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Behavioral health care provider's beliefs, confidence, and knowledge in treating cigarette smoking in relation to their use of the 5A's intervention

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ABSTRACT

Introduction: Evidence-based smoking cessation interventions are underused settings where behavioral health treatment is provided, contributing to smoking-related health disparities in this patient group. This study assessed the relationship of provider's beliefs about patients' smoking, perceptions of treatment capability, and knowledge of referral options and their use of the 5A's (Ask, Advise, Assess, Assist, and Arrange) intervention for smoking cessation.

Methods: Surveys were collected from providers in healthcare settings in Texas where patients receive behavioral health care (N = 86; 9 federally qualified health centers, 16 Local Mental Health Authorities (LMHAs), 6 substance use treatment programs in LMHAs, and 55 stand-alone substance use treatment centers). Logistic regression analyses were used to assess the association between provider's beliefs about patients' concern and desire to quit smoking; perceptions of their confidence, skills, and effectiveness in treating smoking; their knowledge of referral options; and their use of the 5A's with patients who smoked.

Results: Providers who believed that patients were concerned about smoking and wanted to quit; who perceived themselves as confident in providing cessation care, having the required skills, and being effective in providing advice; and/or who had greater referral knowledge were more likely to use the 5A's with patients who smoked than their (respective) provider counterparts ($ps < 0.05$).

Conclusion: Provider-level constructs affect their 5A's provision for patients with behavioral health needs. Future work should train providers to correct misconceptions about patients' interest in quitting, bolster their confidence, and provide referral options to support tobacco provision efforts.

1. Introduction

In the United States, about 12.5% of adults smoke cigarettes, by far the most common form of tobacco use in the nation. (Center for Disease Control and Prevention, 2022) However, subpopulations have disparately high smoking rates and low successful quit rates, such as adults with behavioral health (e.g., substance use and/or mental health disorders) needs. (Zimmerman et al., 1990) These adults account for 38% of the national cigarette consumption. (Callaghan, Veldhuizen, & Jeysingh, 2014; Han et al., 2022; American Lung Association, 2022; Center for Disease Control and Prevention, 2022; University of California - San Fransisco, 2022) Smoking rates may differ based on diagnosis; for

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example, 59% of adults diagnosed with major depression disorder, 83% of those with bipolar disorder, and up to 90% of those with schizophrenia and other psychotic disorders smoke. (American Lung Association, 2022; Kalman et al., 2005) Similarly, adults with alcohol use disorder smoke at rates ranging from 34% to 80%; those with other substance use disorders smoke at rates ranging from 49% to 98%. (University of California - San Fransisco, 2022) Substance users who smoke experience higher mortality rates attributed to tobacco-related conditions than to their other substance use. (Hurt et al., 1996) Smoking causes 30% of cancer deaths and 90% of lung cancer deaths, (Center for Disease Control and Prevention, 2004) and is the leading cause of death and disability nationally. Thus, there is a critical need to address cigarette use and dependency among individuals with behavioral health needs.

Despite extant studies indicating that individuals with behavioral health needs are interested in quitting smoking, (Clarke et al., 2001; Prochaska et al., 2004; Brown et al., 2009) many treatment settings providing behavioral healthcare do not offer evidence-based smoking cessation interventions. This is contrary to national guideline recommendations that healthcare professionals should regularly screen for and briefly treat tobacco use. (Tobacco Use and Dependence Guideline Panel, 2008) A national study using data collected in 2016 cited a low prevalence of tobacco use screening (46.3%) and provision of cessation counseling (58.4%) within mental health facilities. (Marynak et al., 2018) Likewise, in substance use treatment centers, rates of tobacco use screening (70.2%) and cessation counseling (55.4%) were similarly concerning. However, this study did not assess evidence-based care provision in Federally Qualified Health Centers (FQHCs). Although FQHCs provide health care to one in five rural Americans, (Substance Abuse and Mental Health Services Administration, 2019) these clinical settings are often overlooked in the literature apropos of tobacco cessation practices for those with co-occurring behavioral health conditions. Moreover, data from 2016 suggested prevalent barriers (e.g., transportation challenges, lack of resources for patients with comorbidities) to the provision of cessation care, and highlighted gaps in tobacco screening and treatment provision in FQHCs. (Flocke et al., 2019) As prior data are now 5 years old, updated data on tobacco screening and intervention in community treatment settings serving individuals with behavioral health needs is needed to understand current gaps.

There are several factors that can limit the provision of smoking cessation care in settings where adults with behavioral health needs receive care. For example, some mental health providers erroneously believe and report that patients are not interested in quitting; consequently, they do not offer cessation care. (Chen et al., 2017) Further, a study on provider practices in addiction treatment settings documented a link between a lack of knowledge about or confidence in national guideline recommendations and a failure to provide evidence-based smoking cessation treatment. (Knudsen and Studts, 2010) Likewise, among a sample of mental health counselors, providers' low perceived efficacy for offering smoking cessation counseling was predictive of a lack of cessation care provision. (Akpanudo et al., 2009) Although education and training efforts can correct provider misconceptions, increase provider knowledge, and start to build self-efficacy for tobacco dependency care provision, a lack of provider training in community healthcare settings is common. (Ziedonis et al., 2006; Le et al., 2021) Additionally, many of these treatment settings where adults receive behavioral health care are understaffed, and providers are overworked. (Knudsen et al., 2006) Consequently, they may believe that they do not have enough time to provide cessation care or are unaware of referral options (e.g., the quitline). (Pagano et al., 2016; LoParco et al., 2022) Yet, there remains gaps in understanding how each of these provider-level factors are associated with provision of the evidence-based intervention practices in diverse settings where adults with behavioral health needs receive care. More information on how provider characteristics may be associated with cessation care provision for patients with behavioral healthcare needs can highlight prominent research-to-practice gaps and suggest avenues for intervention to reduce them.

One of the most widely recognized evidence-based intervention for smoking cessation that can be accomplished in minutes is the 5A's. Recognized as the gold standard, it advises providers to: Ask about cigarette smoking, Advise the user to quit, Assess willingness to quit, Assist in a quit attempt through treatment or referral, and Arrange a follow-up assessment. (Tobacco Use and Dependence Guideline Panel, 2008) Because of its brevity and simplicity, this is an ideal intervention to implement in the course of regular health care encounters – in every setting. Therefore, learning more about barriers to 5A's administration in varied healthcare settings may provide mechanisms that could be addressed in provider training efforts in these settings. While previously mentioned studies have identified some barriers to cessation care provision (e.g., misconceptions, low confidence, lack of training), (LoParco et al., 2022; Samaha et al., 2017; Nitturi et al., 2021) these barriers have rarely been examined in the contact of 5A delivery, specifically, nor across multiple healthcare center types in which behavioral health patients are seen or treated for other presenting problems.

The present study aimed to expand the limited literature on associations between provider-level factors and their use of evidence-based cessation interventions with patients who smoke and have behavioral healthcare needs. Additionally, this study provides a more comprehensive analysis in diverse clinical settings of previously unexplored factors (e.g., knowledge of referral options) and their potential association with adherence to (1) the 5A's, and (2) encouragement of cigarette use reduction for those expressing a lack of interest in quitting. Results may underscore a need to improve tobacco use care provision, highlight research-to-practice translation gaps, inform future efforts to address barriers to evidence-based smoking cessation care provision, and highlight potential target factors to enhance care through provider-based mechanisms in these settings.

2. Methods

2.1. Procedures and participants

The current work represents a part of a larger needs assessment executed from April - December 2021 to assess the use of evidence-based policies and practices for tobacco control in healthcare centers treating adults with behavioral health needs across the state of Texas. Data were collected from 4 settings; Federally Qualified Health Centers (FQHCs), Local Mental Health Authorities (LMHAs), dedicated substance use treatment programs within LMHAs, and stand-alone substance use treatment programs. This needs assessment did not meet the definition of human subjects research as determined by the University of Houston's Research Integrity and Oversight.

Center recruitment was accomplished via direct email or postal mail solicitation. FQHCs (n = 57), all LMHAs (n = 39), identified substance use treatment programs in LMHAs (n = 89), and identified stand-alone substance use treatment centers (n = 458) in Texas were solicited for participation, with the goal of receiving 1 survey per physical healthcare location from an employee or leader who was familiar with the tobacco-related policies and procedures at the center. Survey branching based on the respondents' role as a direct service provider (vs. employee with no direct patient care responsibilities) resulted in additional survey items focused on their beliefs and care provision. The survey was administered online, and a $20 Amazon gift card was offered for remuneration.

After the elimination of duplicate surveys (n = 10, representing 5 centers), response rates were 43.9% for FQHCs (n = 25/57), 76.9% for LMHAs (n = 30/39), 15.7% for identified substance use treatment programs within LMHAs (n = 14/89); and 14.4% for stand-alone substance use treatment centers (n = 66/458). The current study, focused on treatment practices, only used the surveys from direct service providers. Consequently, the analyzable sample included 86 providers from 9 FQHCs, 16 LMHAs, 6 substance use treatment programs in LMHAs, and 55 stand-alone substance use treatment centers.

2.2. Measures of relevance

2.2.1. Healthcare center characteristics

Healthcare center characteristics were: 1) healthcare center type (i.e., setting); 2) the number of unique patients seen annually; and 3) the number of full-time employees. Numeric data were collected in ranges and later dichotomized based on sample distribution.

2.2.2. Independent variables

Providers were asked to indicate their level of agreement to various statements on a 5-point Likert scale ranging from strongly agree to strongly disagree. Items assessed provider's beliefs about patients (the provider believes that patients are concerned about smoking; the provider believes that patients want to quit smoking, respectively); perceived capability to treat patients' smoking (the provider is confident in their ability to treat patient's smoking; the provider has the skills to treat patients' smoking; and the provider believes they are effective in providing advice that patients follow, respectively); and knowledge about referral options (the provider has knowledge of smoking cessation referral options). For analytic purposes, endorsements of strongly agree or agree were compared with strongly disagree, disagree, or neither agree nor disagree for each item. All items were answered by all responding providers except for the skills item, which had 3 missing values.

2.2.3. Dependent variables

Providers answered items about the frequency of their use of the 5A's to address patients' cigarette smoking over the prior month. Each item was rated along a 5-point Likert scale ranging from always to never. Questions specifically queried if the provider: 1) Asked patients about their current use of cigarettes; 2) Advised cigarettes users to quit; 3) Assessed cigarette users' interest in quitting; 4) Assisted cigarette users through on– or off-site referrals (including to the Texas Tobacco Quitline) and/or through direct intervention; and 5) Arranged a follow-up appointment to assess progress with the quit attempt. For analytic purposes, endorsements of most of the time or always were compared with endorsements of never, sometimes, or about half the time on each item. This is consistent with prior work to facilitate comparison. (Correa-Fernández et al., 2017; Le et al., 2020; LoParco et al., 2022; Nitturi et al., 2021; Taing et al., 2020; Taing et al., 2022)

2.3. Statistical analysis

Data were reported using descriptive statistics. For the main analysis, logistic regression analyses were conducted to assess the associations between the independent variables (providers' beliefs about patients, perceptions of their treatment capability, and knowledge of referral options) and the dependent variables (providers' cigarette smoking intervention practices with patients), controlling for the type of healthcare center where the provider worked. Significance level was designated at $p < 0.05$. All analyses were conducted using SAS version 9.4.

3. Results

3.1. Healthcare center and provider characteristics

Of the 86 healthcare center centers where responding providers worked, the most endorsed characteristics were as follows: 44.44% of centers (n = 36) reported serving 201–1,000 unique patients yearly, and 61.45% of centers (n = 51) reported having 1–50 full-time employees (Table 1).

Regarding providers' beliefs about patients' cigarette smoking, 54.65% (n = 47) of providers believed that their patients were concerned about their smoking, and 52.33% (n = 45) of providers believed that patients want to quit smoking. Most (68.67%, n = 57) providers endorsed that they had confidence to treat their patient's smoking, 73.26% (n = 63) of providers said they had the skills to treat their patient's smoking, and 68.60% (n = 59) of providers believed they were effective in providing advice that patients follow. Over three-quarters (76.74%, n = 66) of providers reported knowledge of smoking cessation referral options (Table 1). These variables did not differ by healthcare center type (results not shown).

In addition, 69.77% (n = 60) of providers Asked patients about cigarette smoking status, 68.60% (n = 59) of providers Advised cigarette smokers to quit, 61.63% (n = 53) of providers Assessed their patients' interest in quitting, 58.14% (n = 50) of providers Assisted their patients in making a smoking quit attempt, and 33.72% (n = 29) of providers Arranged a follow-up appointment to check on quit smoking progress (Table 1). These variables did not differ by healthcare center type

Table 1
Healthcare Center Characteristics and Providers' Beliefs, Perceived Capability to Smoking Treatment, Knowledge of Referral Options, and Smoking Intervention Practices (N = 86 healthcare centers/providers).

Variables of Interest	All Centers % [n]
Healthcare Center Characteristics	
Center type	
Federally Qualified Health Center	10.47 [9]
Substance use program within LMHA	6.98 [6]
LMHA overall	18.60 [16]
Stand-alone substance use treatment center	63.95 [55]
# of unique patients seen annually	
50–200	32.10 [26]
201–1,000	44.44 [36]
>1,000	23.46 [19]
# of full-time employees	
1–50	61.45 [51]
>50	38.55 [32]
Providers' Beliefs about Patients, Perceptions of Smoking Treatment Capability, and Knowledge of Referral Options	
Believes patients are concerned about smoking	
Yes	54.65 [47]
No	45.35 [39]
Believes patients want to quit smoking	
Yes	52.33 [45]
No	47.67 [41]
Has perceived confidence to treat patient's smoking	
Yes	68.67 [57]
No	31.33 [26]
Has perceived skills to treat patient's smoking	
Yes	73.26 [63]
No	26.74 [23]
Has perceived effectiveness in providing advice patients follow	
Yes	68.60 [59]
No	31.40 [27]
Has knowledge of smoking cessation referral options	
Yes	76.74 [66]
No	23.26 [20]
Providers' Smoking Intervention Practices with Patients	
Asks patients about cigarette smoking	
Yes	69.77 [60]
No	30.23 [26]
Advises patients to quit smoking	
Yes	68.60 [59]
No	31.40 [27]
Assesses patient interest in quitting smoking	
Yes	61.63 [53]
No	38.37 [33]
Assists a smoking quit attempt	
Yes	58.14 [50]
No	41.86 [36]
Arranges a follow-up	
Yes	33.72 [29]
No	66.28 [57]

Note. LMHA = Local Mental Health Authority

(results not shown).

3.2. Logistic regression analyses

3.2.1. Providers' beliefs about patients' cigarette smoking in relation to intervention practices

Logistic regression analyses, adjusted for healthcare center type, revealed that providers who believed patients were concerned about their smoking had greater odds of Advising them to quit (OR: 2.948; 95% CI: 1.121, 7.750) and Assisting them with the quit attempt (OR: 2.539; 95% CI: 1.038, 6.213) than providers who believed patients were not concerned about their smoking. Providers who believed that patients want to quit smoking had greater odds of Advising them to quit (OR: 2.615, 95% CI: 1.003, 6.823) than providers who did not believe patients wanted to quit (Table 2).

3.2.2. Provider's perceptions of treatment capability in relation to intervention practices

Results indicated that providers who felt confident in their ability to offer smoking cessation counseling to patients had greater odds of Arranging a follow-up appointment to discuss quit progress (OR: 3.930; 95% CI: 1.185, 13.036) than their less confident counterparts (Table 2).

Providers who believed they had the required skills to help their patients quit smoking had greater odds of Asking their patients about cigarette use (OR: 3.529; 95% CI: 1.230, 10.120), Assessing their interest in quitting (OR: 3.094; 95% CI: 1.105, 8.668), Assisting with the quit attempt through direct intervention or referral (OR: 3.636, 95% CI: 1.288, 10.264), and Arranging a follow-up appointment to discuss progress (OR: 4.856; 95% CI: 1.280, 18.425) relative to providers who perceived themselves as less skilled (Table 2).

Providers who believed they were effective in getting their patients to follow their advice about behavior change had greater odds of Assessing their interest in quitting smoking (OR: 2.844; 95% CI: 1.046, 7.731), and Assisting with the quit attempt (OR: 3.936; 95% CI: 1.397, 11.089) relative to their less effective counterparts (Table 2).

3.2.3. Provider's knowledge of referral options in relation to intervention practices

Finally, providers who had knowledge of where to refer patients for help with smoking cessation had 5.784 (95% CI: 1.831, 18.275) and 6.165 (95% CI: 1.910, 19.903) times greater odds of Assessing patients' interest in quitting cigarette smoking and in Assisting with the quit attempt, respectively, relative to those with less referral knowledge.

Table 2
Providers' Smoking Intervention Practices with Patients Relative to Their Beliefs about Patients, Perceptions of Smoking Treatment Capability, and Knowledge about Referral Options (N = 86 providers).

	Ask	Advise	Assess	Assist	Arrange
	OR [95% CI]				
Believes patients are concerned about smoking (n = 86)	2.589 [0.994, 6.745]	2.948 [1.121, 7.750]	2.433 [0.973, 6.087]	2.539 [1.038, 6.213]	2.524 [0.971, 6.559]
Believes patients want to quit smoking (n = 86)	1.863 [0.726, 4.782]	2.615 [1.003, 6.823]	1.800 [0.729, 4.448]	1.496 [0.621, 3.606]	2.458 [0.948, 6.375]
Has perceived confidence to treat patient's smoking (n = 86)	2.715 [0.998, 7.385]	1.527 [0.563, 4.141]	1.709 [0.648, 4.504]	2.430 [0.933, 6.330]	3.930 [1.185, 13.036]
Has perceived skills to treat patient's smoking (n = 83)	3.529 [1.23, 10.120]	1.430 [0.505, 4.051]	3.094 [1.105, 8.668]	3.636 [1.288, 10.264]	4.856 [1.280, 18.425]
Has perceived effectiveness in providing advice patients follow (n = 86)	2.692 [0.966, 7.500]	2.525 [0.905, 7.045]	2.844 [1.046, 7.731]	3.936 [1.397, 11.089]	2.699 [0.876, 8.317]
Has knowledge of smoking cessation referral options (n = 86)	2.961 [0.995, 8.810]	0.883 [0.289, 2.695]	5.784 [1.831, 18.275]	6.165 [1.910, 19.903]	2.274 [0.661, 7.818]

Notes. Analyses controlled for center type; OR = Odds Ratio; CI = Confidence Interval.

4. Discussion

In the current study, slightly less than half of surveyed providers thought their patients with behavioral health needs were concerned about their smoking and wanted to quit (respectively); these beliefs were associated with lower rates of care provision. Thus, findings continue to support a link between provider misconceptions and a lack of care delivery for smoking cessation across myriad care settings including FQHCs. On the other hand, providers who believed their patients were concerned with smoking and wanted to quit were more likely to advise them to quit; providers who believed their patients were concerned with smoking were more likely than their counterparts to report assisting them with quit attempts. Together, findings suggest the need for training to correct misperceptions and build skills on how to query and motivate smokers toward quitting. Quit motivation can fluctuate over time and even daily, (Vidrine et al., 2013) including within and following provider interactions, (Tobacco Use and Dependence Guideline Panel, 2008) highlighting the influential role providers can play in spurring a patient quit attempt. Additionally, results may suggest the potential usefulness of empowering patients to express their concerns about smoking and their prospect desire for information about quitting within healthcare encounters to counter provider misconceptions. (Khafagy et al., 2021) However, patient self-advocacy should not replace the need for providers to better understand patients' needs and their key role as healthcare professionals in facilitating conversations about quitting.

The literature suggests that providers who perceive they are capable of treating cigarette use and dependence tend to be more effective in facilitating patients' smoking cessation, (Burke et al., 2015) and preventing relapse. (Schauer et al., 2016) In the present study, a third of providers reported a lack of perceived confidence to treat their patient's smoking; this was associated with a lack of arranging follow-up to discuss cessation. Likewise, a lack of perceived skills for treating smoking was linked to lower use of most of the 5A's; a lack of perceived effectiveness in treating smoking was associated with lower rates of assessing interest in quitting and assisting with a quit attempt. In conjunction with other work examining providers self-efficacy and confidence, (Garey et al., 2019; Marynak et al., 2018; Pagano et al., 2016) these results suggest the potential importance of training and practice to increase providers' skills, confidence, and effectiveness in treating smoking; prior work supports that training on the 5A's increases their delivery to patients. (Payne et al., 2014) Consequently, healthcare centers treating patients with behavioral health needs should consider implementing training programs on brief, empirically-based interventions like the 5A's to address the actual and perceived obstacles to providers' delivery of evidence-based smoking cessation treatment. (Brown et al., 2015) Creating a community of practice within healthcare centers for treating tobacco use, which may be achieved through the implementation of a train-the-trainer tobacco program, can help to build provider self-efficacy for addressing patients' tobacco use. (Martinez Leal et al., 2022; Nitturi et al., 2021)

Past research suggests that healthcare providers with greater knowledge about referral options are more likely to practice the majority of the 5A's and to experience more successful patient quit attempts. (Payne et al., 2014; Sheffer et al., 2009) The literature on

provider knowledge and tobacco cessation treatment in behavioral health settings is comparatively more limited. Prior work reflects the correlation between both knowledge of tobacco cessation modalities and their effectiveness, (Muilenburg et al., 2015) and knowledge of national guidelines with the provision of cessation treatment. (Knudsen & Studts, 2010) However, it is unclear whether the association between knowledge of smoking cessation referral options, specifically, and provision of the 5A's holds true for providers of behavioral healthcare. The current work highlights that nearly a quarter of providers reported a lack of knowledge of referral options. This may be a consequence of providers being pressed for time in clinical encounters and potentially elevating the importance of addressing other presenting problems over tobacco use disorder care. (Prochaska et al., 2004; Friedmann et al., 2008) Efforts to increase providers' knowledge of referral options is important, especially in settings with low provider training uptake or when increased training does not increase cessation intervention delivery. Tobacco quitlines, for example, are an easy referral source for patients to obtain effective cessation care due to their ubiquity across the U.S.; (S.C. Department of Health and, Environmental Control; Matkin et al., 2019) and even more beneficial when providers can directly connect their patients to this resource. (Vidrine et al., 2013; Piñeiro et al., 2020) However promising, quitlines are currently underutilized. (Fiore and Baker, 2021) Promoting their use as referral sources by all providers may help to increase their use by patients who smoke and want to quit.

Our findings characterize the utilization of the 5A's in multiple settings where patients with behavioral health needs receive care. Results indicated that approximately a third of participating providers did not report utilizing 4 of the 5A's; most concerning, more than two-thirds of providers did not report arranging follow-up assessments for smoking cessation. These results reflect a need to bolster the arrangement of follow-up with patients to assess quit progress or quit interest, which is especially important given that multiple quit attempts are often necessary for prolonged abstinence. (Center for Disease Control and Prevention; Partnership to End Addiction) Providers can play an important role in motivating additional quit attempts through routine follow-up. (Tobacco Use and Dependence Guideline Panel, 2008; Vidrine et al., 2013) Moreover, complete utilization of the 5A's is predictive of success of a patient's quit attempt, (Burke et al., 2015) highlighting the importance of using each of them to bolster patient quit success. (Pagano et al., 2016) The current findings align with other studies suggesting that providers do not regularly practice all components of the 5A's (Correa-Fernández et al., 2019; Le et al., 2021; Martínez et al., 2017; Nitturi et al., 2021) and extend them to FQHCs. However, for adults with behavioral health conditions, it is critical to receive a comprehensive network of cessation options, provided by a range of providers, including primary care physicians and behavioral health specialists. (Tobacco Cessation Leaderhip Network, 2009; Schroeder and Morris, 2010) Ultimately, these results reflect that tobacco use care barriers remain within community healthcare settings that treat adults with behavioral care needs; highlighting the continuing importance of bridging the research to practice gap in tobacco control to prevent and address their patients' tobacco-related health disparities. (Flocke et al., 2019; Laschober et al., 2015)

Notable limitations of the current work include that provider responses may not be generalizable to other providers practicing at the same location, or to similar healthcare center types across Texas, or to healthcare centers outside of Texas. Additionally, the study design was cross-sectional; as such, causation cannot be directly inferred. Furthermore, the present study only assessed the 5A's (arguably one of the briefest interventions); as such, results cannot speak to the use of other tobacco interventions in these settings (e.g., motivational interviewing, cessation medications). Moreover, survey questions assessed provider perceptions and behaviors, which may differ from objective measurements of the assessed constructs. The design also relied on provider self-report, which is subject to recall, desirability, and other biases. Although the results reflect smoking cessation practices specifically of the providers included in the study and may not be broadly applicable to providers in behavioral health treatment centers, these findings may be of use to implementation scientists to better understand important inner characteristics (e.g., provider confidence, knowledge, etc.) that need to be addressed to promote intervention uptake. Future research would benefit from a longitudinal design and qualitative methods to further explicate perceived barriers and solutions to address cigarette dependency and use and improve clinician knowledge and training on use of the 5A's. (Flocke et al., 2019; Tsoh et al., 2022)

In summary, providers treating individuals with behavioral health needs are well positioned to reduce rates of cigarette dependency and use and increase smoking quit rates among patients. (World Health Organization, 2005) Our findings serve to expand the limited literature on the role of providers in addressing cigarette dependency and use within centers that provide behavioral health care by highlighting the significant association between provider beliefs about patients' smoking, perceived capability to treat cigarette dependency and use, and knowledge of referral options with provision of the 5A's intervention. Importantly, these associations did not differ by healthcare type, reflecting a potential need for the undertaking of global training efforts within these facilities. Results may inform future efforts to improve care delivery and reduce tobacco-related disparities in morbidity and mortality experienced by patients with behavioral healthcare needs. (Knudsen & Studts, 2010; Akpanudo et al., 2009)

Data Availability

The data presented in this study are available on request from the corresponding author. The data are not publicly available because outcome papers are still being reported from this dataset.

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CRediT authorship contribution statement

Midhat Z. Jafry: Conceptualization, Writing – original draft, Writing – review & editing. **Jayda Martinez:** Conceptualization, Writing – original draft, Writing – review & editing. **Tzuan A. Chen:** Conceptualization, Visualization, Validation, Formal analysis, Data curation, Writing – original draft, Writing – review & editing. **Maggie Britton:** Conceptualization, Project administration, Validation, Writing – original draft, Writing – review & editing. **Isabel Martinez Leal:** Conceptualization, Writing – review & editing. **Anastasia Rogova:** Conceptualization, Writing – review & editing. **Bryce Kyburz:** Investigation, Writing – review & editing. **Teresa Williams:** Investigation, Writing – review & editing. **Mayuri Patel:** Conceptualization, Writing – review & editing, Supervision. **Brian J. Carter:** Writing – review & editing. **Lorraine R. Reitzel:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing, Supervision, Project administration, Funding acquisition.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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