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Dr. Corrine Williams, Director of Graduate Studies

**The Effects of Tobacco Policy on Tobacco Treatment in Psychiatric
Institutions**

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the
Requirements for the degree of
Master of Public Health in the
University of Kentucky College of Public Health

By

Terrence A. Sharper II, B.S.

Charleston, SC

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Abstract

Introduction: Tobacco use among those with mental illnesses is substantially higher than the general population. To avoid tobacco related comorbidities, tobacco policies are an important aspect for control of tobacco use, exposure, and to support tobacco treatment.

Aim: To conduct a systematic literature review of tobacco treatment policies in psychiatric institutions and examine the knowledge, availability of resources, and perceived barriers for treating tobacco use among managers.

Method: There were two main parts used to examine tobacco treatment policies in psychiatric facilities. First, a review of the literature summarized the effect of different tobacco-free policies on tobacco treatment delivery in psychiatric facilities. Second, a cross-sectional survey was used to determine the knowledge, availability of resources, and perceived barriers to tobacco treatment among managers in a psychiatric facility; and compare the responses of clinician and non-clinician managers.

Results: Some studies found insufficient knowledge about smoking cessation interventions and the introduction of smoke-free policies in all studies was associated with increases in tobacco treatment being offered to patients in various psychiatric settings. Some of the respondents seemed to have a misperception regarding the provision of a tobacco treatment program and lacked knowledge about the availability of resources for treating tobacco dependence. In addition, a majority of respondents demonstrated poor knowledge about tobacco-related signage and written material for tobacco use policies.

Discussion: The public health implications of restricting tobacco use in and around a psychiatric hospital are to decrease the risk of second-hand smoking, increase patient adherence, and reduce tobacco use among those with mental illness.

Conclusion: The importance of promoting policies to reduce tobacco use, exposure, and supporting tobacco treatment is vital to the health and well-being for mentally ill individuals.

Keywords

psychiatric facilities, mental hospital, tobacco policy, smoke-free policy, smoking cessation, smoke reduction, nicotine withdrawal, attitudes, perceptions

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Introduction

Tobacco use is the leading preventable cause of disease and mortality in the U.S. (CDC, 2017). Tobacco use costs an estimated \$170 billion annually in healthcare expenditures (Xu, Bishop, Kennedy, Simpson, & Pechacek, 2015) and results in 480,000 premature deaths per year in the U.S. (Gaballa, Drowos, & Hennekens, 2016). The effect of tobacco use in certain sub-populations in the U.S. remains of great concern (Schroeder & Morris, 2010). Although tobacco use prevalence has decreased in the U.S. over the past few decades, it remains high among individuals with mental illness (Sheals, Tombor, McNeill, & Shahab, 2016). Rates of tobacco use among individuals with mental illness remain at two to three times the national prevalence (Gaballa, Drowos, & Hennekens, 2016). Without addressing tobacco use among individuals with mental illness, these populations will continue to suffer disproportionate tobacco related morbidity and mortality rates (Gaballa, Drowos, & Hennekens, 2016).

An important aspect of tobacco control is the promotion of policies to reduce tobacco use and exposure and to support tobacco treatment. In the community setting, tobacco policies have resulted in reductions of tobacco prevalence (Levy, Meza, Zhang, & Holford, 2016), increases in tobacco use cessation (Lê Cook et al., 2014), and improvements in air quality (Levy, Meza, Zhang, & Holford, 2016). In addition, hospitals that have adopted tobacco free campuses have found similar reductions in tobacco use among staff and increased provision of tobacco treatment for patients (Prochaska, Das, & Young-Wolff, 2016). However, few psychiatric facilities have a tobacco free campus (Prochaska, Hall, Delucchi, & Hall, 2014). In addition, few studies have examined the outcomes of a tobacco free campus in psychiatric facilities. Understanding the outcomes of implementing tobacco free campuses in psychiatric facilities can inform approaches to address tobacco use among individuals with mental illnesses.

Evidence-based tobacco treatment approaches include the screening of tobacco use status at admission and the provision of approved pharmacotherapy to tobacco users (Muilenburg, Laschober, & Eby, 2014). Without proper systems and policies in place, providers may lack appropriate guidelines to provide evidence-based tobacco treatment. When proper tobacco policies are in place, providers are better able to provide treatment because of organizational support (Muilenburg, Laschober, & Eby, 2014). Hence, assessing organizational tobacco policies is important to determine the need and support for tobacco treatment.

The purpose of this project was to draw attention to the need for tobacco policies within psychiatric institutions. The goals of this study were to examine the literature regarding tobacco policy outcomes in psychiatric facilities and to determine the knowledge of tobacco policy within a psychiatric facility. The objectives of this study were to:

1. Conduct a literature on the review of the effect of tobacco policies on the provision of tobacco treatment in psychiatric facilities
2. Examine the knowledge, availability of resources, and perceived barriers for treating tobacco use among managers (clinician vs. non-clinician) in a psychiatric facility

This capstone utilized two main parts to examine tobacco treatment policies in psychiatric facilities. First, a review of the literature (Part 1) summarized the effect of different tobacco-free policies on tobacco treatment delivery. Second, a cross-sectional survey (Part 2) was used to determine the knowledge, availability of resources, and perceived barriers to tobacco treatment among managers and compared the responses of clinician and non-clinician managers.

Part 1: Systematic Literature Review of the Impact of Tobacco-free Policies on Tobacco

Treatment

The goal of the systematic literature review component of this capstone project was to assess the impact of tobacco-free policies on the delivery of tobacco treatment within psychiatric facilities. To achieve this goal, a systematic literature search was conducted for studies that assessed the outcomes of interest.

Methods

This systematic review was conducted using a comprehensive search of the PubMed database. The following keywords combinations were used for the search: *Psychiatric Facilities OR Mental Hospital AND Tobacco Policy OR Smoke-free Policy AND Smoking Cessation OR Smoking Reduction OR Nicotine Withdrawal OR Attitudes OR Perceptions*. The search was limited to English language articles that addressed the effect of tobacco policy on tobacco treatment in psychiatric institutions and were published prior to December 2016. Further relevant articles were obtained through a historical retrospective search of the references of initially retrieved studies. The selection criteria for eligible studies included having a quantitative research methodology with specific indications on the effectiveness of tobacco treatments and policies. Excluded studies were those in languages other than English, did not examine tobacco policies, and other systematic reviews and/or meta-analyses.

The initial key word search yielded 261 articles from the database. However, after duplicates were removed, a total of 20 studies were deemed eligible based on exclusion/inclusion criteria. After critically examining each study, 11 further studies were deemed ineligible because they either did not examine a tobacco policy (Guo, Wang, & Shu, 2015; Khazaal et al., 2008;

Leyro et al., 2013; Reilly, Murphy, & Alderton, 2006) or did not assess tobacco treatment (Grant, Oliffe, Johnson, & Bottorff, 2014; Jonas & Eagle, 1991; Keizer, Gex-Fabry, Bruegger, Croquette, & Khan, 2014; Quinn, Inman, & Fadow, 2000; Ratschen, Britton, Doody, Leonardi-Bee, & McNeill, 2009; Ratschen, Britton, & McNeill, 2009). The final retained studies were grouped by those that examined the effects of tobacco policies on treatment in patients (Filia et al., 2015; Resnick & Bosworth, 1989; Stockings et al., 2015), staff (Hehir, Indig, Prosser, & Archer, 2013; Lawn, Feng, Tsourtos, & Campion, 2015; Patten et al., 1995), and managers (Ballbe et al., 2012; Etter, Khan, & Etter, 2008; Hollen et al., 2010; Ortiz, Schacht, & Lane, 2013) (see Table 1).

Results – Patient Studies

Table 1 represents the results of the three studies focused on patients. Taken together, the studies reflect the experiences of 444 institutionalized individuals in tobacco-free environments. One study examined the effects of a total smoking ban (i.e., indoor and outdoor), one focused on a partial smoking ban (i.e., indoor only), and one assessed patient's perceptions and attitudes towards a smoke-free policy. Two of the studies were conducted in Australia, one in Melbourne and the other in New South Wales; and one study in the U.S. (Oregon). The studies were conducted in inpatient hospitals or treatment centers.

Table 1. Description of Patient Studies

Author (year)	Design	Purpose	Measure	Setting, Sample Size and Location	Results
Resnick & Bosworth (1989)	Pre- test, post-test	Examine the feasibility of a non-smoking psychiatric ward in a university hospital	<p>Indicator:</p> <p>Partial ban (indoors)</p> <p>Outcome:</p> <p>Nicotine Replacement Therapy (NRT) and willingness to attend stop smoking program</p>	<p>12-bed locked unit</p> <p>165 patients (71%) completed survey</p> <p>60 patients admitted (30-pre-and 30-post)</p> <p>Oregon, US</p>	<p>There was a decrease in reporting of willingness to attend a stop-smoking program from pre-to post-ban implementation (60% to 32%).</p> <p>There was an increase in the use of PRN (as needed) nicotine gum from pre-to post-ban implementation (7 doses to 176 doses).</p>
Filia et al., (2015)	Post-test only	Assess inpatient views and experiences of a smoking ban before and after implementation	<p>Indicator:</p> <p>Total ban (indoor and outdoor)</p> <p>Outcome:</p> <p>NRT</p>	<p>98 Inpatients</p> <p>(46 pre- and 52 post- implementations)</p> <p>Melbourne, Australia</p>	<p>Two-thirds (67.9%) of smokers used Nicotine Replacement Therapy (NRT) during their admission. But, more than half said it was not helpful.</p>
Stockings et al., (2015)	Post-test only	Determine patient's adherence, perception of staff support, receipt of nicotine-dependence treatment, and acceptability of a smoke-free policy	<p>Indicator:</p> <p>Patient's perceptions and attitudes</p> <p>Outcome:</p> <p>Smoke policy</p>	<p>181 patients</p> <p>New South Wales, Australia</p>	<p>36.1% reported that they received advice about quitting smoking and 75.3% used NRT. However, those using NRT continued smoking during hospitalization.</p>

Two studies were post-test only designs (Filia et al., 2015, Stockings et al., 2015), and one study utilized a pre-test and post-test design (Resnick & Bosworth, 1989). One study examined the feasibility of providing a smoke-free policy (Resnick & Bosworth, 1989) and two

studies examined patient's attitudes and perceptions of a smoke-free policy after its implementation (Filia et al., 2015, Stockings et al., 2015).

The studies provided evidence of a variety of approaches to tobacco treatment including pharmacotherapy (i.e., Nicotine Replacement Therapy (NRT)) and smoking cessation education. The most popular intervention was the use of NRT ($n= 3$ studies), particularly the use of nicotine gum, and then attending a stop smoking program ($n= 1$ study). Furthermore, one study provided advice about quitting smoking in addition to the use of NRT (Stockings et al., 2015).

Of the three studies that examined the effect of tobacco policies on tobacco treatment among patients, there were mixed results. Two studies found a high rate of NRT use with 67.9% (Filia et al., 2015) and 75.3% (Stocking et al, 2015) of smokers using NRT. In addition, one study found an increase in the use of as needed nicotine gum (Resnick & Bosworth, 1989). However, the same study (Resnick & Bosworth, 1989) found a decrease in patient's willingness to attend a stop smoking program from pre-to-post ban implementation (60% to 32%). Hence, while the use of NRT was high in all three studies the engagement in tobacco cessation treatment dropped in one study.

Results - Staff Studies

Table 2 includes the results of the two studies focused on staff. Taken together, the studies were based on findings from 237 providers working in tobacco-free psychiatric institutions. One study examined the effects of a total smoking ban (i.e., indoor and outdoor) on staff attitudes and the other assessed staff's experiences towards a partial smoke-free policy. One of the studies was conducted in New South Wales, Australia and the other study in the U.S. (i.e., San Diego, CA). The studies were conducted in inpatient hospitals or treatment centers.

Table 2. Description of Staff Studies

Author (year)	Design	Purpose	Measure	Setting, Sample Size and Location	Results
Hehir et al., (2013)	Post-test only	Describe the attitudes toward and experience of mental health professionals working in a tobacco-free high secure mental health three years post opening	<p>Indicator:</p> <p>Total smoke-free ban</p> <p>Outcome:</p> <p>Attitudes and confidence towards providing nicotine dependence treatment</p>	<p>High secure inpatient psych. unit</p> <p>Total staff -222</p> <p>Completed survey-111</p> <p>Mostly (54%) female nurses aged 30-39</p> <p>Nurses-58%</p> <p>Management-19%</p> <p>Allied Health-10%</p> <p>Medical-9%</p> <p>Admin. Staff-5%</p> <p>New South Wales, Australia</p>	<p>80% of participants believed that providing nicotine dependence treatment (patch, lozenge, or inhaler) to patients is as important as other roles in the unit. But, smokers were less likely to respond in this way (57.1% vs. 83.5%).</p> <p>66% of participants were confident in their ability to provide advice and treatment to smokers. There were no differences between smoking and non-smoking staff.</p>
Patten et al., 1995	Post-test only	Evaluate the effects of a smoke-free policy on patient behavior staff attitudes	<p>Indicator:</p> <p>Partial smoking ban (indoor)</p> <p>Outcome:</p> <p>Staff perception of ability to address nicotine addiction</p>	<p>28-bed lock inpatient psych. Unit</p> <p>Staff- 126</p> <p>San Diego, CA</p>	<p>62% of staff responded positively about their ability to address nicotine addiction after implementation of a smoke-free policy.</p>

Both studies (Hehir et al., 2013; Patten et al., 1995) used a post-test only design to determine the effects of tobacco policy on staff attitudes and behaviors towards tobacco treatment. One study gauged the attitudes and experiences from mental health professionals after the implementation of a total smoke-free policy (Hehir et al., 2013) and the other study evaluated the effects of a partial smoking policy on staff attitudes (Patten et al., 1995).

The two studies examined staff perceptions of their confidence or ability to provide tobacco treatment in response to the smoke-free law. The most common response from staff was an increase in their ability to confidently prescribe tobacco treatments or interventions (62%) (Patten et al., 1995), and then confidence in their ability to address nicotine addiction (66%) (Hehir et al., 2013). Additionally, in one study, 80% of respondents believed that providing nicotine dependence treatment (patch, lozenge, or inhaler) to patients is as important as other roles in the unit (Hehir et al., 2013). While two-thirds of staff were confident in their ability to address nicotine dependence, there was no difference between those who smoke or did not.

Results – Manager Studies

Table 3 represents the results of four studies from the examination of 659 managers working in tobacco-free environments and 357 psychiatric hospitals that implemented smoke-free policies. One study examined the acceptability and efficacy of a partial smoking ban to a total smoking ban (Etter et al, 2008); one study investigated how adopting a smoke-free policy affects key factors, adverse events, smoking cessation treatment options, and specialty training for clinical staff about smoking related issues (Holland et al, 2010); one study identified changes in smoking policies and their implementation, including the level of smoke cessation provided (Ortiz et al, 2013); and the final study described tobacco control strategies and examined unmet needs from a partial smoking ban (i.e., indoor only)(Ballbè et al, 2012). Two of the studies were conducted in the U.S., one in Alexandria and the other in Falls Church, VA; one study in Switzerland, and the final study in Spain.

Table 3. Description of Manager's Studies

Author (year)	Design	Purpose	Measure	Setting, Sample Size and Location	Results
Etter et al., (2008)	Longitudinal survey	Compare the acceptability and efficacy of partial smoking ban to a total smoking ban	Indicator: Total or partial smoking bans Outcome: Quitting smoking and providing smoking cessation medication	N=106 (2003) N=108 (2004) N=119 (2005) N=134 (2006) Switzerland	The total ban was more effective for helping to quit smoking than the partial smoking ban. During the total ban, 52.2% of physicians provided medication (NRT) to help patients quit smoking.
Hollen et al., (2010)	Longitudinal survey	Examine effect of smoke-free policy adoption in state psychiatric hospitals on adverse events, smoking cessation and specialty training for clinical staff	Indicator: Adopting smoke-free policies Outcome: Smoking cessation treatment	2 types of hospitals were surveyed in 2006 and 2008. 28 hospitals were smoke free and 42 were not Alexandria, VA	Among hospitals that implemented a smoke-free policy, the greatest change was in the number offering nicotine lozenges (4% in 2006, 25% in 2008) and spray or inhaler treatment options (0% in 2006, 18% in 2008). The percentage of hospitals with no smoking policy offering NRTs did not change significantly throughout the study period.
Ortiz et al., (2013)	Longitudinal survey	Determine level of smoking cessation care provided at state-operated or state-supported psychiatric inpatient hospitals	Indicator: Smoking policies Outcome: Smoking cessation	N= 164 hospitals (2008) N=165 (2011) Falls Church, VA	In 2011 a slight majority of hospitals provided all types of treatment (smoking counseling, NRT, and pharmacotherapy). Although the percentage of hospitals providing resources on smoking cessation increased from 2008 to 2011, the number of hospitals providing no follow-up of smoking cessation care after discharge dropped significantly, from 64% to 41%.
Ballbè et al., (2012)	Cross-sectional survey	Describe tobacco control strategies undertaken in psychiatric inpatient institutions and to examine unmet needs that resulted from the partial ban on smoking in Spain	Indicator: Control strategies Outcome: Intervention	N=186 managers Spain	41.0% of psychiatric services usually intervened in patient tobacco use, 34.1% had interventional pharmacotherapy available and 38.9% had indoor smoking areas. Day centers had the lowest tobacco control measures. 47.3% of managers stated that the staff had insufficient knowledge on smoking cessation interventions.

Three studies among managers incorporated a longitudinal survey design (Etter et al., 2008; Hollen et al., 2010; Ortiz et al., 2013), and one study applied a cross-sectional survey design (Ballbe et al., 2012). The studies provided evidence of a variety of approaches to tobacco treatment including pharmacotherapy incentives (i.e., NRT) and smoking education. The most popular intervention was the use of NRT ($n= 3$ studies), and then attending a stop smoking program ($n= 1$ study).

The findings from the cross-sectional survey among 186 managers in psychiatric services in Spain, were that a low number of services intervened in patient tobacco use (41.0%) or had pharmacotherapy available (34.1%) and about half of staff had insufficient knowledge about smoking cessation interventions (47.3%) (Ballbe et al., 2012). Among the three longitudinal survey studies, there was an increase in a trend toward greater delivery of tobacco treatment with time. Etter et al., (2008) found that a total smoke-free ban was more effective than a partial ban in helping patients to quit smoking; during the total smoke-free ban period, 52.2% of physicians provided smoking cessation medication to patients. Holland et al., (2010) found that psychiatric hospitals that implemented smoke-free laws demonstrated an increased rate of offering smoking cessation pharmacotherapy (from 4% to 25% in nicotine lozenges); but, hospitals without a smoke-free policy did not change in their offering of smoking cessation medication. Finally, Ortiz et al., (2013) found that state operated/supported psychiatric in-patient hospitals increased the variety of types of smoking cessation treatment offered from 2008 to 2011. Hence, the introduction of smoke-free policies in all studies was associated with increases in tobacco treatment being offered to patients in various psychiatric settings.

Part 2: A Manager Survey in an Inpatient Psychiatric Hospital

The second part of this capstone report will present the results of a survey on tobacco policies and treatment needs among managers in an inpatient psychiatric hospital in Kentucky. The objective was to gain an understanding of managers' knowledge pertaining to the facility's smoking policy and their attitudes towards the current smoking policy. The current smoking policy at Eastern State Hospital are as follow:

- 1) Upon admission, the patient is informed of tobacco free policy and staff are informed during orientation.
- 2) Signage is placed near walkways and entryways indicating this is a tobacco free campus.
- 3) Staff, patients and visitors are prohibited from using tobacco products anywhere on Eastern State Hospital property.
- 4) Physician may order patients Nicotine Replacement Therapy (NRT) as outlined by the Tobacco Cessation Program's protocol.
- 5) Patients are offered education regarding risks associated with tobacco use and tobacco treatment options.

Psychiatric hospitals that implement tobacco policies are ideal for patients who suffer from smoking/tobacco use. It is at this time of hospitalization that patients are in a structured and clean environment that can lend the best support towards tobacco cessation. Managers are a critical part to implementation and the results of this survey gauging their knowledge, can support future recommendations for tobacco policies.

Methods

Participants

Data were collected using a 15-20 minute written questionnaire that was administered to all managers. Eligibility criteria for managers was that they had to be currently employed at the facility. A total of 34 managers were targeted, but only 23 completed the survey for a 67.6% response rate. These managers were both clinician (e.g., physicians, nurses, social workers, psychologist, etc.), and non-clinician (e.g., security, dietary) staff. The University of Kentucky Medical Institutional Review Board (IRB No. 15-1096-p6K) approved this study.

Measures

Data for the analysis was acquired from all anonymized surveys. All results were calculated using the SPSS software program. The baseline measures consisted of demographic and knowledge of smoking policies in the workplace, resources for treating tobacco dependence, support for clinician training, and the learning needs for practitioners.

Demographics

The demographic variables obtained from the surveys were age (in years) and gender (“1” =male; “2” = female), highest grade or year of school completed (coded as “1” for less than high school, “2” for high school graduate or GED, “3” for some college/vocational/trade school degree, “4” for college graduate). The demographic variables for ethnicity/race were (non-Hispanic white, non-Hispanic black, Hispanic, Pacific Islander/Asian, or other). The demographic variable for current job role were (coded as “1” for Clinical or “0” for Non-clinical). The demographic variable for managers who ever used of tobacco products was coded

as (“0” for No and “1” for Yes). The length of time as a manager at Eastern State Hospital the facility was a continuous variable measured in months.

Tobacco-use Policies in the Workplace

The smoking policies in the workplace questions included in the program survey were: 1) are there designated smoking tobacco use areas inside your workplace? 2) are there designated smoking tobacco use areas outside your workplace? 3) are there any written materials regarding smoking/tobacco use policies at your workplace (i.e., orientation manual, safety manual, procedural guidelines)? 4) are there signs posted around your workplace that state where designated smoking/tobacco use areas are located? 5) are written smoking/tobacco use policies mentioned to clients during the admission process? 6) are there areas at your worksite where employees can go and smoke/use tobacco without being observed by colleagues or clients, do clients “just know” where to go and smoke/use tobacco, and 7) are there implied or unwritten smoking/tobacco use policies for employees (i.e., people just know to smoke outside)? These variables were coded as (“0” for No or “1” for Yes or “99” for don’t know).

Resources for Treating Tobacco Dependence

The availability of resources for treating tobacco dependence variables included in the survey were: 1) are there any materials (such as brochures/pamphlets) to discuss tobacco use dependence and treatment options for those who smoke/use tobacco? 2) are there any nicotine replacement therapies (NRT) for tobacco treatment being provided to patients who want to stop smoking/using tobacco? 3) are there any smoking/tobacco use cessation program to help patients who want to stop using tobacco? and 4) are there referrals for patients that presents a desire to

stop smoking/using tobacco to any other resources (i.e., such as community programs, 1-800 quit lines etc.)? These variables were coded as (“0” for No or “1” for Yes or “99” for don’t know).

Support for Clinician Training

Support for clinician training variables included in the survey were: 1) is there formal training on how to provide brief interventions to clinicians? 2) is there formal training on how to provide effective smoking/tobacco use cessation counseling (i.e., motivational interviewing) for clinicians? 3) is there formal training on effective smoking/tobacco use cessation pharmacotherapies for clinicians? and 4) are there workshops on smoking/tobacco use cessation counseling skills for clinicians? These variables were coded as (“0” for No or “1” for Yes).

Learning Needs for Practitioners

The learning needs for practitioners and the confidence in delivering tobacco treatment variables included in the survey were: 1) is there a need for training among clinicians/staff on how to provide brief interventions for tobacco treatment? 2) is there a need for evidence-based smoking/tobacco use cessation or reduction materials for those with mental illness who smoke among clinicians/staff? 3) is there a need for training among clinicians/staff formal on effective smoking/tobacco use cessation counseling? 4) is there a need for smoking/tobacco use cessation resources (i.e., community support groups) among clinician/staff to assist a patient with mental illness who smoke/use tobacco? 5) is there a need among clinicians/staff for formal training in effective smoking/tobacco use cessation pharmacologic interventions for patients with mental illnesses who smoke/use tobacco? 6) is it useful for formal training on how to provide brief interventions for tobacco treatment? 7) is it useful for resource books on smoking/tobacco use cessation materials for patients with mental illnesses who smoke? 8) is it useful for formal

training on how to provide effective smoking/tobacco use cessation counseling (i.e., motivational interviewing)? 9) is it useful for formal training on effective smoking/tobacco use cessation pharmacotherapy? 10) is it useful for information on community smoking/tobacco use cessation resources (i.e., support groups) for patients with mental illnesses who smoke/use tobacco? Questions 1-5 were coded as (“1” for completely disagree, “2” for somewhat disagree, “3” for somewhat agree, “4” for completely agree) and questions 6-10 were coded as (“1” for not useful at all, “2” for somewhat not useful, “3” for somewhat useful, “4” for very useful).

Data Analysis

Demographic variables were examined using frequencies with percentages (for categorical variables) and means with standard deviations (for continuous variables). In addition, the differences in the main outcome variables by current job roles were examined using Chi-Square tests. This bivariate analysis examined if there were significant differences between clinician and non-clinician manager responses. IBM SPSS Statistics version 24.0.0 was used to analyze the data.

Results

Sample Demographics

The sample was predominantly female (77.3%), all non-Hispanic white (100%), and on average 45 (range: 29-61) years of age. The majority of individuals had completed a college degree (95.5%). Almost half of the participants had ever used tobacco products (45.5%). There were no significant differences in demographic variables by job role. Details are provided in Table 4.

Table 4- Demographics

	Total		Non-clinician		Clinician		Chi-Square
	N	%	n	%	n	%	p-value
Female	17	77.3	4	57.1	13	86.7	.274
College graduate	21	95.5	6	85.7	15	100.0	.318
White non-Hispanic	22	100.0	7	100.0	15	100.0	
Ever used Tobacco Products	10	45.5	3	13.6	7	31.8	1.000

Tobacco-Use Policies in the Workplace

Table 5 provides descriptive information regarding tobacco-use policy knowledge among managers. When asked if there were designated tobacco use areas inside the hospital, 95.5% of all managers correctly responded “no”, with only one non-clinician manager incorrectly responding “yes”. There were no significant differences ($p=.134$) between clinician and non-clinician managers in this item. When asked about designated tobacco use areas outside of the hospital, 45.5% of managers correctly responded “no”, while, 54.5% of respondents incorrectly responded “yes”; but there were no differences ($p=.867$) between clinician and non-clinician managers in their incorrect response. When asked if there were written materials for tobacco use policies, 95.5% of managers correctly responded “yes”; however, one clinician responded with “I don’t know”. When asked about signs for designated tobacco use areas around the hospital, 45.5% of managers correctly responded “no”. In addition, there were seven clinicians that incorrectly responded “yes” and two clinicians responded with “I don’t know”. When asked about written tobacco policies mentioned to clients during admissions, 59.1% of managers correctly responded “Yes”; although 33.3% of clinicians responded with “I don’t know”, there were no significant differences ($p=.290$) between clinicians and non-clinician managers in this item. When asked about areas where employees can use tobacco, there were 40.9% of managers that incorrectly responded “yes”; nonetheless, there were no differences ($p=.673$) between

clinician and non-clinician managers in their responses. When asked if clients “just know” where to use tobacco, 50.0% of managers responded “no”; however, four clinicians responded “yes” and one non-clinician responded “no”. There were no significant differences among managers in their response to this item. When asked if there were implied or unwritten smoking/tobacco use policies for employees, 50.0% of managers responded “yes”; yet, two clinicians responded with “I don’t know”. Overall, the majority of respondents demonstrated correct knowledge about designated tobacco use inside, written material for tobacco use policies, and written tobacco use policies mentioned to clients at admissions. However, the majority of respondents demonstrated poor knowledge of designated tobacco use outside, signs for designated use tobacco areas, and areas where employees can use tobacco. Details are provided in Table 5.

Table 5- Tobacco Policies in the Workplace (Correct Responses)

The facility has:	Total		Non-clinician		Clinician		Chi-Square
	N	%	n	%	n	%	p-value
Designated tobacco use areas inside	21	95.5	6	85.7	15	100	.134
Designated tobacco use areas outside	10	45.5	3	42.9	7	46.7	.867
Written materials for tobacco use policies	21	95.5	7	100	14	93.3	.484
Signs for designated tobacco use areas	10	45.5	4	57.1	6	40.0	.533
Written policies mentioned to clients at admission	13	59.1	3	42.9	10	66.7	.290
Areas where employees can use tobacco	9	40.9	2	28.6	7	46.7	.673
Clients who “just know” where to use tobacco	11	50.0	4	57.1	7	46.7	.805
Implied/unwritten policies for employees	11	50.0	4	57.1	7	46.7	.870

Resources for Treating Tobacco Dependence

Table 6 illustrates the knowledge of resources for treating tobacco dependence among managers. When asked about written material discussing tobacco use dependence and treatment options, 57.1% of managers correctly responded “yes”. Although four clinician managers incorrectly responded “no” and a total of four managers responded with “I don’t know”, there

were no significant differences ($p=.638$) between clinician and non-clinician managers in this item. When asked whether the workplace provided NRT for tobacco treatment to patients who want to stop smoking/using tobacco, 90.9% of managers correctly responded “yes”. However, one clinician manager incorrectly responded “no”; there were no significant differences ($p=.267$) between clinicians and non-clinician managers in their responses. When asked whether the workplace provided a smoking/tobacco use cessation program to help patients who want to stop using tobacco, 45.5% of managers incorrectly responded “yes”; nevertheless, nine clinician managers correctly responded with “no”; there were no significant differences ($p=.134$) between clinician and non-clinician managers in this item. When asked whether the workplace refers patients who want to stop smoking/using tobacco to any resources (such as community programs), 54.4% of managers correctly responded with “yes”; but, six clinician managers that incorrectly responded “no” and three managers responded with “I don’t know”. Regarding this item, there were no significant differences ($p=.465$) between clinician and non-clinician managers. Hence, from the respondents, there seems to be a misperception of provision of a tobacco treatment program and lack of knowledge about the availability of resources for treating tobacco dependence. Details are provided in Table 6.

Table 6- Resources for Treating Tobacco Dependence (Correct Responses)

The facility provides:	Total		Non-clinician		Clinician		Chi-Square
	N	%	n	%	n	%	p-value
Written material discussing tobacco use dependence and treatment options	12	57.1	4	57.1	8	57.1	.638
Provide NRT for tobacco treatment	20	90.9	6	85.7	14	93.3	.267
Provide a smoking/tobacco use cessation program	10	45.5	5	71.4	5	33.3	.134
Refer patients who want to stop to resources	12	54.4	5	71.4	7	46.7	.465

Support for Clinician Training

Table 7 provides overview of the perceived support for clinician training among managers. When asked whether the workplace provides formal training on the brief interventions (5 A's: Ask, Advise, Assess, Assist, and Arrange) to clinicians, 72.7% of managers responded "no". While one clinician manager responded "yes" and five managers responded with "I don't know"; however, clinicians were more likely than non-clinicians to say "yes" ($p=.029$). When asked whether the workplace provides formal training on effective smoking/tobacco use cessation counseling (i.e., motivational interviewing) for clinicians, 72.7% of managers responded with "no"; however, non-clinicians were more likely than clinicians to say, "I don't know" ($p=.001$). When asked whether the workplace provides formal training on effective smoking/tobacco use cessation pharmacotherapy for clinicians, 68.2% of managers responded with "no". Yet, non-clinicians were more likely than clinicians to say, "I don't know" ($p=.006$). When asked whether the workplace provides regular workshops on smoking/tobacco use cessation counseling skills for clinicians, 72.7% of managers responded with "no". In addition, non-clinicians were more likely than clinicians to say, "I don't know" ($p=.001$). Details are provided in Table 7.

Table 7- Support for Clinician Training (Correct Responses)

The facility provides:	Total		Non-clinician		Clinician		Chi-Square
	N	%	n	%	n	%	p-value
Formal training on how to provide brief interventions	16	72.7	3	42.9	13	86.7	.029*
Clinician training on cessation counseling	16	72.7	2	28.6	14	93.3	.001*
Clinician training regarding cessation pharmacotherapy	15	68.2	2	28.6	13	86.7	.006*
Clinician training regarding cessation counseling skills	16	72.7	2	28.6	14	93.3	.001*

Learning Needs for Practitioners

Table 8 provides an analysis of practitioners' learning needs by looking at a variety of tools to better assist mentally ill patients who smoke/use tobacco.

Learning needs

When asked whether clinicians/staff need formal training on how to provide brief interventions (5 A's) for tobacco treatment, 95.5% of managers responded with "agree". When asked whether there is a need for clinicians/staff evidence-based smoking/tobacco use cessation or reduction materials for individuals with a mental illness who smoke, 95.5% of managers responded with "agree". However, one clinician manager responded with "disagree". There were significant differences ($p=.484$) between clinicians and non-clinicians in their responses. When asked whether clinicians/staff need formal training on effective smoking/tobacco use cessation counseling (i.e., motivational interviewing), 100% of managers responded with "agree". When asked if clinicians/staff need continuing education workshops on smoking/tobacco use cessation, 95.5% of managers responded with "agree"; although one clinician manager responded with "disagree". There were significant differences ($p=.484$) between clinicians and non-clinicians in their responses. When asked whether clinicians/staff need formal training in effective smoking/tobacco use cessation pharmacologic interventions for patients with mental illnesses who smoke/use tobacco, 95.5% of managers responded with "agree".

Hence, in looking at needs for clinicians/staff, the majority of respondents displayed a need for effective smoking/tobacco use cessation counseling, cessation resources, formal training/educational workshops on smoking/tobacco use cessation, and the effective use of pharmacologic interventions to better assist those with mental illnesses who smoke to quit. However, there was one clinician that disagreed with evidence-based cessation material that can help reduce smoking/tobacco use among patients with mental illnesses who smoke. In addition,

there was one clinician that disagreed with the need for workshops on cessation. There was no significant difference between clinician and non-clinician managers in these items. Details are provided in Table 8 & 9.

Table 8- Learning Needs for Practitioners (Agree)

	Total		Non-clinician		Clinician		Chi-Square
	N	%	n	%	n	%	p-value
Clinicians need training on how to provide the 5 A's for tobacco treatment	21	95.5	6	28.6	15	71.4	n/a
Clinicians need evidence-based cessation material for MI patients who smoke	21	95.5	7	31.8	14	63.6	.484
Clinicians need formal training on effective cessation counseling	22	100	7	31.8	15	68.2	n/a
Clinicians need community cessation resources for MI patients who smoke	21	95.5	6	28.6	15	71.4	n/a
Clinicians need updated info. on cessation interventions for MI patients relevant to providers	22	100	7	31.8	15	68.2	n/a
Clinicians need continuing education workshops on tobacco cessation	21	95.5	7	31.8	14	63.6	.484
Clinicians need formal training in effective cessation pharmacologic interventions	21	95.5	6	28.6	15	71.4	n/a

Table 9- Learning Usefulness for Practitioners (Useful)

Usefulness of formal training on how to provide the 5 A's	20	90.9	5	25.0	15	75.0	n/a
Usefulness of a resource book of cessation materials	22	100	7	31.8	15	68.2	n/a
Usefulness of formal training on how to provide effective cessation counseling	21	95.5	7	31.8	14	63.6	.484
Usefulness of formal training on effective use of cessation pharmacotherapy	6	27.3	n/a	n/a	6	27.3	n/a
Usefulness of info. on community cessation resources (i.e., support groups)	21	95.5	6	27.3	15	68.2	.134
Usefulness of publicly accessible website with up-to-date research on cessation interventions	21	95.5	6	28.6	15	71.4	n/a
Usefulness of a guide for cessation programs in your area	21	95.5	6	27.3	15	68.2	.134

Usefulness of regular workshops on cessation counseling skills (Useful)	21	95.5	6	27.3	15	68.2	.134
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Useful tools

When clinicians/staff were asked how useful they found formal training of how to provide the brief interventions (5 A's) for tobacco treatment, 90.9% of managers responded with "useful". Although, two clinician managers did not respond at all. 100% of managers rated the resource books of smoking/tobacco use cessation or reduction materials for individuals with a mental illness who smoke, as "useful". When clinicians/staff were asked whether formal training on how to provide effective smoking/tobacco use cessation counseling (i.e., motivational interviewing) was useful, 95.5% of managers responded with "useful"; however, one clinician manager responded with "not useful". When asked whether formal training on effective smoking/tobacco use cessation pharmacotherapy was useful, 27.3% of managers responded with "useful"; and 16 clinician and non-clinician managers did not respond at all. When asked whether clinicians/staff found it useful to have information on community smoking/tobacco use cessation resources (i.e., support groups) for patients with mental illnesses who smoke/use tobacco, 95.5% of managers responded with "useful"; however, one non-clinician manager responded with "not useful".

Therefore, in looking at the usefulness of clinicians/staff confidence in delivering tobacco treatment, the majority of respondents responded that it is useful to have effective smoking/tobacco use cessation interventions for better delivery of tobacco treatment for those with mental illnesses who smoke that want to quit. However, there is one clinician that did not find formal training on how to provide effective smoking/tobacco use cessation counseling useful, and one non-clinician that did not find having a guide for smoking/tobacco use cessation

programs for patients with mental illnesses who smoke/use tobacco in your area useful. There was no significant difference between clinician and non-clinician managers in these items.

Details are provided in Table 8.

Discussion

This study reviewed the effect of tobacco policies on tobacco treatment in psychiatric institutions and examined manager's perceptions and the effectiveness of a tobacco policy within inpatient settings. The key findings of the literature review suggest the effectiveness of policies to promote smoking cessation medication use among individuals with a mental illness who smoked; particularly the impacts of policies on increasing the availability of NRT which in turn decreases tobacco use and increases quit rates within inpatient psychiatric settings.

The novel findings from part 1 of this capstone were that while tobacco free policies resulted in an increase in the provision of tobacco treatment, there were: 1) an increase in the usage of NRT, but 2) no significant differences in smoking cessation outcomes by the type of cessation treatment and did not find it adequate to help with withdrawals.

The novel findings from part 2 of this capstone were that: 1) sufficient knowledge about no designated tobacco use inside, written material for tobacco use policies, and written tobacco use policies mentioned to patients at admissions; 2) misperception of provision of a tobacco treatment program and lack of knowledge about the availability of resources for treating tobacco dependence, and 3) displayed a need for effective smoking/tobacco use cessation counseling, cessation resources, formal training/educational workshops on smoking/tobacco use cessation, and effective use of pharmacologic interventions. These findings may have important implications for tobacco policy and treatment practices within psychiatric facilities.

Before implementation of a smoking ban, patients are less inclined to abide by smoking restrictions and view smoking bans as negative. However, those who did not smoke viewed a smoking ban as positive; this was largely either or in part to the avoidance of second-hand smoking (Hehir et al, 2013). A common finding from staff perspectives before implementation of a smoking ban was about evenly split for and against a smoking ban. Nevertheless, there seemed to be an increase in patient's willingness to attend a stop smoking program after the implementation of a smoking ban. Patient's willingness to attend a stop smoking program was greater if patients perceived a significant amount of staff support (Hehir et al, 2013).

Most staff who had major concerns were smokers themselves, and this created issues with enforcements of a tobacco ban. Tobacco use by staff acts as a barrier to implementation and patient support for quitting (Hehir et al, 2013). This is why staff support is important for the success of patient adherence and willingness to receive treatment. Furthermore, manager's support for staff is important for enforcement of a tobacco policy. Hehir et al. (2013) reported about a third of respondents perceived that there is adequate support from hospital management, although there should be more intention in ensuring staff are receiving tobacco treatment in addition to patients. Hence, managers restricting staff from smoking is a critical aspect of effectively implementing a tobacco policy that would lead to an increase in patient adherence (Hehir et al, 2013).

These results are in accordance with the current review of several treatment methodologies for smoking cessation among individuals with mental illnesses. In addition, the public health implications of restricting tobacco use in and around a hospital are to decrease the risk of second-hand smoking and increase patient adherence. Limiting smoke in a facility was found to decrease the urges to smoke/use tobacco (Etter et al, 2008).

In the *importance of knowledge dimension*, ensuring patient's understanding about restrictions to a smoking ban, supports patient's awareness of treatment resources available and can increase patient acceptance of a tobacco-free policy. In addition, management support and acknowledgement of tobacco addiction, provision of accessible treatment and therapy options for smokers, and clear communication around the smoking policy are important for the effectiveness of a tobacco policy (Hehir et al, 2013). There are different ways to improve patient adherence by knowledge of a smoking ban that consist of providing education, training, and support to increase confidence to enforce smoking ban restrictions (Stockings, et al 2015). It was interesting that hospitals that permit smoking had higher rates of education about the risks of smoking, educational resources, and smoking cessation treatment than hospitals the prohibit smoking (Ortiz & Schacht, 2015). Thus, in order to effectively enforce a tobacco policy, knowledge about the policy is important for staff and managers.

In the *availability of resources dimension*, prior to implementation of a smoking ban did not increase patient's agitation and the majority of patients (47.4%) reported NRT use to be unhelpful (Filia et al, 2015). Without smoking restrictions, patients had negative views of NRT because patients were allowed to smoke. However, after implementation of a smoking ban, a higher number of patients who smoke requested NRT. Interestingly, most patients that use NRT reported that the effects did not reduce their cravings or only did so a little (Stockings et al., 2015). It was found that of all medication treatments, nicotine gum and nicotine patches were the most common treatment choices for tobacco treatment (Resnick & Bosworth, 1989; Filia et al, 2015). The increase in (PRN) as needed nicotine gum was drastic, increasing from seven doses to 176 doses after implementation of a smoking ban (Resnick & Bosworth, 1989). In addition, those who agreed to treatment, some seemed to be successful at effectively quitting.

Nevertheless, those receiving advice about quitting and used NRT, continued to smoke during admission and more than half reported NRT to be unhelpful (Filia et al, 2015; Stockings et al, 2015). More emphasis is needed on researching more effective ways to provide tobacco treatment for patients in their efforts to cope with tobacco withdrawals and to be successful in quit attempts. More studies may be required to compare smoking cessation medications in practice settings where psychiatric medications are being given simultaneously to determine a correlation of ineffectiveness of tobacco treatments.

Finally, a total ban was more effective for helping to quit smoking than the partial smoking ban (Etter et al, 2008). There is a high possibility for patients to begin smoking again due to less restrictions of a partial smoke-free ban, as well as NRT being uncommon and used much less compared to a total smoke-free ban. Patients could benefit from having a non-smoking environment while hospitalized, although high smoking relapse rates reported in the literature recommend that hospitals to be more intentional in providing support (i.e., community smoking cessation programs) after discharge for longer term cessation.

The survey results showed managers had relatively low knowledge of resources for treating tobacco dependence, lack of support for clinician training, and lack of formal training on effective cessation counseling. Health professionals demonstrated poor knowledge of designated tobacco use areas outside (only 45.5% of managers were aware of designated outside areas) and areas where employees can smoke (only 40.9% of managers answered correctly). Furthermore, non-clinician managers had the lowest knowledge of where employees can use tobacco outside the facility (only 28.6% of managers were aware). It is important regardless of your role in providing healthcare that all managers beware of their facility tobacco policy. This lack of

awareness creates issues with smoking ban implementation that fosters poor outcomes among staff and patients, as well as decreases in adherence to a tobacco ban policy.

It was found that there were some misperceptions of provisions of a tobacco treatment program and lack of knowledge about the availability of resources for treating tobacco dependence. Only 57.1% of managers were aware that written materials discussing tobacco use dependence and treatment options were available. This maybe an issue with effectively treating tobacco dependence. In addition, if managers are unaware of their tobacco policy, this leads to misinformed staff and ineffective tobacco treatment for patients. While there is currently no smoking/tobacco use cessation program at Eastern State Hospital however, 45.4% of managers thought one existed. This might lead to incorrect information being disseminated about a resource that is not available. There should be a monthly meeting provided to all managers about what resources are available and what resources are to be expected. Furthermore, by having a monthly evaluation, this could increase successful implementation of a tobacco policy and increase awareness among all managers. Hence, this highlights the importance of education and continuous evaluation of a tobacco policy to ensure there are no gaps among managers and staff.

There should be formal training given on the brief interventions (5 A's: Ask, Advise, Assess, Assist, and Arrange) to clinicians to better assist patients who smoke/use tobacco. It was found that 72.7% of managers responded that the workplace does not provide formal training on the brief interventions (5A's: Ask, Advise, Assess, Assist, and Arrange). Managers and staff could benefit from learning brief interventions to understand alternative ways to determine the needs of the patient. Furthermore, there are no formal training on effective smoking/tobacco use cessation counseling and no effective smoking/tobacco use cessation pharmacotherapy. Although, there were no statistically significance and differences between clinicians and non-

clinicians, more should be done to conduct formal training in these areas. Having formal training on how to conduct cessation counseling can increase awareness in patients of the dangers of smoking and highlight the importance of seeking treatment opportunities. In addition, managers should be aware of the evidence-based pharmacotherapies shown to be effective for treating tobacco dependence. It is through these efforts that managers can become better equipped to handle patients that smokes/use tobacco products and conduct better training for their staff on the approaches that yields optimal smoking cessation results.

Public Health Implications

Tobacco use is the leading preventable cause of disease and mortality (Gaballa, Drowos, & Hennekens, 2016) and is a huge public health concern. Tobacco use among mentally ill individuals remain two to three times the national prevalence (Gaballa, Drowos, & Hennekens, 2016). Subsequently, with such high usage of tobacco products increases their risk of heart disease and an array of cancers (i.e., lung cancer). Hence, the importance for public health officials to become knowledgeable surrounding tobacco use in this vulnerable population; unfortunately, if action is not taken, those with mental illness who struggle with smoking/tobacco use will continue to suffer disproportionate tobacco related morbidity and mortality rates (Gaballa, Drowos, & Hennekens, 2016).

There is a higher dependence on nicotine, greater smoking, and greater withdrawal symptoms from quitting among individuals with mental illness (Prochaska, Das, & Young-Wolff, 2017). The health implications for using tobacco are numerous however, many can be avoided with proper treatment. Treatment efforts can be enforced by implementation of a tobacco policy restricting smoking in and around a facility. A tobacco policy is an important public health intervention that can help to reduce health disparities among mentally ill

individuals, reducing health care expenditures, and promoting the well-being of those impacted from smoking/using tobacco. In addition, implementation of a tobacco policy decreases second-hand exposure and reduces the burden of disease and death. The public health implication for policy development is to inform, educate, and empower (CDC, 2017). If there is not a sufficient amount of education occurring among managers and staff, this leads to poor information being disseminated and unsuccessful attempts of enforcing tobacco policy on tobacco treatment. Hence, future implications on ensuring successful implementation and the effectiveness of tobacco policies can lead to optimal health status throughout life and improve long-term health effects.

Limitations

There are some important limitations that needs to be considered in understanding the findings of this study. As this study was based on a small sample size (i.e., 23 survey participants and 9 full texted articles) and location (i.e., one single site), the findings cannot be generalized to other psychiatric health settings. In addition, being that the survey was a cross-sectional analysis, the possibility of participants responses changing over time is plausible. Regarding the analysis of the variables from the survey, cell size less than five cannot properly interpret Chi-Square. Lack of diversity among managers who responded to the survey is another limitation in this study.

Conclusion

Tobacco use remains high and of great concern among individuals with mental illnesses. There is a significantly less reduction in smoking among individuals with mental illness than those without mental illness; however, the quit rates are greater among those receiving tobacco

treatment while in a psychiatric facility (Cook, Wayne, Kafali, Liu, Shu, & Flores, 2014). Thus, the importance of promoting policies to reduce tobacco use, exposure, and supporting tobacco treatment is vital to the health and well-being for mentally ill individuals. Psychiatric facilities that have adopted such policies have found positive impacts on staff's health and well-being (Hehir et al, 2013), and increased provision of tobacco treatment for patients (Resnick & Bosworth, 1989). However, the implementation of tobacco policies still face challenges and resistance among staff and patients. Implementation becomes more difficult without the full support of staff to enforce tobacco bans and patient adherence. In addition, providers may lack appropriate guidelines to provide evidence-based tobacco treatment.

Despite substantial progress in attempting to reduce tobacco use among those without mental illness, those with a mental illness still suffers disproportionate rates (Gaballa, Drowos, & Hennekens, 2016). This issue is a major public health concern that has long-term adverse physiological effects. Nonetheless, the tobacco policies and smoking cessation treatments found in this study may suggest the need for further studies to examine treatment approaches for smokers with mental illness; also, effective ways to train managers and staff on different smoking cessation alternatives that can help decrease tobacco use in this population should be further investigated.

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