be neutral or not effective in improving their clinical practice behavior. Likewise, although pharmacists realized long-term gains in cognitive and psychomotor skills from a lipid management and hypertension curriculum-based interactive CE program, the program did not affect practice behaviors significantly, including the provision of clinical services.¹⁰ Monaghan et al.¹¹ demonstrated that a modified CE approach to disease management training in diabetes resulted in improved cognitive knowledge, psychomotor skills, and confidence for pharmacists; however, the long-term effect of these programs on patient outcomes remains undetermined.

Although many pharmacy CE programs are geared toward improving skills, few demonstrate an effect on pharmacists' self-efficacy and performance of current practice guidelines. Thus, a study was needed to determine whether the design and delivery of a more interactive tobacco cessation training program increased pharmacists' level of confidence in their ability to provide patient consultation and aid in tobacco cessation. The development and evaluation of a tobacco cessation pharmacy CE program is described. The training program is based on four principles: (1) evidence-based content on tobacco use and cessation, (2) the application of behavioral theory (transtheoretical model) to provide tobacco cessation interventions tailored to a patient's readiness to change, (3) appropriate pharmacologic therapy options and their use in tobacco cessation, and (4) educational methods focusing on active learning techniques that engage learners. Pharmacists can play a key role in tobacco cessation by enhancing their knowledge, skills, and attitudes with an aim toward improving their practice-based skills and confidence in assisting patients to achieve positive health outcomes and by effectively counseling patients to quit using tobacco. If such a training program is successful, determining whether participation in the training program actually increases the transfer of knowledge and skills to the patient care setting—reflected in improved clinical practice behavior—will be possible.

Objectives

The goal of this study was to evaluate the impact of a comprehensive tobacco cessation program on pharmacists' perceived self-efficacy for tobacco cessation counseling and, ultimately, the transfer of learning to their practice setting. The primary objective was to conduct exploratory research to study the effects of different training strategies on pharmacists' perceived self-efficacy to counsel patients to quit using tobacco. The secondary objective was to determine the training program's effect on pharmacists' perceptions of their current skills using the 5A's counseling process (ask, advise, assess, assist, and arrange, as described in the clinical practice guideline) and their overall ability.¹ A third objective was to determine whether the pharmacists transferred their acquired knowledge and skills related to tobacco cessation services to their practice sites by attempting to implement the service or actually assisting patients in their quit attempts.

Conceptual framework

The conceptual framework in Figure 1 proposes that the pharmacist's level of perceived self-efficacy in applying the tools to counsel patients on tobacco cessation determines the behavior

performance (patient counseling) and thus the expected outcomes (motivating the patient to quit or consider quitting).¹² Self-efficacy is the confidence that an individual has in their ability to perform specific tasks. People engage in activities in which they feel confident and competent and avoid those in which they do not. The greater their sense of efficacy, the more effort, persistence, and perseverance they use on a given activity. To accomplish this, it is proposed that an intervention, such as a continuing professional education program, be designed to enhance the participant's perceived self-efficacy in the skills required to perform the necessary counseling service. Bandura¹² proposes that a training intervention include opportunities for modeling the desired behavior, having the learner rehearse or practice the desired skill, and receiving accurate and supportive feedback. Pharmacist characteristics that may influence their response to the intervention include personal demographics, knowledge, self-perception of their skills, personal and professional attitudes and values, and any previous experience with similar skills and services. This study focuses on the influence of the intervention on the pharmacist's perceived self-efficacy, service implementation, and provision 1 year posttraining.

Methods

A quasiexperimental pre/posttest design was used.¹³ The tobacco cessation training program was designed for practicing pharmacists and was administered as two components: home study using CD-ROM technology, followed by a full-day (8-hour) live training workshop. The specific learning objectives are included in Appendix 1 (electronic version of this article, available online at www.japha.org). The training program, which was developed specifically for pharmacists, incorporates patient counseling materials based on the transtheoretical model for change and the 5A's counseling process (ask, advise, assess, assist, and arrange) from the U.S. Public Health Service's *Treating Tobacco Use and Dependence: Clinical Practice Guideline*.^{1,14} Pharmacy CE credits (11.5 hours; 1.15 CEUs) were granted to participants through the University of Wisconsin Extension Services in Pharmacy.

To evaluate self-efficacy, three points of data collection were used to administer the pre/postsurveys to the pharmacists: before the home study, immediately before the live training, and immediately after the live training (intervention and data collection points listed in Table 1). In addition, a multiple-choice knowledge assessment was given and scored in order to comply with the American Council for Pharmacy Education CE requirements. Last, program implementation in the year following training was inferred from pharmacist invoices for medication reimbursement and phone interviews with pharmacists conducted by a research assistant.

Intervention

A comprehensive tobacco cessation guideline, *Treating Tobacco Use and Dependence: Clinical Practice Guideline*, and a formal program, Rx for Change: Pharmacist-Assisted Tobacco Cessation, which was developed by the University of California at San Francisco College of Pharmacy faculty for student pharmacists, were adapted to create this pharmacy CE program.^{1,15} A pilot study was conducted in 2001 with nine participants to pretest the program and survey instruments. This earlier study was useful in establishing the feasibility and ease of implementing the training program.

To effectively identify whether active learning instructional strategies would enhance the pharmacists' perceived self-efficacy, the following strategies were incorporated into the training program: clear learning goals and objectives, verbalization of strategies (problem-solving exercises using illustrative examples and case scenarios), modeling of skill application by an individual considered a proficient peer, skill rehearsal through consultations with peers and standardized patients, and performance feedback (both informal and formal by peers, self-

reflection, and faculty). Learning goals and objectives were established for both training components; however, the remaining strategies were applied during the live training component of the study only.

Sample selection

A total of 27 Wisconsin pharmacists were invited to participate in the CE program as part of a larger research project targeting 18- to 24-year-old tobacco users. A final purposive sample of 25 Wisconsin pharmacists agreed to participate in the program and were each paid \$200. Participant ages ranged from 23 to 59 years (average 35 years). Additional pharmacist demographics are reported in Table 2.

Measures

Three primary data collection measures were used: the Rx for Change survey instrument as developed by Hudmon et al.,¹⁵ CE evaluations, and service provision indicators. Each will be discussed below. The Rx for Change survey assessed pharmacists' perceived self-efficacy, pharmacists' rating of their current skills using the 5A's counseling process, and pharmacists' rating of their overall ability to help patients quit using tobacco.¹⁵ Additional survey questions gathered pharmacists' demographics, prior experience, and attitudes and value toward tobacco cessation as a pharmacy service.

The principle reason for assessing perceived self-efficacy for counseling was to determine the likelihood that the participant would have the confidence to apply the necessary skills outside of the training environment. The 12-item self-efficacy survey of Hudmon et al.¹⁵ was studied in conjunction with similar tobacco cessation training programs, and its reliability has been established (Cronbach's alpha 0.94).¹⁶ The survey uses an interval Likert-type scale (1, not at all confident; 2, not very confident; 3, moderately confident; 4, very confident; and 5, extremely confident) to rate the pharmacist's perceived confidence in counseling patients to quit using tobacco (online Appendix 1).

The second component of the survey instrument determined pharmacists' perceptions of how well the training program actually helped them to understand and adopt the clinical practice guideline's 5A's counseling process.¹ Pharmacists were asked to rate their level of counseling skills on five items using a second interval Likert-type scale (5, excellent; 4, very good; 3, good; 2, fair; and 1, poor) (online Appendix 2).

The third component of the survey instrument included two items on the posttest that assessed the participant's perceived overall ability to help patients quit using tobacco: one assessing pharmacists' ability before training and the other assessing their ability after program completion. A five-point Likert-type scale (1, poor, to 5, excellent) was used (online Appendix 2).

The knowledge assessment contained 14 multiple choice questions; a score of 70% or better was required to earn CE credit. The CE fulfillment documents included program and faculty evaluations and questions related to application of program content.

Last, two indicators of service provision were used. Measures included phone interviews with pharmacists conducted by a research assistant and invoices submitted by pharmacists seeking reimbursement for tobacco cessation therapies dispensed to patients. This service documentation was assessed for 12 months posttraining.¹⁷

Data collection

Notice of exemption from the University of Wisconsin Health Sciences Human Subjects Committee was received. Therefore, no formal consent was required to administer the surveys and participant knowledge and skills assessments.

Data were collected at multiple time points. Before beginning the CD-ROM home study, participants completed a presurvey. After completing the home study but before the live training, pharmacists completed a second survey and the knowledge assessment. After the live training, pharmacists completed the Rx for Change survey, which contained the overall ability and demographic questions and CE evaluation forms. For 12 months after the training, pharmacists' service implementation and provision were tracked and cross referenced.

Data analysis

SPSS 13.0 software was used to analyze the survey data (SPSS, Chicago). Descriptive statistics were used to create summed scores for the self-efficacy survey and the self-rated current skills using the 5A's counseling process. The reliability for both scales was calculated. Paired *t* tests and repeated-measures analysis of variance (ANOVA) were used to analyze the self-efficacy and current skills using the 5A's counseling process survey responses; pre-home training, pre-live training, and post-live training results were compared. The Wilcoxon signed-rank test was conducted to test the pairwise comparison of the pharmacist's self-reported overall ability to help patients quit using tobacco before and after the training program. This non-parametric test was used because the overall ability data appeared bimodal rather than normally distributed in the study population. For all statistical tests, a significance level of 0.05 was used. Item analysis of the knowledge assessment was conducted.

Results

Pharmacist demographics are shown in Table 2. A Cronbach's alpha of 0.93 was calculated for the 12-item self-efficacy scale, which compares well with the established internal consistency reliability of 0.94 calculated by the survey authors.¹⁶ A Cronbach's alpha of 0.83 was calculated for the five-item current skills using the 5A's scale using post-live training survey data.

The response rates for the three surveys used to test the study hypotheses were pre-home study 88%, pre-live training 56%, and post-live training 92%. Paired *t* tests and repeated-measures ANOVA were used to measure within-participant changes over time for the perceived self-efficacy 12-item scale and the pharmacists' perceived current skills using the 5A's counseling process five-item scale. Descriptive statistics were used to calculate summed scores for the perceived self-efficacy scale (Table 3). Additional outcomes are shown in Table 4.

Self-efficacy

First, the results in Table 4 for the paired *t* tests suggest that the self-efficacy scores were significantly higher after the live training compared with before the home study. No significant difference was observed in perceived self-efficacy without the live training component. Considering that the format used for the home study component was primarily a knowledge-based didactic format, this finding is consistent with our expectations. For completeness, a significant increase in participants' perceived self-efficacy was found when pre- and post-live training self-efficacy summed scores were compared; therefore, the live training strategies had a positive effect on pharmacists' perceived self-efficacy to counsel patients on tobacco cessation.

A repeated-measures ANOVA statistical analysis was conducted as a more conservative approach to measure whether the same individuals across all three data collection points

produced results that were similar to the paired *t* test. The data from 10 pharmacists who submitted complete survey responses for all three data collection points were used for this specific analysis.

There were four within-participant factors and no between-participant factors. Because Mauchly's test of sphericity was not significant ($P = 0.909$), the assumption of compound symmetry was met and the univariate test was appropriate (and more powerful).¹⁸ No matter which epsilon correction was used, the overall *F* is significant at an alpha less than 0.05 ($P < 0.004$ and $P < 0.021$ for lower-bound correction).

In the simple pairwise comparisons using repeated-measures ANOVA, the self-efficacy scores were significantly higher post-live training compared with before the home study ($P < 0.005$ for all). No significant difference was observed in perceived self-efficacy ($P = 0.163$) without the live training component. Considering that the format used for the home study component was primarily a knowledge-based didactic format, this finding is consistent with our expectations. For completeness, a significance of $P = 0.032$ was found when pre- and post-live training self-efficacy summed scores were compared. Using the Bonferroni-Holm correction to accommodate for the familywise alpha, this value would not be significant.¹⁸ Therefore, these data suggest that the entire training program was necessary, including both the home and live training strategies, to significantly improve pharmacists' perceived self-efficacy to counsel patients on tobacco cessation.

Current skills using the 5A's counseling process

Pharmacists also rated their skill level for the 5A's counseling process significantly higher post-live training (Table 4). No significant difference was observed for the 5A's measures when comparing pre-home training and pre-live training components. Although the 5A's process was taught during both the home and live training components, perceived skill level was higher after the live training strategies.

A repeated-measures ANOVA was also conducted for the same 10 pharmacists' current skills assessment. Mauchly's test of sphericity for the repeated measures ANOVA was significant ($P < 0.038$). Because compound symmetry cannot be assumed, the multivariate results rather than the univariate results were reported; however, this approach is not as powerful. Reporting the univariate results is appropriate if the degrees of freedom have been adjusted with the epsilon correction. We found that regardless of which epsilon correction was used, the overall *F* was significant ($P < 0.001$).

Pharmacists rated their current skill level for the 5A's counseling process significantly higher after the live training ($P < 0.001$) compared with after the home study and with before the live training. No significant difference was observed for the 5A's measures ($P = 0.201$) comparing pre-home study with pre-live training surveys. So, although the 5A's process was a content area in both the home and live education components, the pharmacist's skill level was perceived significantly higher only after the live training strategies were incorporated.

Overall ability

The mean ($\pm$ SD) scores for the overall ability before and after the training were 2.44 ± 0.93 and 3.83 ± 0.70 , respectively. The Wilcoxon signed-rank test was conducted to test the pairwise comparison of overall ability before and after the training program. Participants rated their overall ability after the entire training program significantly higher than their ability before ($P < 0.001$).

Tobacco cessation service provision

Based on phone interviews and submitted invoices during a 12-month period, 18 of 24 pharmacists who completed the training program attempted to implement a tobacco cessation service at their practice sites posttraining. Of those, 13 pharmacists actually assisted patients with tobacco cessation up to 1 year after being trained. These pharmacists were called “service providers.” Although 11 pharmacists had reported previous counseling experience, a chi-square test for independence found no relationship between previous experience assisting tobacco cessation patients and posttraining assistance.

Exploratory analysis was conducted to determine whether pharmacists' confidence would predict their provision of a tobacco cessation service in their practice setting (i.e., their practice behavior). The Mann-Whitney *U* test was used to test this secondary hypothesis because pharmacists' perceived self-efficacy posttraining was not likely to be normally distributed and the sample size was small. This test converts the scores on the continuous variable to ranks across the two provider groups. The *Z* value was -0.373 , with a significance level of $P = 0.709$ (not significant). No statistically significant difference in self-efficacy scores was observed for service providers and nonproviders. However, exploring whether pharmacists' work environment affected their self-efficacy scores was interesting. When the analysis was based on workplace groups, as noted in Table 1 (i.e., by the practice setting in which pharmacists worked: community independent, community chain, or managed care pharmacy), the results appeared to distinguish a relationship between confidence and service provision, as the *P* value for independent practitioners was nearing significance ($P = 0.065$, $Z = -1.844$), despite a small sample size. The relationship between workplace environment and performance variables, including practice behavior, needs to be explored further in future studies.

CE evaluation results

All participants ($n = 25$) completed the multiple choice knowledge assessment after the home study educational component, with 23 receiving a passing score of 70% or greater. A total of 23 CE evaluations were collected from the program participants and were summarized. Although the educational content of the course met the expectations of all 23 respondents, differences were noted between the 13 service providers and 10 nonproviders. Among the comments regarding the strength of the course, service providers were more likely to comment on the role playing, the videotaping, and technology as useful for their eventual roles as providers. Nonproviders were more likely to comment on the course handouts, the presenters, and the organization and structure of the course. When asked how they would apply the knowledge and techniques gained to improve their practice, eventual service providers noted that they would apply the principles every day in counseling patients, that they would formulate an action plan for implementing tobacco cessation, that they would try to change behavior slowly, and that they had gained confidence to start a tobacco cessation program and to be successful. Of note is that several of the providers stated that they could apply the techniques learned to different disease states, including diabetes, hypertension, and dyslipidemia. Eventual nonprovider comments included, “Will try to recruit patients,” “I hope I will be better at providing consultation,” and “I'm working on it”—statements that seem to indicate a lack of confidence in their ability to provide such services.

Discussion

This study was exploratory in nature and contributes conceptually to the current knowledge about the design of pharmacy CE programs to enhance knowledge, skills, confidence, and implementation of skills in pharmacy practice. This was accomplished by designing a CE program for pharmacists that applied essential elements of adult education theory and stressed a more active approach to skill development and maintenance. Instructional techniques that

were shown to develop self-efficacy were incorporated into the live training component, such as problem solving, modeling, rehearsal, and feedback. By contrast, the home study was solely didactic. By comparing pharmacists' confidence in their ability to counsel on tobacco cessation before and after the different training components, we could identify whether the interactive techniques contributed to developing the practitioner confidence. This study also attempted to measure whether skills learned in an education program were transferred to practice; more specifically, we sought to determine whether participating pharmacists actually provided tobacco cessation services at their practice sites.

Study results indicated that pharmacists' perceived self-efficacy to counsel patients to quit using tobacco improved significantly immediately following the live training. This increase in confidence was found despite a small sample size and a conservative test (e.g., a selection of motivated practitioners). In contrast, the home study (CD-ROM) component did not demonstrate a significant change in perceived self-efficacy. Thus, although home study included readings about the application of the transtheoretical model and the 5A's counseling process to tobacco cessation, pharmacists' confidence in using these counseling tools in practice did not increase. This finding suggests that a combination of instructional strategies can enhance the learner's self-efficacy and that a didactic approach by itself does not increase the learner's confidence in their capability to perform the desired skill. The increased level of confidence reported by the pharmacists after the live training component suggests that there was value in using a combination of teaching strategies, including learning goals, verbalizing problem-solving strategies, modeling, rehearsal, and performance feedback—critical elements in an academic setting. These results are consistent with Bandura's¹² self-efficacy theory. Similar results occurred in the analysis of pharmacists' rating of their current skills using the 5A's counseling process and their self-reported overall ability.

From this study, we cannot determine which strategies within the live training were most effective. This research supports recommendations derived from the self-efficacy theory that program developers and instructors should use more than a traditional didactic approach to instruction when, in addition to improving knowledge, the desired outcome of the educational program includes building confidence and skill development. As the CE needs of our learners change, so will our need to adapt our delivery methods. Pharmacy curriculums have become increasingly interactive through the use of laboratory experiences, cooperative learning environments, and experiential rotations with practitioners. These learning environments help support the skill development necessary to flourish in a time when the pharmacist's role is expanding and changing. As practitioners work in the field, they may pursue CE opportunities to cultivate skills for their own sake or to improve patient care. Likewise, the profession's movement toward adopting continuing professional development's self-directed, ongoing, systematic, and outcomes-focused approach to learning and professional development will likely influence the skill development and ability of the pharmacist to transfer those skills into practice.

This study does not purport to abolish home study opportunities because they are helpful in fostering a foundation of knowledge necessary for further skill development and higher-order thinking. Home study provides learners with the opportunity to pace their own learning and to review and reinforce learning as necessary. In contrast, live training allows for interaction with content experts and colearners, but the learning pace is set by the presenters and facilitators. Live training allows for knowledge reinforcement and greater awareness of the resources needed to apply the knowledge to patient care opportunities. The appropriate sequencing of learning opportunities is necessary to ensure that knowledge gains are achieved before more challenging learning modalities, such that home study precedes live study with interactions and is followed by practice-based applications and reflections on learning.

Transfer of learning to practice can be influenced by multiple factors. Other than using educational programming strategies, organizational change may be necessary. An indicator of employer support for practitioners who desire to provide patient-directed services is also critical.² Although participants received multiple tools and materials to reinforce application of tobacco cessation counseling skills into their practice, the training did not include an assessment of workplace support, including staff involvement and management backing. One participant in our training program remarked, "Well now I'll see if my employer is ready to back me up with the resources I need." Future offerings of disease management trainings should assess the learner's readiness to transfer specific skills into practice, as well as the learner's perception of their employer and patient readiness to support pharmacist services.

Limitations

Caution must be exercised in generalizing results because of the small, select sample size and limited geographic region. This was not a representative group of pharmacists because they were highly motivated to be involved in the research project. Because a control group was not included in the study design, we were unable to state with certainty that the observed changes in self-efficacy resulted from the training program. A stronger correlation between self-efficacy and tobacco cessation service provision may have been found if self-efficacy had been measured just before the time of service implementation or provision. Social desirability may have introduced bias because participants knew they were going to be relied on to deliver the tobacco cessation intervention to young adults in Wisconsin.

Conclusion

This CE program, which was designed for pharmacists, applied essential elements of adult education theory and stressed a more active approach to skill development and maintenance. As a result of exposure to the entire program, pharmacists' knowledge and self-efficacy to counsel patients on tobacco use was increased significantly. These findings are consistent with self-efficacy theory, which posits that higher self-efficacy can motivate practitioners to master skills necessary for proficient performance and suggests that a combination of instructional strategies can enhance the learner's self-efficacy. A didactic approach by itself does not increase the learner's confidence in his or her ability to perform the desired skill. Further, the majority of pharmacy participants attempted to implement a tobacco cessation service. To increase practitioners' transfer of skills to direct patient care, future offerings of disease management trainings should assess learners' readiness to transfer specific skills into practice and their perception of employer and patient readiness to support pharmacist services.

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Appendices: Survey tools

(1) Self-efficacy survey

Question: How much confidence do you have in the following aspects of counseling patients to quit using tobacco? (Using an ordinal Likert scale: 1 = not at all confident; 2 = not very confident; 3 = moderately confident; 4 = very confident; 5 = extremely confident)

How confident are you that you –

- a. Know the appropriate questions to ask patients when providing counseling?
- b. Have the skills needed to counsel for an addiction?
- c. Can provide motivation to patients who are trying to quit?
- d. Have the skills to monitor and assist patients throughout their quit attempt?
- e. Have the skills to assist patients who seem to be in a hurry?
- f. Have sufficient therapeutic knowledge of the pharmaceutical products for tobacco cessation?
- g. Can create consumer awareness of why pharmacists should ask questions about tobacco use?
- h. Know when a referral to a physician is appropriate?
- i. Can sensitively suggest tobacco cessation to patients who use tobacco?
- j. Are able to provide adequate counseling when time is limited?
- k. Can help recent quitters learn how to cope with situations or triggers that might lead them to relapse back to smoking?
- l. Can counsel patients who are not interested in quitting?

(2) Overall ability and the “5'A's” counseling process

Using an ordinal Likert scale: 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent

1. *Before* attending this class, how would you have rated your overall ability to help patients quit using tobacco?
2. *Now*, how do you rate your overall ability to help patients quit using tobacco?

Please rate your level of skills for the following aspects of counseling:

1. Asking patients whether they use tobacco
2. Advising patients to quit using tobacco
3. Assessing patients' readiness to quit
4. Providing tobacco cessation assistance to patients who are thinking about quitting or trying to quit using tobacco
5. Arranging a follow-up counseling session with patients you assist with quitting

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Figure 1.
Conceptual framework: counseling patients on tobacco cessation
Adapted from Fig 1.3 in ^{reference 12}.

Table 1

Data collection points for administering pre/postsurveys to pharmacists

O1	3 weeks later				12 months
	X1	O2	X2	O3	O4
Baseline	Home study	Pre-live training	Live training	Post-live training	Practice site
Self-efficacy		Self-efficacy		Self-efficacy	Invoices
Current skills		Current skills		Current skills	Phone calls
				Overall ability	

Abbreviations used: O, observation; X, intervention.

Table 2

Characteristics of pharmacists who participated in the tobacco cessation training program

Characteristic	No. (%)
Gender	
Men	16 (64)
Women	9 (36)
Smoking history	
Never smoked	4 (16)
Current smoker	0
Previous smoker	2 (8)
Experimented	15 (60)
Assisted patients in tobacco cessation before program (yes)	11 (44)
Pharmacy work setting	
Community independent	8 (32)
Community chain	8 (32)
Managed care	9 (36)

Table 3

Self-efficacy measures (12-item scale): Pharmacist tobacco cessation counseling

	Pre-home training Mean $\pm$ SD	Pre-live training Mean $\pm$ SD	Post-live training Mean $\pm$ SD
n	22	14	23
Ask appropriate questions	2.59 $\pm$ 1.01	2.93 $\pm$ 0.62	3.76 $\pm$ 0.52
Counsel an addiction	2.68 $\pm$ 1.04	2.64 $\pm$ 0.50	3.57 $\pm$ 0.73
Provide motivation	3.00 $\pm$ 1.02	3.07 $\pm$ 0.73	3.85 $\pm$ 0.76
Monitor and assist	2.81 $\pm$ 1.03	3.14 $\pm$ 0.77	3.91 $\pm$ 0.79
Assist hurried patients	2.68 $\pm$ 1.04	2.93 $\pm$ 0.73	3.74 $\pm$ 0.75
Have therapeutic knowledge	3.18 $\pm$ 0.96	3.18 $\pm$ 0.61	4.20 $\pm$ 0.69
Create pharmacist role awareness	3.05 $\pm$ 1.17	2.93 $\pm$ 0.73	4.09 $\pm$ 0.79
Know when to refer	2.91 $\pm$ 1.02	3.07 $\pm$ 1.00	4.13 $\pm$ 0.81
Suggest tobacco cessation	3.19 $\pm$ 1.17	2.93 $\pm$ 0.73	3.87 $\pm$ 0.81
Counsel with limited time	3.14 $\pm$ 1.13	3.00 $\pm$ 0.88	3.78 $\pm$ 0.74
Help quitters cope	2.77 $\pm$ 1.11	2.64 $\pm$ 0.84	3.70 $\pm$ 0.70
Counsel uninterested patients	2.45 $\pm$ 1.14	3.64 $\pm$ 0.74	3.76 $\pm$ 0.71
Summed score	34.18 $\pm$ 10.62	35.11 $\pm$ 6.28	46.35 $\pm$ 6.58

Table 4
Mean pre/postvalues and paired *t* test results using summed scores for self-efficacy and current skills measures

Self-efficacy measures ^a				Current skills measures ^b			
	n	Prevalue Mean ± SD	Postvalue Mean ± SD	P	Prevalue Mean ± SD	Postvalue Mean ± SD	P
Prehome vs. prelive	10	31.50 ± 6.22	35.65 ± 5.47	0.163	12.05 ± 2.89	11.40 ± 2.46	0.201
Prehome vs. postlive	19	35.05 ± 8.66	46.63 ± 6.99	<0.001	14.13 ± 5.53	19.79 ± 2.57	<0.001
Prelive vs. postlive	14	35.11 ± 6.28	43.46 ± 5.23	<0.003	12.29 ± 2.99	19.07 ± 1.64	<0.001

^aMaximum score 60 points.
^bMaximum score 25 points.