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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 US medical schools completed a survey reporting their clinical experiences with specific tobacco counseling skills (e.g., 5As) prior 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.

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 5 to 8 h of tobacco teaching included in US medical

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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 that they are not given adequate feedback or clear objectives during their internal and family medicine clerkships(Geller et al., 2008). For example, 60% 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 (*M*edical *S*tudents 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 h 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%