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# Cognitive Behavioral Therapy and Pharmacotherapy for the Treatment of Tobacco Use Disorder in Primary Care for Resident Physicians

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## Abstract

**Introduction:** Though the prevalence of smoking has decreased, it remains the second leading risk for early death and disability worldwide. At the primary care level, the combined use of behavioral interventions and pharmacotherapy has been shown to be more effective in reduction of smoking. Among behavioral interventions, cognitive behavioral therapy (CBT) provides a useful framework for helping patients quit smoking. **Methods:** This 90-minute workshop was led by two facilitators, a general internist who practices as a primary care physician and a clinical psychologist with content expertise in CBT. This pairing provided complementary perspectives to allow for learner engagement. To evaluate the workshop, we used a pre-/postsurvey that was administered at the beginning and the end of the workshop. Participants were asked how often they incorporated (presurvey) and intended to incorporate (postsurvey) CBT as part of smoking cessation counseling in their clinical practices. **Result:** There was a statistically significant change in learners' perceived usefulness of CBT for smoking cessation from pre- to postworkshop. **Discussion:** Our workshop is a unique contribution to the literature. Limitations of our study include not knowing the long-term effect of knowledge acquisition or decay. Our future direction will be to produce training that applies CBT to other common chronic diseases that have a huge behavioral component in primary care, such as insomnia, chronic pain, and obesity.

## Keywords

Counseling, Resident Education, Smoking Cessation, Pharmacotherapy, Case-Based Learning, Cognitive Behavioral Therapy, Tobacco Use Disorder

## Educational Objectives

By the end of this activity, learners will be able to:

1. Identify specific strategies for smoking cessation, including cognitive behavioral therapy and pharmacotherapy.
2. Practice the skills of cognitive behavioral therapy for smoking cessation.

## Introduction

A 2017 publication in *The Lancet* examined the global burden of disease for smoking-attributable diseases.<sup>1</sup> Though the prevalence of smoking has decreased, it remains the second leading risk for early death and disability worldwide. In 2015, 11.5% of global deaths (6.4 million) were attributable to smoking. Among these deaths, 52.2% took place in China, India, the United States, and Russia. The Centers for Disease Control and Prevention reported that tobacco use, most commonly by cigarettes, is the leading cause of preventable disease and death among U.S. adults.<sup>2</sup> Furthermore, this is noted to be a social justice issue, as prevalence and thus illness disproportionately affect Medicaid enrollees (27.8%), uninsured persons (27.4%), those living below the poverty level (25.3%), those without a high school diploma (24.1%), adults with disability (21.2%), LGBTQ+ individuals (20.5%), the mentally ill (40.6%), and certain ethnic minority populations (notably, multiple-race persons, 25.2%; American Indian/Alaska Native, 31.8%).

## Appendices

- A. Facilitator's Guide.docx
- B. Workshop PowerPoint Presentation.pptx
- C. Clinical Cases.docx
- D. Resident Resources Material.docx
- E. Pre- and Posttest.docx

*All appendices are peer reviewed as integral parts of the Original Publication.*

At the primary care level, the combined use of behavioral interventions and pharmacotherapy has been shown to be more effective in reduction of smoking.<sup>3</sup> The U.S. Preventive Services Task Force recommends that clinicians utilize the 5 A's approach to (1) ask all adults about their tobacco use; (2) advise them to discontinue use through clear, personalized messages; (3) assess their motivation to quit; (4) assist through behavioral interventions and FDA-approved pharmacotherapy; and (5) arrange follow-up and support.<sup>4</sup>

Among behavioral interventions, cognitive behavioral therapy (CBT) provides a useful framework for helping patients quit smoking. The main components of these interventions include education about and preparation for withdrawal symptoms, identification of smoking triggers, problem-solving and coping skills, and stress management and relaxation strategies.<sup>5</sup> Moreover, the 5 R's model may be a helpful tool for increasing motivation and sustaining quit attempts.<sup>6</sup> The 5 R's model includes (1) relevance: explain to patients why cessation is personally relevant, (2) risks: ask patients to explain their perceived potential risks, (3) rewards: ask patients to explain what they might gain from cessation, (4) roadblocks: barriers to success, and (5) repetition: discuss these issues with patients at each visit.

Classic medical school and residency teaching focused on education, motivational interviewing, and nicotine replacement therapy (NRT). This workshop was developed to provide medical residents with the rationale and skills to offer more robust smoking cessation support for patients at various stages of readiness for change. Special attention was dedicated to patients suffering from comorbid psychological syndromes for which smoking is a coping strategy. Among the published *MedEdPORTAL* workshops discussing smoking cessation, none focuses on specific CBT interventions.<sup>7-9</sup> There are a handful of *MedEdPORTAL* resources dealing with introducing psychotherapy to medical trainees.<sup>10,11</sup> However, to date, only one resource, created by Romito, Coan, and Christen, incorporates these techniques for smoking cessation.<sup>12</sup> Our workshop differs from the one created by Romito and colleagues in that ours focuses specifically on CBT, providing a broader view of the modality, and incorporates the use of CBT in conjunction with pharmacotherapies. This workshop utilizes case-based discussion to supplement learning and equips primary care residents with concrete tools based on clinical expertise to help their patients reduce or discontinue smoking.

## Methods

We designed and created this workshop with internal medicine residents in the primary care track as our target audience. The workshop was originated as part of a series using CBT for management of different chronic diseases in primary care clinics. The learner groups who participated included internal medicine residents in different postgraduate year levels (PGY 1, PGY 2, and PGY 3). The learners were familiar with the basics of smoking cessation counseling as well as basic pharmacologic treatment options of tobacco use disorder from their clinical practice in medical school and residency training. However, we did not assume that learners had much previous exposure to CBT or behavioral medicine as an integral part of chronic disease management in the primary care setting.

This workshop was a collaboration between a general internist who practiced primary care and a clinical psychologist with content expertise in CBT. This facilitator pairing provided complementary perspectives to allow for learner engagement. Future facilitators should be a clinician who has experience with treating tobacco use disorder and a clinical psychologist experienced in using CBT for smoking cessation. We split the workshop into a didactic component and an interactive component to maximize participant interaction. Before giving the presentation, we divided the parts of the workshop presentation among ourselves based on our expertise. We recommend that the facilitator with familiarity with CBT focus on teaching CBT skills and the physician facilitator focus on teaching the pharmacology. By combining didactics with small-group activities and large-group discussion, we found that our learners were engaged and that this resource achieved its intended goals.

The facilitators and learners all practiced clinical medicine within a large, academic, urban, underserved patient population. The patient population was diverse, and our institution served patients of the lowest socioeconomic status in our city. We tailored the CBT interventions and skills with this practice setting in mind. Though we developed the workshop with this patient population in mind, the basic rationale and the science behind this approach make it useful for clinicians at any type of medical setting.

#### Workshop Outline

The workshop was divided into five sections, which are described in more detail below as well as in the facilitator's guide (Appendix A):

1. Introductions and objectives: 5 minutes.
2. Didactics by slide presentation: 40 minutes, with 5 more minutes for break.
3. Small-group, case-based practice of CBT skills by role-playing: 15 minutes.
4. Large-group discussion/debrief of each case, sharing what each of the small groups learned and observed: 20 minutes.
5. Summary of learning points and wrap-up: 5 minutes.

*Introductions and objectives:* At the beginning of the workshop, both facilitators introduced themselves. One facilitator presented the workshop objectives using the PowerPoint presentation (Appendix B).

*Didactics by slide presentation:* One of the facilitators introduced the prevalence of various socioeconomic and mental health factors as well as their connection to smoking rates. The physician facilitator presented the slides describing pharmacology of nicotine receptors that would explain the powerful effect of nicotine that causes dependency. The behavioral algorithm for smoking cessation was presented by the psychologist facilitator. Then, the physician facilitator covered the slides describing the various pharmacologic treatment options for smoking cessation. Beginning with the NRT Patient Education Considerations slide, the physician facilitator led subsequent interactive sections.

*Small-group, case-based practice of CBT skills by role-playing:* The audience was divided up into groups of three, with each group comprising a physician role, patient role, and observer, using the example cases provided (Appendix C). The facilitator passed out a copy of the resident resources material (Appendix D) to each participant to reference while role-playing. These role-plays took place concurrently. The facilitator could reference the facilitator's guide (Appendix A) to direct the various the small groups. The participant playing the physician role was instructed to try to incorporate one CBT skill and/or one pharmacotherapy option while working with the patient (based on the case). The participant in the patient role interacted with the person in the physician role and was instructed to take notes on whether CBT skills were done effectively and to see if there was adequate patient instruction with pharmacotherapy. The person in the observer role was instructed to take note of what was done effectively and what could be improved upon. If there is extra time, then groups can rotate roles for practicing, but there was no practice time allotted in our workshop. While the role-playing was ongoing, the facilitators walked around and listened in for a few minutes with each group, covering all of the small groups between the two facilitators.

*Large-group discussion/debrief of each case, sharing what each of the small groups learned and observed:* After completion of the role-playing, the small groups reported their reflections on takeaways, components that had gone well, perceived challenges, and next steps to the large group. The facilitator asked each group to highlight unique aspects of each clinical case.

*Summary of learning points and wrap-up:* At the end of the workshop, both facilitators used the summary slide to review the didactic learning points (Appendix B). The facilitators also asked participants what they would incorporate into their own clinical practice.

### Room Setup, Equipment, and Environment

The setting for this workshop was a large conference room that could accommodate the number of expected attendees. The room was equipped with a large presentation-sized smart TV that displayed the PowerPoint presentation. A more traditional projector with projection screen and a connection to a computer would also work for the presentation.

### Workshop Evaluation

To evaluate this workshop, we used a pre-/postsurvey that was administered at the beginning and the end of the workshop (Appendix E). This survey was developed by the project team and sought to assess perceived utility and intent to incorporate CBT into smoking cessation efforts within respondents' clinical practices. Participants were asked how often they incorporated (presurvey) and intended to incorporate (postsurvey) CBT as part of smoking cessation counseling in their clinical practices. Participants were also asked how useful they thought CBT was for smoking cessation. Responses were provided on 5-point scales.

### Results

We had a total of 18 participants in our workshop, and they all took part in the evaluation. In order to assess pre- to postworkshop changes in participants' responses to the questions regarding their intent to incorporate CBT as part of smoking cessation counseling and in participants' responses to questions regarding the perceived usefulness of CBT for smoking cessation, we used nonparametric sign tests, which are appropriate for Likert-type data. As shown in the Table, there was a statistically significant change in both areas from pre- to postworkshop. There was a positive increase in confidence to intend to incorporate CBT as part of smoking cessation in the participants' clinical practice. Also, there was a positive change in the belief that CBT was useful in the treatment of smoking cessation in the participants' clinical practice.

**Table.** Pre- to Postworkshop Changes in Participants

Question	M (SD)		Negative Differences	Ties	Positive Differences
	Preworkshop	Postworkshop			
How often do you/do you intend to incorporate CBT as part of smoking cessation in your clinical practice?	2.11 (1.18)	3.78 (1.11)	5	5	8 <sup>a</sup>
How useful do you think CBT is in the treatment of smoking cessation in your clinical practice?	4.22 (0.55)	4.61 (0.50)	0	0	18 <sup>a</sup>

Abbreviation: CBT, cognitive behavioral therapy.

<sup>a</sup> $p \leq .001$ .

### Discussion

Our workshop is a unique contribution to the literature insofar as, to date, there is only one other resource in MedEdPORTAL that sits at the intersection of psychotherapy and smoking cessation. Our workshop is a unique contribution because it focuses specifically on the use of CBT. Evidence shows that CBT is very effective and is a skill set that complements traditional pharmacotherapy well in a primary care provider's practice. Given the brief, goal-oriented, and patient-centered nature of CBT, it dovetails well with the multiple demands of busy patient encounters and helps to empower patients to feel more supported and self-efficacious in pursuing smoking cessation.

The workshop achieved its purpose of increasing the likelihood that participants would utilize CBT skills in smoking cessation as well as increasing their belief in the usefulness of CBT skills in smoking cessation. The resource is generalizable to trainee residents in family medicine and psychiatry in addition to internal medicine. It can be extended to medical students in their clinical rotations focused on ambulatory settings as well. One important lesson learned during implementation is that if the facilitators each spend a few minutes peripherally listening to each role-playing group, their observations can inform the way in which they facilitate the large-group discussion.

Our workshop and its evaluation are not without limitations. First, although we found that the workshop worked well for our intended audience, we cannot speak directly to whether it would be as effective with a different one, though we hypothesize that it would, as noted above. Second, we studied the learners immediately after the workshop in the form of a posttest, and thus, we do not know the long-term effect of knowledge acquisition or decay. Third, the needs of our patient population and our cases may be very different from the patient demographic of another hospital or institution and therefore may not be generalizable to all populations. Finally, the data we have are knowledge based, not practice based, and so, the application of the data cannot be readily tied to patient outcomes.

Our future direction will be to produce training that applies CBT to other common chronic diseases that have a huge behavioral component in primary care, such as insomnia, chronic pain, and obesity. With each subsequent workshop, we hope to build a strong foundation for primary care providers to utilize these strategies and collaborate with behavioral health specialists to target psychosocial factors that impede patient health.

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#### Ethical Approval

The IRB committee at Boston University approved this study.

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