


Gaps in Knowledge and Practice in Treating Tobacco Use Among Non-physician Healthcare Professionals and Lay Health Workers in Chicago, Illinois

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Abstract

Objective: To conduct a needs assessment for lay health workers and non-physician healthcare professionals [i.e., community health workers (CHW) and lung health professionals who spend more time face-to-face with tobacco-related disparity populations] to describe current gaps in tobacco cessation practices and knowledge.

Methods: A 46-item needs assessment survey was developed to understand knowledge, practices, and confidence about tobacco cessation among non-physician health professionals in a large, urban city in the U.S. Participants, recruited from local community-based organizations and email listservs, completed the online or paper survey, which included a 10-item investigator-initiated tobacco knowledge questionnaire.

Results: About 61.5% of participants (N = 53) asked each client/patient about tobacco use at initial visit, 41.8% reported extreme likelihood of discussing tobacco during a visit, and 43.1% reported addressing tobacco use directly. Despite assisting with cessation, tobacco-related knowledge and confidence was low, with respondents scoring an average of 4.08 out of 10 (SD = 2.21) on the tobacco knowledge questionnaire.

Conclusion: There was a clear lack of knowledge about tobacco cessation in the U.S. among non-physician healthcare professionals. These professionals could benefit from trainings that are relevant to their model of care and better equip them to assist the disparity populations that they serve.

Keywords

tobacco control interventions, underserved populations, lay health workers, lung health professionals, health behavior trainings, tobacco knowledge

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Introduction

Tobacco use, which is responsible for 30% of all cancer deaths,¹ is well documented as a primary underlying cause of cancer disparities,² and it has also been causally linked to other preventable health concerns, like cardiovascular disease and chronic obstructive pulmonary disease (COPD).¹ The tobacco burden in the U.S. is largely held by populations with low socioeconomic status (SES), who continue to smoke at a

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higher rate than the national average (24% compared to 15%)³ despite a decline in overall tobacco use in the U.S. Moreover, cigarette smokers with low SES suffer from tobacco-related diseases at higher rates than those with higher SES; particularly, cancer incidence and mortality rates are significantly higher in low SES communities.⁴ It is important to understand how to effectively reach these populations and provide assistance with tobacco cessation.

Provider-based treatments, such as brief interventions during a primary care clinic visit, show effectiveness in reducing smoking rates,⁵ yet low SES populations struggle with barriers to access evidence-based treatment,^{6,7} perpetuating disparities among already disadvantaged populations. Research has also suggested that smoking cessation interventions are under-delivered by clinicians in the U.S. For example, the 5 A's clinical intervention for tobacco use,⁵ which is highly recommended as a brief intervention for all patients who smoke, is regularly delivered incompletely, with the last stages (i.e., "assist in cessation" and "arrange follow-up") being underutilized.^{8,9} Moreover, approximately 40% of adults with low-income do not attend primary care visits annually.¹⁰ Because of this, it is important to look beyond traditional primary care settings in order to reach patients with low SES. The U.S. Public Health Service calls for treatment delivery by all healthcare professionals,⁵ including patient-facing non-physician lung health professionals and lay health workers who often have greater face-to-face interactions with persons with low SES. These providers have contact with smokers in non-traditional settings such as home health visits as well as in inpatient hospital settings; therefore, they are integral in delivering treatment directly to low SES communities that carry the highest tobacco-related burden, yet who often do not otherwise have access to cessation support.

Previous research has demonstrated non-physician lay health workers', specifically community health workers (CHW), involvement in smoking cessation intervention trainings with successful results.^{11,12} Given their efficacy in assisting with the management of various chronic health concerns in the U.S.,^{13,14} CHW and non-physician healthcare providers show great potential in promoting tobacco cessation within low SES communities. However, what is unknown is how equipped non-physician lung health professionals and lay health workers are to address tobacco use among their clients.

While the existing literature supports the role of non-physician clinicians in the delivery of smoking cessation interventions, recent studies suggest that many non-physician practitioners are not adequately prepared to do this. For example, an assessment of tobacco-related education in respiratory therapy training programs showed that almost half did not teach the 5A's.¹⁵ Further, a recent review showed that tobacco education for non-physician clinicians was inconsistent across training programs.¹⁶ This inconsistency in tobacco-related education is also present among CHW training programs. Because their training is largely dependent on their employers' requirements, it is difficult to generalize

CHW's education and training in tobacco cessation.¹⁷ Given this inconsistency in tobacco-related training, it is likely that there is great variability in tobacco cessation knowledge and implementation.

Although research has shown the effectiveness of the allied professional and lay health worker model of smoking cessation, no standardized training exists for either group; therefore, little is known about the current tobacco cessation knowledge of non-physician lung health professionals and lay health workers whose clientele are at high risk of tobacco use. As literature shows that cessation-related knowledge is associated with delivery of brief interventions¹⁸ and improved patient outcomes,¹⁹ the purpose of this study was to describe knowledge of tobacco cessation and tobacco cessation practices among non-physician healthcare professionals to identify tobacco cessation training needs in this group.

Methods

We collaborated with local community-based organizations in Chicago, IL to conduct a needs assessment survey among lay health workers (e.g., CHW) and lung health professionals (e.g., respiratory therapists). The collaborating organizations largely serve clients in low-income neighborhoods and have missions to achieve health equity among those communities. Participants were recruited from local non-profit organizations and email listservs (i.e., American Lung Association's electronic mailing lists comprised of community health workers and lung health professionals), and they completed the survey online or in-person at either a "lunch and learn" session or respiratory health event. Participants received a gift card for completing the survey. The study was approved as an exempt study by the Institutional Review Board.

Measures

Survey

The 46-question needs assessment survey was developed to summarize knowledge, practices, access to trainings, and attitudes about tobacco cessation in order to identify training needs for professionals who work directly with groups at high-risk of tobacco use and disparities. This preliminary, descriptive survey was written in conjunction with the authors' institution's Measurement and Survey Core to refine the wording and ordering of questions. Next, cognitive interviewing was conducted with local CHW employed at Sinai Urban Health Institute, a non-profit organization that conducts health disparities research and serves the most vulnerable neighborhoods in the city. The CHW, members of the survey's target audience, provided feedback on the survey questions during the development phase to ensure that the questions were relevant to their model of care, and the survey was updated according to their feedback. The survey was divided into the following sections: 1. job characteristics, 2. client

characteristics, 3. tobacco cessation practices, 4. tobacco knowledge questionnaire, 5. desired skills and trainings, and 6. participant characteristics. Survey respondents answered multiple choice or checkbox questions to provide information on the aforementioned topics.

Knowledge Questionnaire

Because there are no existing validated questionnaires assessing tobacco knowledge (rather than current use) among health providers, we developed ten questions to examine current general knowledge about tobacco use and cessation in the U.S. based on information from the World Health Organization © Toolkit for Delivering the 5A's and 5R's Brief Tobacco Interventions in Primary Care.²⁰ The purpose of the knowledge questionnaire was to assess potential learning needs of the providers and health workers. Participants were tested on topics such as smoking prevalence, tobacco use disparities, post-cessation weight gain, nicotine withdrawal symptoms, and evidence-based tobacco cessation treatments. To calculate the total score, we added the number of correct answers out of 10 for each respondent. Multiple-choice questions received a score of 1 if answered correctly. For questions with multiple answers (checkbox), a score of 1 was given if the participant correctly selected all of the answers. Cronbach's alpha for the ten questions was .72, indicating an acceptable internal consistency among the items in the knowledge questionnaire.

Data Analysis

Descriptive statistics were performed to summarize needs assessment results on knowledge (mean and standard deviation) and current practices (percentages) in this sample. T-tests were also conducted to explore the associations between (a) access to tobacco cessation training (0 = no, employer did not offer tobacco training/did not know if training was available, 1 = yes, employer offered tobacco training) and total knowledge scores (continuous), and (b) addressing tobacco use directly (0 = no, 1 = yes) and confidence in treating tobacco use [continuous; range 0 (not confident at all) – 4 (extremely confident)]. Finally, correlation analysis was performed to assess if knowledge was related to confidence in this sample.

Results

See Figure 1 for sample characteristics. N=58 respondents started the survey, and 53 completed the last section, for an overall response rate of 91% (responses/missingness on the knowledge questionnaire is discussed below). Participants (N = 53) reported spending 30 min or less face-to-face with clients/patients (55.0%), and a majority provided health education services (81.0%). Approximately 56.9% reported seeing patients with mental health disorders, 40.3% saw patients with substance use disorders, 72.4% saw patients

with chronic illnesses, and 40.3% saw patients experiencing homelessness. A majority reported serving racial/ethnic minorities (e.g., 82.7% Hispanic/Latinx, 77.5% Black/African American, 53.4% Asian), as well as sexual and gender minorities (51.7%). About half (55%) of health professionals reported that “some” or “most” of their patients use tobacco products; yet, approximately 27.4% reported that they do not know whether their patients/clients use tobacco.

Tobacco Services and Knowledge

Regarding tobacco services, 43.1% reported addressing tobacco use directly, yet only 16.7% were “extremely confident” in addressing tobacco use. Approximately 61.5% endorsed that they asked each client/patient about tobacco use at initial visit, and 41.8% reported extreme likelihood of tobacco being discussed during a visit. Of those who responded to questions regarding delivery of the 5A's intervention, 43.8% reported advising their patients/clients to quit at every visit, 21.9% assessed their interest in quitting, and 35.48% provided tobacco cessation advice; however, only 9.7% reported arranging for follow-up to discuss progress. Of note, the proportion of health professionals in this sample who did not respond to the questions regarding conducting any of the 5As was substantial ($N_{\text{missing}} = 27$ of 53, 47%), despite completing responses to subsequent questions.

Despite asking about and assisting with cessation, tobacco-related knowledge was low. Respondents scored an average of 4.08 out of 10 (SD = 2.21) on a tobacco knowledge questionnaire (see Figure 2). A majority of both lung health providers and lay health workers correctly identified nicotine replacement therapy (NRT) as an evidence-based treatment (82.76% and 60%, respectively), while fewer identified other pharmacotherapies, such as varenicline (51.72% and 8%, respectively). Only 4 respondents correctly identified all evidence-based treatments for tobacco cessation [i.e., nicotine replacement therapy, counseling, varenicline, and antidepressants (bupropion)].

Exploratory Analyses

Results of an exploratory analysis revealed that tobacco knowledge was significantly associated with access to tobacco cessation training ($t = -2.66$, $P = .011$); specifically, respondents who reported access to trainings through their employer (29.1%) had higher mean score on knowledge ($M = 5.71$, $SD = 1.14$) compared to those who did not report having access (71%; $M = 4.50$, $SD = 1.54$). Additionally, compared to those who did not directly address tobacco during their visits (56.9%), those who reported addressing tobacco use directly (43.1%) reported higher levels of confidence [$M = 1.15$ ($SD = .83$) vs $M = 2.04$ ($SD = .82$), respectively; $t = -3.45$, $P < .01$]. There was no significant correlation between knowledge scores and confidence ($P > .05$).

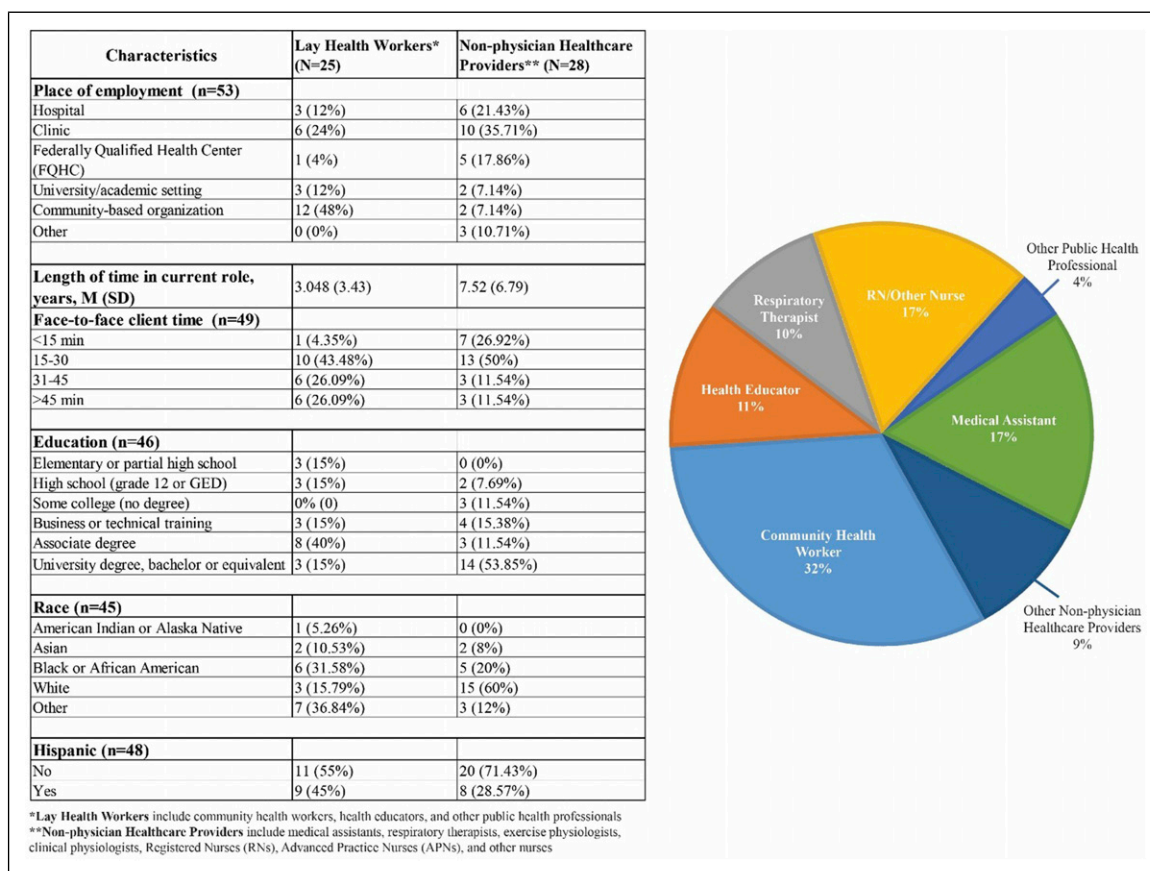


Figure 1. Sample and job characteristics of non-physician lung health professionals and lay health workers.

Discussion

In this sample of lay health workers and lung health professionals, there was a clear lack of knowledge about tobacco use and disparities in the U.S. A majority of respondents were unable to correctly identify the cigarette smoking rates in the U.S. general population, as well as the subgroups with higher rates of tobacco use. This is notable because more than half of the professionals reported working directly with these disparity groups, including individuals with mental health disorders and sexual and gender minorities. Furthermore, gaps in knowledge concerning smoking cessation were striking, with only 4 of the 53 respondents (less than 10%) correctly identifying all evidence-based treatments for smoking cessation.

On the other hand, more than half of the health professionals and workers identified that most adult smokers are interested in quitting, and that brief advice from healthcare professionals is a viable method to increase the likelihood of quitting successfully. Despite knowing that brief interventions are effective, the practice of delivering interventions was low, as has been shown in the literature²¹⁻²³; more than half of this sample did not respond to, or skipped, questions regarding the 5As, perhaps indicating either a lack of general knowledge

about the 5As or a lack of implementation of the 5As. Even among those who responded, only 58% reported assisting patients with quit attempts and less than a quarter endorsed arranging follow-up. Previous research on the 5As have indicated that assistance and arrangement of follow-up are sub-optimally implemented compared with the first three “As,” yet these specific strategies contribute to increasing quit attempts and cessation.²⁴ Both the lack of response and low implementation of the 5As among those who did respond may also have been influenced by low levels of confidence to address tobacco use, as only 16.7% of our sample reported confidence in cessation treatment delivery; lack of confidence has been shown to be a barrier to delivering brief interventions.²⁵

Access to tobacco cessation training was also an important factor that may have influenced knowledge. In this sample, less than half reported having access to tobacco cessation trainings, and access was significantly associated with an increase in knowledge. These results are similar to previous research showing an increase in knowledge as a result of receiving tobacco cessation training.^{18,26} Research has also shown that tobacco cessation training can increase confidence¹¹; for example, Martinez-Bristow et al (2006) reported a

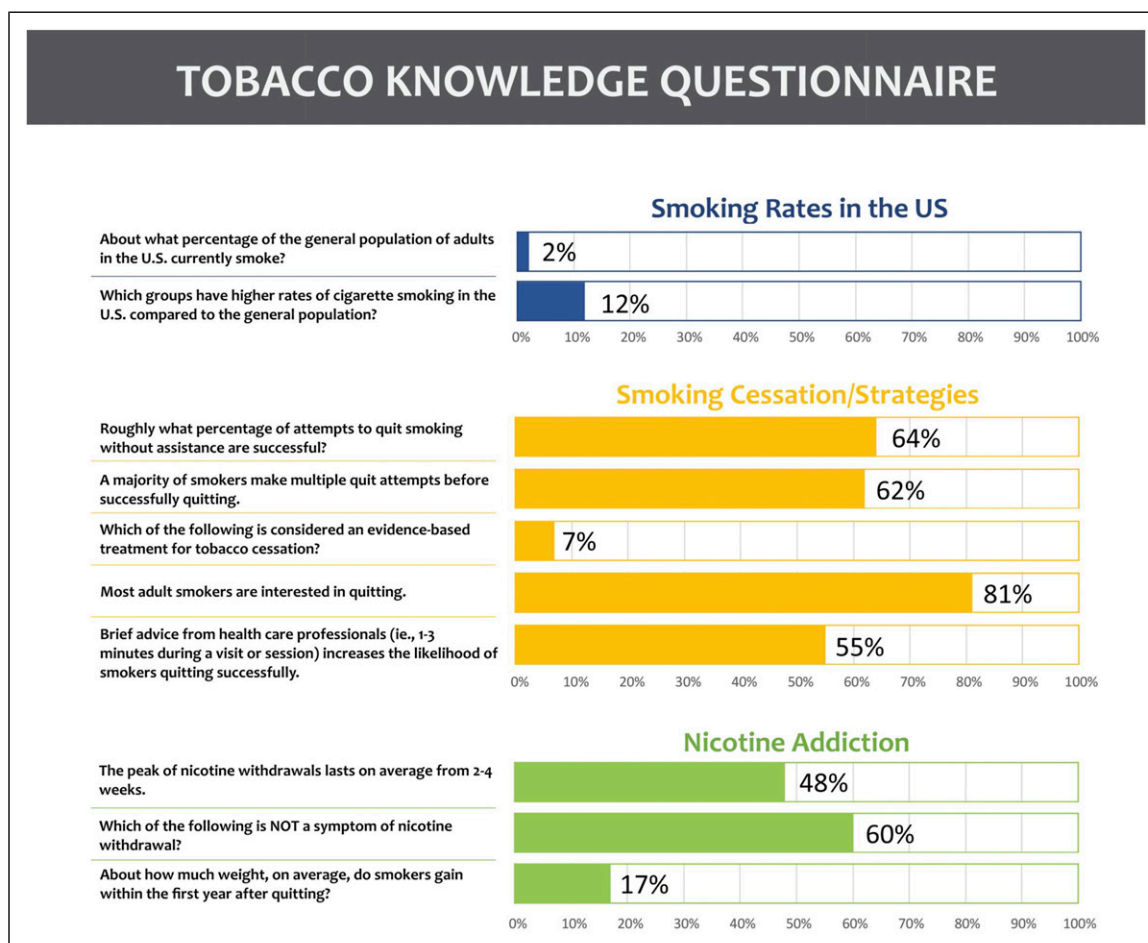


Figure 2. Results of a tobacco knowledge questionnaire administered to non-physician lung health professionals and lay health workers in Cook County, IL. Percentages indicate number of participants who answered the question correctly.

significant increase in self-confidence to deliver brief smoking cessation interventions for CHW enrolled in a culturally-specific tobacco cessation training program. Thus, there is an opportunity both to train these groups on their importance in addressing tobacco use and to leverage the role of lay health workers in the healthcare system (e.g., the CHW home-based care delivery model or the respiratory therapist inpatient care model) to improve treatment follow-up and quit attempts among their patients/clients who are at higher risk for tobacco use while also less likely to access evidence-based cessation treatment.

Limitations of this study include sampling only providers who serve Chicago, IL, therefore, results may not be representative of all non-physician lung health and lay health workers in other metropolitan, ex-urban or rural areas. However, Chicago, is a large, urban city that exhibits high rates of smoking among racial/ethnic minority adults (e.g., 25% among African Americans) and those below 100% of poverty line (26%),²⁷ so this location is ideal for examining gaps in tobacco cessation knowledge among professionals who provide care for these populations with high prevalence of tobacco use.

Conclusion

While the existing literature supports the role of non-physician clinicians in the delivery of smoking cessation interventions to low SES populations,^{11,12} recent studies suggest that many non-physician practitioners are not adequately prepared to do this.^{15,16} Gaps exist in tobacco knowledge and confidence in the ability to deliver evidence-based tobacco cessation advice among lay health workers and lung health professionals, who serve communities who carry the highest burden of tobacco use and tobacco-related disease. Results of this study highlight the need to train non-physician healthcare professionals, including health workers who provide care in non-traditional settings, such as the in the patient's home, to deliver interventions to their patients at high-risk for tobacco use. Given that these findings indicate less than ideal tobacco knowledge combined with a reported lack of confidence in addressing tobacco use with their patients/clients, it is evident that this group of health professionals could benefit from trainings that are relevant to their unique model of care and better equip them to assist the disparity populations that they serve. Increased knowledge may likely promote the delivery of brief

interventions to their patients with a high tobacco burden, reducing tobacco use and ultimately reducing disparities in cancer incidence and morbidity. Clear “gold-standard” programs designed to train evidence-based tobacco cessation techniques already exist, yet less than half of the sample accessed these types of trainings, despite carrying client caseloads for which tobacco-related diseases were the primary presenting illness (e.g., Asthma, COPD). More research is needed to assess how these trainings have failed to meet the needs of lay-health professionals, how to improve access to training for these groups, and how to increase the implementation of evidence-based cessation support to the vulnerable communities they serve.

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Author Contributions

MT led the concept and design of the study, data collection, analysis and interpretation of the data, and drafted the manuscript. AVW contributed to concept and design of study, analysis and interpretation of the data, and draft of the manuscript. SM contributed to concept and design of study and interpretation of data. PS made contributions to the manuscript. All authors have read and approved the final draft of this manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethical Approval

This study was approved by Northwestern University Institutional Review Board (approval # STU00205853) and University of Chicago Institutional Review Board (approval # IRB19-2055) as an exempt study.

Informed Consent

Participants gave informed consent to participate in the study.

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