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Tobacco Counseling Experience Prior to Starting Medical School, Tobacco Treatment Self-Efficacy and Knowledge among First-Year Medical Students in the United States

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Abstract

Objective—To explore students' tobacco dependence counseling experiences prior to medical school and their associations with tobacco counseling self-efficacy, and familiarity with and perceived effectiveness of tobacco dependence treatment among first-year medical students in the United States.

Method—In 2010, 1266 first-year medical students from 10 U.S. medical schools completed a survey reporting their clinical experiences with specific tobacco counseling skills (e.g., 5As) prior

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to medical school. The survey also included questions on tobacco counseling self-efficacy, perceived physician impact on smokers, and familiarity and effectiveness of tobacco-related treatments.

Results—Half (50.4%) reported some tobacco counseling experiences prior to medical school (i.e. at least one 5A). Students with prior counseling experiences were more likely to have higher tobacco counseling self-efficacy, and greater familiarity with medication treatment, nicotine replacement treatment, and behavioral counseling for smoking cessation, compared to those with no prior experiences. Perceived physician impact on patient smoking outcomes did not differ by prior tobacco counseling experiences.

Conclusions—Many first-year medical students may already be primed to learn tobacco dependence counseling skills. Enhancing early exposure to learning these skills in medical school is likely to be beneficial to the skillset of our future physicians.

Keywords

Tobacco dependence treatment; self-efficacy; perceived effectiveness; medical students

Introduction

Cigarette smoking remains the global leading cause of preventable death and morbidity. (USDHHS, 2004) Annually, about 7 out of 10 smokers see a physician (CDC, 1993) and physician-delivered interventions significantly impact eventual smoking cessation. (Fiore et al., 2008) The United States Preventive Services Task Force (USPSTF) Clinical Guidelines recommend that physicians provide tobacco dependence treatment to patients who smoke at every medical visit. (Task Force on Community Preventive Services, 2001; USPSTF, 2009) Recommended treatment includes brief counseling using the 5As: Ask about smoking, Advise to quit, Assess willingness to quit, Assist in smoking cessation, and Arrange to follow-up, and the provision of pharmacologic aids. (CDC, 2007; Fiore et al., 2004) However, many physicians provide only limited tobacco dependence treatment counseling. (Solberg et al., 2005; Tong et al., 2010)

Formal training in tobacco dependence counseling leads to higher self-efficacy and more frequent counseling among physicians. (Leone et al., 2009; Ockene et al., 1988; Victor et al., 2010) Development of tobacco dependence counseling competencies is a recommended component of medical education in order to help trainees develop the knowledge and skills needed to help patients quit smoking. (Geller et al., 2008) Yet training in tobacco dependence treatment counseling during medical school is inadequate. (Ferry et al., 1999; Spangler et al., 2002) with only five to eight hours of tobacco teaching included in US medical school curriculum. (Powers et al., 2004) Medical students report few opportunities for training and practicing counseling, especially in assisting with quit plans and arranging follow-up, and believe they are not given adequate feedback or clear objectives during their internal and family medicine clerkships. (Geller et al., 2008) For example, sixty percent of fourth-year students at a medical school in New York City rated their preparation to assist patients to quit smoking as less than adequate. (Springer et al., 2008)

Despite this gap in training, some students may enter medical school with prior clinical experiences, including tobacco dependence counseling experiences, given the rigors of acceptance into medical school. We hypothesized that students with prior tobacco counseling experience would have greater self-efficacy for providing tobacco treatment and greater knowledge of tobacco treatment, since earlier experiences can enhance an individual's attitudes, skillset, and knowledge.(Torre et al., 2006) Thus, the objective of this study was to examine the extent of prior tobacco dependence counseling experiences among first-year medical students and the association between these experiences and students' self-efficacy for tobacco counseling, perceived impact on patients, and familiarity with and perceived effectiveness of tobacco dependence treatments.

Materials and Methods

Study Participants

Participants were first-year medical students from 10 US medical schools participating in the MSQuit (Medical Students helping patients Quit smoking) study, a group randomized controlled trial designed to compare the impact of a multi-modal tobacco-specific medical school curriculum to traditional education on observed students' tobacco treatment counseling skills.(Hayes et al., 2014) Participating medical schools were private (n=3) and public (n=7), and geographically diverse. Each participating school met the following criteria: 1) enrolled 90 or more matriculating first-year students; 2) had fewer than 4 hours of tobacco treatment training over the four years of medical school; 3) had a third-year Family Medicine or Internal Medicine clerkship; and 4) had a standard evaluation of third-year students' clinical skills through an Objective Structured Clinical Examination (OSCE) via a tobacco-specific clinical case. (Hayes et al., 2014) Institutional Review Boards at each university approved the study.

Measures

Survey items were developed based on our previous research.(Geller et al., 2008) After pilot testing with third-year medical students from the University of Massachusetts Medical School, a few questions were modified to improve understanding. In summer 2010, first-year medical students at each of the 10 participating medical schools completed a 92-item survey in the classroom, online, or combined.

Tobacco dependence counseling experience prior to medical school

Students were asked whether they had clinical experience with each 5A counseling skill within the context of tobacco dependence treatment prior to starting medical school. Questions included "Asked a person about their smoking status", "Advised a person to quit smoking", "Assessed a person's willingness to quit smoking", "Assisted a person to develop a quit plan", and "Arranged or referred a person to a quit line or other resource in order to discuss quitting smoking". We summed students' report of 5A tobacco dependence counseling experiences (range: 0-5). Students who reported experience with at least one of the 5As were categorized as having tobacco dependence counseling experience prior to medical school.

Self-efficacy for tobacco counseling

Students rated their current skill level for each 5A. Nine of the ten schools had four response options for the tobacco counseling self-efficacy questions: not at all skilled, somewhat skilled, moderately skilled, and very skilled. One school had an additional response option of “skilled”. Thus, we dichotomized responses as not skilled (not at all skilled or somewhat skilled) versus skilled (moderately skilled, skilled, or very skilled). We summed the number of As rated as skilled for a score ranging from 0 to 5.

Perceived physician impact

Perceived impact on patients was assessed by the question, “Thinking of your future practice as a physician, how much impact do you expect to have on your patients’ smoking behavior?” Responses ranged from “none” (1) to “a great deal” (5).

Knowledge of tobacco dependence treatments

Familiarity with tobacco dependence treatments—Students were also asked to report whether they were familiar with several tobacco dependence treatments: physician counseling, behavioral counseling (including individual, group, or telephone counseling), printed health education materials, internet-based programs, various pharmacotherapies including Chantix/varenicline, Wellbutrin/bupropion, nicotine replacement therapies, and tobacco treatment medication plus behavioral counseling.

Perceived effectiveness of tobacco dependence treatments—Among those who were familiar with each tobacco treatment, students rated the effectiveness of each intervention as “not effective”, “a little effective”, “moderately effective”, “effective”, or “very effective”. We categorized this variable as not effective, a little/moderately effective, and effective/very effective.

Other Variables

Students self-reported age, gender, race/ethnicity, and smoking status. Since only 3.9% of students reported current smoking, we dichotomized smoking status as never or past/current smoking. Students reported whether they had a close family member who smokes or who used to smoke, and whether they had tried to counsel a close family member or friend about their smoking behavior. Students also reported whether they had experience in patient care prior to medical school, including working in nursing, dental health, social work, EMT, or similar positions.

Statistical Analyses

Pearson’s chi-square tests and t-tests were used to compare student characteristics in relation to the number of prior 5A tobacco dependence counseling experiences. We estimated the association between the number of prior 5A tobacco dependence counseling experiences and students’ self-efficacy for tobacco counseling and perceived impact on patients using mixed model linear regression, respectively, with medical school as a random effect to account for school-level potential differences. A priori, we decided to include prior friend/family tobacco counseling and prior experience in patient care in our adjusted regression models in

order to present estimated associations with prior tobacco dependence counseling experiences independent of these experiences. We evaluated other covariates for potential confounding, including age, gender, race/ethnicity, and students' smoking statuses; variables were retained in regression models if their inclusion changed the beta coefficient by 10% or more.

We compared familiarity with tobacco treatments in relation to prior tobacco dependence counseling experience using chi-square tests. Among those who endorsed familiarity with any tobacco treatment, we compared perceived effectiveness of tobacco treatments between those with and without prior tobacco counseling experience. All analyses were conducted using STATA 12.1 (StataCorp LP, College Station, Texas).

Results

After excluding students missing any information on students' self-efficacy for tobacco counseling, perceived impact on patients, and familiarity with and perceived effectiveness of tobacco dependence treatment (n=73), prior 5A tobacco dependence counseling experiences (n=7), or potential confounders (n=33), our analytic sample included 1266 medical students. Prior to starting medical school, half of the students (50.4%) reported tobacco dependence counseling experience using at least one of the 5As. The majority of these students reported experience with only one or two of the 5As (62.7%); only 7.5% of students reported having had experience with all 5As. More than 40% of students reported having *asked* a person about their smoking status, 31.0% *advised* a person to quit smoking, 23.5% *assessed* a person's willingness to quit smoking, 6.5% *assisted* a person to develop a quit plan, and 8.8% *arranged* or referred a person to a quitline or other resource in order to promote cessation (Figure 1).

Many (56.2%) students had a close family member who smoked or used to smoked, and 44.0% students had counseled a family member or friend to quit smoking. A larger proportion of students who reported prior 5A tobacco counseling experience reported counseling a family member or friend and having patient care experience; other characteristics did not differ by 5A experience (Table 1). Among students who reported prior experience with at least one 5A, there were significant trends toward a greater proportion of students with a close family member who smoked or used to smoke, and a greater proportion of students who had counseled a family member or friend to quit smoking with increasing number of 5A experiences.

Compared to students with no prior 5A counseling experiences, those with at least one experience rated themselves as skilled in Ask (68.5% vs. 51.6%, $p<0.001$), Advise (35.4% vs. 21.0%, $p<0.001$), Assess (33.7% vs. 19.1%, $p<0.001$), Assist (9.6% vs. 5.1%, $p=0.002$), and Arrange (15.1% vs. 10.4%, $p=0.01$). Students with more prior 5A counseling experiences also rated themselves as skilled in more 5A skills than those with no experiences (Table 2). Compared to students with no prior 5A counseling experiences, those with two of 5A experiences perceived themselves as skilled in 0.33 more 5A skills (95% CI: 0.10-0.56), those with three of 5A experiences as skilled in 0.90 more 5A skills (95% CI: 0.65-1.15), those with four of 5A experiences as skilled in 1.00 more 5A skills (95% CI:

0.64-1.37), and those with all 5A experiences as skilled in 1.64 more 5A skills (95% CI: 1.24-2.03).

Students with prior tobacco dependence counseling 5A experiences perceived that they had greater impact on patients' smoking behavior than those with no experience ($M=3.6$ versus 3.3 ; $\beta=0.26$, 95% CI: 0.02-0.50; Table 2). Perceived impact on patients' smoking behavior did not differ by the number of previous 5A experiences (Table 2).

The majority (>90%) of students reported being familiar with printed health education materials, nicotine replacement products, physician counseling, behavioral counseling, and tobacco dependence medications with behavioral counseling (Table 3). Students with greater prior tobacco counseling experience were more likely to be familiar with pharmacotherapy and behavioral counseling (Table 3). Among students familiar with each treatment, perceived treatment effectiveness did not differ by prior tobacco dependence counseling experience (Table 3).

Discussion

Half of our national sample of first-year medical students reported clinical tobacco dependence counseling experiences prior to beginning medical school, suggesting that many matriculating students may already be primed and ready to engage in tobacco dependence interventions with smokers. However, among those with prior clinical tobacco counseling experiences, the majority reported experience with only one or two 5As (typically "Ask" and "Advise"), consistent with the predominant pattern of treatment provided by trained and untrained physicians,(Quinn et al., 2005; Solberg et al., 2005) and 2nd and 4th year medical students.(Geller et al., 2008)

Clinical tobacco experiences, therefore, appear to be introduced and practiced at least once by many students prior to medical school. This prior learning opportunity may prime 5A skills ahead of the clerkship years, placing the student in a position with repeated and more training exposure, which is associated with long-term retention of 5A skills and frequent counseling behavior.(Torre et al., 2006) Indeed, as hypothesized in the current study, students with prior tobacco counseling experiences, and particularly those with greater experiences, reported greater tobacco counseling self-efficacy, consistent with literature linking self-efficacy with more frequent physician counseling.(Cheng et al., 1999; Gist, 1987; Ozer et al., 2004) It may be beneficial to tailor the medical school training experiences to the student's prior experiences to facilitate an adequate and realistic level of self-efficacy for tobacco treatment even at the start of medical school. For example, given the high proportion of students who enter medical school with some prior experience with Ask and Advise, it may be appropriate to focus the curriculum and early curriculum on building the more advanced 5As, particularly "Assist" and "Arrange".

With regard to tobacco treatment knowledge, we learned that over 95% of our first-year students are already familiar with several clinically recommended cessation treatments: printed health education materials, physician counseling, nicotine replacement products, behavioral counseling, and any tobacco treatment medication with behavioral counseling. A

greater number of prior clinical 5A tobacco counseling experiences was associated with familiarity with pharmacotherapy medication and behavioral counseling alone, suggesting that these particular treatments may be the most frequently offered from the students' perspective. There is no existing literature on the association between prior clinical 5A tobacco counseling experiences and familiarity with tobacco dependence treatment, but familiarity with pharmacotherapy medication was also seen in the prior study.(Springer et al., 2008)

It is encouraging that the best approach for tobacco dependence treatment, a combination of behavioral counseling and pharmacotherapy, was perceived as effective or very effective by 86% of students with no prior counseling experiences and by 86-92% of students with prior counseling experience. Although Internet-based interventions can be effective for smoking cessation,(Shahab and McEwen, 2009) only a tenth of students rated them as effective, perhaps because of the varying quality of smoking cessation information and resources available online.(Bock et al., 2004) or unfamiliarity with gold standard websites (e.g smokefree.gov).(National Cancer Institute) It is interesting that perceived effectiveness of treatments did not differ by prior clinical tobacco counseling experience, but this may be due to the nature of how these students may have interacted with their patients. They may only have worked with a patient once, precluding them from knowing whether the patient continued to smoke or had participated in smoking cessation treatment. It is also possible that students may have had a minimal lecture on tobacco cessation during medical school, yet known little about the effectiveness of the particular cessation treatment. Our findings suggest that incoming medical students may lack knowledge of efficacy of various tobacco dependence treatment options, which should then be included early in medical school curricula. It may be possible that knowledge of the effectiveness of each tobacco dependence treatment intervention could help better guide medical students in their provision of clinically appropriate recommendations for their patients who smoke.

A strength of our study is that it is the first study to examine students' tobacco dependence counseling experiences prior to medical school and examine whether prior clinical experiences were associated with 5A self-efficacy skills and tobacco treatment knowledge. We are unaware of other research that examines tobacco counseling experiences defined as each of the clinically recommended 5As. Additionally, our students are enrolled in representative US medical schools, and sample characteristics were comparable to the demographics of first-year medical students nationally,(Association of American Medical Colleges, 2012) increasing generalizability to medical students across the United States. Limitations include that we did not obtain detailed information about students' prior tobacco counseling experiences, such as whether they were supervised in these experiences. It is possible, therefore, that students might consider their provision of tobacco dependence counseling to family or friends as a **clinical** tobacco dependence counseling experience. Yet, to account for this concern, we adjusted for family/friend counseling experience and prior experience in patient care in our regression models; adjusted model results represent the impact of prior tobacco counseling experiences independent of family/friend counseling experience and prior experience in patient care. In conclusion, while half of our sample of first-year medical students reported tobacco dependence counseling experiences prior to

starting medical school, these experiences were often limited to only one or two of the 5As. Future studies are needed to obtain a better understanding of students' prior tobacco dependence counseling experiences by asking details on the duration, types, and quality of their experiences, whether they had received systematic training on tobacco dependence counseling, and whether they had direct contact with smoking patients and tried to help them quit smoking.

Although students may be ready to engage in providing tobacco treatment, there is a critical need for additional training, particularly for using the more advanced 5As (i.e., Assist, Arrange). Our data showing that half of medical students were already exposed to tobacco dependence counseling is encouraging and creates an important foundation to enhance teaching tobacco dependence interventions to medical school curriculum, particularly earlier in the curriculum, which would lead to more patients receiving treatment and reduction in tobacco use and related mortality.

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HIGHLIGHTS

- Half of first year medical students reported prior 5A tobacco counseling experiences
- Prior experience associated with higher tobacco counseling self-efficacy
- Prior experience associated with greater familiarity with dependence treatments
- Students with prior 5A experiences perceived greater impact on smokers
- Early exposure to tobacco 5A skills will be beneficial to the skillset of future physicians

Figure 1.
Percentage of first-year medical students who report 5A tobacco counseling experience prior to starting medical school

Table 1

Characteristics of first-year medical students in relation to prior tobacco dependence counseling experience, N (%) or M $\pm$ SD

	Prior tobacco counseling experience					
	None (N=628)	1A (N=236)	2As (N=164)	3As (N=133)	4As (N=57)	5As (N=48)
Sample %	49.6	18.6	13.0	10.5	4.5	3.8
Age (years)	23.2 $\pm$ 2.2	23.3 $\pm$ 1.8	23.5 $\pm$ 2.5	23.6 $\pm$ 2.0	24.2 $\pm$ 2.5	24.3 $\pm$ 2.5
Female	289 (46.0)	115 (48.7)	76 (46.3)	60 (45.1)	29 (50.9)	23 (47.9)
Race/ethnicity						
Non-Hispanic White	470 (74.8)	181 (76.7)	122 (74.4)	100 (75.2)	40 (70.2)	32 (66.7)
Non-Hispanic Black	34 (5.4)	12 (5.1)	5 (3.1)	3 (2.3)	1 (1.8)	3 (6.3)
Hispanic/Latino	7 (1.1)	6 (2.5)	2 (1.2)	6 (4.5)	4 (7.0)	5 (10.4)
Asian or Pacific Islander	85 (13.5)	29 (12.3)	24 (14.6)	16 (12.0)	9 (15.8)	6 (12.5)
Other race/ethnicity or multi-racial	32 (5.1)	8 (3.4)	11 (6.7)	8 (6.0)	3 (5.3)	2 (4.2)
Never smoker	565 (90.0)	209 (88.6)	151 (92.1)	114 (85.7)	48 (84.2)	40 (83.3)
Has close family member who smokes or used to smoke	341 (54.3)	123 (52.1)	91 (55.5)	81 (60.9)	40 (70.2)	35 (72.9)
Counseled family or friend on smoking	235 (37.4)	96 (40.7)	85 (51.8)	73 (54.9)	35 (61.4)	33 (68.8)
Prior experience in patient care	242 (38.5)	133 (56.4)	93 (56.7)	82 (61.7)	40 (70.2)	28 (58.3)

Table 2

Students' self-efficacy for tobacco counseling and perceived impact on patients in relation to amount of prior tobacco dependence counseling experience, among a national sample of first-year medical students

	Prior tobacco counseling experience					
	No experience (N=628)	Experience with 1A (N=236)	Experience with 2As (N=164)	Experience with 3As (N=133)	Experience with 4As (N=57)	Experience with 5As (N=48)
Tobacco counseling self-efficacy ¹ M (SD) Adjusted beta (95% CI) ²	1.1 (1.3) (Referent)	1.1 (1.1) -0.02 (-0.22-0.18)	1.5 (1.3) 0.33 (0.10-0.56)	2.1 (1.4) 0.90 (0.65-1.15)	2.2 (1.6) 1.00 (0.64-1.37)	2.8 (2.0) 1.64 (1.24-2.03)
Perceived impact on patients ² M (SD) Adjusted beta (95% CI) ²	3.3 (0.8) (Referent)	3.3 (0.8) 0.02 (-0.10-0.23)	3.4 (0.8) 0.05 (-0.09-0.19)	3.4 (0.9) 0.07 (-0.08-0.22)	3.5 (0.8) 0.16 (-0.06-0.38)	3.6 (0.8) 0.26 (0.02-0.50)

¹ Tobacco counseling self-efficacy ranged from 0 to 5 As.

² Perceived physician impact on patients ranged from 1 (none) to 5 (a great deal).

Familiarity with smoking cessation treatments in relation to amount of tobacco dependence counseling experience prior to starting medical school among 1266 first-year medical students, N(%)

Table 3

	Prior tobacco counseling experience						p-value
	No experience (N=628)	Experience with 1A (N=236)	Experience with 2As (N=164)	Experience with 3As (N=133)	Experience with 4As (N=57)	Experience with 5As (N=48)	
Printed health education materials	614 (97.8)	235 (99.6)	162 (98.8)	132 (99.3)	56 (98.3)	49 (100.0)	0.36
Physician counseling	609 (97.0)	231 (97.9)	163 (99.4)	130 (97.7)	55 (96.5)	47 (97.9)	0.61
Nicotine replacement product	602 (95.9)	235 (99.6)	161 (98.2)	131 (98.5)	56 (98.3)	48 (100.0)	0.03
Behavioral counseling	600 (95.5)	234 (99.2)	162 (98.8)	131 (98.5)	57 (100.0)	47 (97.9)	0.02
Any tobacco treatment medication with behavioral counseling	583 (92.8)	225 (95.3)	156 (95.1)	129 (97.0)	56 (98.3)	44 (91.7)	0.21
Internet based program	518 (82.5)	209 (88.6)	137 (83.5)	111 (83.5)	51 (89.5)	40 (83.3)	0.30
Hypnosis	467 (74.4)	188 (79.7)	122 (74.4)	96 (72.2)	49 (86.0)	41 (85.4)	0.09
Acupuncture	446 (71.0)	170 (72.0)	117 (71.3)	98 (73.7)	46 (80.7)	35 (72.9)	0.75
Chantix/Varenicline	254 (40.5)	97 (41.1)	70 (42.7)	67 (50.4)	34 (59.7)	32 (66.7)	<0.01
Wellbutrin	200 (31.9)	84 (35.6)	61 (37.2)	61 (45.9)	26 (45.6)	30 (62.5)	<0.01

Perceived effectiveness of smoking cessation treatments among students who endorsed familiarity with each treatment, in relation to amount of tobacco dependence counseling experience prior to starting medical school, N (%)

Table 4

	Prior tobacco counseling experience						<i>p</i> -value
	No experience	Experience with 1A	Experience with 2As	Experience with 3As	Experience with 4As	Experience with 5As	
Printed health education materials (n=1247)							0.82
Not at all effective	92 (14.9)	30 (12.8)	20 (12.4)	16 (12.1)	6 (10.7)	5 (10.4)	
A little or moderately effective	461 (74.8)	178 (75.7)	124 (76.5)	104 (78.8)	41 (73.2)	35 (72.9)	
Effective or very effective	63 (10.2)	27 (11.5)	18 (11.1)	12 (9.1)	9 (16.1)	8 (16.7)	
Physician counseling (n=1235)							0.98
Not at all effective	6 (1.0)	2 (0.9)	1 (0.6)	1 (0.8)	0 (0.0)	1 (2.1)	
A little or moderately effective	316 (51.7)	113 (48.9)	82 (50.3)	71 (54.6)	28 (50.9)	23 (53.2)	
Effective or very effective	288 (47.3)	116 (50.2)	80 (49.1)	58 (44.6)	27 (49.1)	21 (44.7)	
Nicotine replacement product (n=1233)							0.18
Not at all effective	4 (0.7)	1 (0.4)	0 (0.0)	2 (1.5)	0 (0.0)	0 (0.0)	
A little or moderately effective	212 (35.2)	92 (39.2)	53 (32.9)	38 (29.0)	14 (25.0)	23 (47.9)	
Effective or very effective	386 (64.1)	142 (60.4)	108 (67.1)	91 (69.5)	42 (75.0)	25 (52.1)	
Behavioral counseling (n=1231)							0.80
Not at all effective	3 (0.5)	1 (0.4)	1 (0.6)	2 (1.5)	0 (0.0)	0 (0.0)	
A little or moderately effective	183 (30.5)	74 (31.6)	46 (28.4)	33 (25.2)	13 (22.8)	15 (31.9)	
Effective or very effective	414 (69.0)	159 (68.0)	115 (71.0)	96 (73.3)	44 (77.2)	32 (68.1)	
Any tobacco treatment medication with behavioral counseling (n=1193)							0.50
Not at all effective	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
A little or moderately effective	81 (13.9)	20 (8.9)	12 (7.7)	12 (9.3)	5 (8.9)	6 (13.6)	
Effective or very effective	501 (85.9)	205 (91.1)	144 (92.3)	117 (90.7)	51 (91.1)	38 (86.4)	
Internet based program (n=1066)							0.19
Not at all effective	91 (17.6)	31 (14.8)	28 (20.4)	24 (21.6)	8 (15.7)	6 (15.0)	

Prior tobacco counseling experience									
	No experience	Experience with 1A	Experience with 2As	Experience with 3As	Experience with 4As	Experience with 5As	p-value		
A little or moderately effective Effective or very effective	369 (71.2)	164 (78.5)	101 (73.7)	74 (66.7)	34 (66.7)	29 (72.5)			
	58 (11.2)	14 (6.7)	8 (5.8)	13 (11.7)	9 (17.7)	5 (12.5)			
Hypnosis (n=963) Not at all effective A little or moderately effective Effective or very effective	137 (29.3)	61 (32.4)	37 (30.3)	31 (32.3)	7 (14.3)	9 (21.9)	0.16		
	285 (61.0)	109 (58.0)	70 (57.4)	49 (51.0)	34 (69.4)	25 (61.0)			
	45 (9.6)	18 (9.6)	15 (12.3)	16 (16.7)	8 (16.3)	7 (17.1)			
Acupuncture (n=912) Not at all effective A little or moderately effective Effective or very effective	140 (31.4)	47 (27.7)	32 (27.4)	25 (25.5)	10 (21.7)	9 (25.7)	0.69		
	261 (58.5)	107 (62.9)	74 (63.3)	61 (62.2)	27 (58.7)	22 (62.9)			
	45 (10.1)	16 (9.4)	11 (9.4)	12 (12.2)	9 (19.6)	4 (11.4)			
Chantix/Varenicline (n=554) Not at all effective A little or moderately effective Effective or very effective	4 (1.6)	1 (1.0)	1 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	0.13		
	89 (35.0)	29 (29.9)	13 (18.6)	16 (23.9)	5 (14.7)	10 (30.3)			
	161 (63.4)	67 (69.1)	56 (80.0)	51 (76.1)	29 (85.3)	22 (68.8)			
Wellbutrin (n=462) Not at all effective A little or moderately effective Effective or very effective	8 (4.0)	2 (2.4)	1 (1.6)	1 (1.6)	0 (0.0)	1 (3.3)	0.61		
	109 (54.5)	46 (54.8)	33 (54.1)	31 (50.8)	10 (38.5)	20 (66.7)			
	83 (41.3)	36 (42.9)	27 (44.3)	29 (47.6)	16 (61.5)	9 (30.0)			