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Tobacco dependence, treatment and smoke-free policies: a survey of mental health professionals' knowledge and attitudes☆

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Abstract

Background: Mental health inpatient units in England have to be smoke-free by law. Preliminary studies have indicated that staff may not have the necessary knowledge and resources to support the implementation of a smoke-free policy.
Objective: The objective of this study was to investigate staff knowledge and attitudes relating to smoking prevalence, dependence, treatment and the relationship between smoking and mental illness.
Design: This study used a questionnaire survey for all the clinical staff of 25 inpatient mental health units of a UK National Health Service mental health Trust.
Results: Four hundred fifty-nine (68%) staff returned the questionnaire. Less than half (42%) of the participants agreed that dealing with patients' smoking was their responsibility as a mental health professional, and only half (50%) asserted that they could make time to treat smoking in their working routine. All professional groups demonstrated a lack of knowledge about tobacco dependence, treatment and its relation with mental illness, with healthcare assistants being least knowledgeable overall. Nevertheless, 41% of doctors were unaware that smoking can decrease blood levels of antipsychotic medications, and 36% were unaware that stopping smoking could reduce the dose needed. Staff overestimated the prevalence of smoking in the general population, and over a third (36.4%) believed that nicotine was carcinogenic. Staff smoking prevalence was 26% (10% of doctors, 22% of other qualified staff and 37% of nonqualified staff), and smokers were more likely to have reservations about the importance of the smoke-free policy and the treatment of nicotine dependence among patients. Reported participation in training was associated with greater knowledge related to some items of the questionnaire.
Conclusions: Support for inpatient smokers by staff is likely to be severely compromised by low levels of knowledge and awareness of tobacco dependence. Further training and support for all staff groups are urgently required.
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Keywords: Tobacco dependence; Smoke-free policy; Staff knowledge; Attitudes

1. Background

The significance of tobacco smoking in the context of mental illness is substantial. Patients diagnosed with severe mental illness are up to three times as likely to be smokers as the general population, with smoking prevalence reaching figures of 70% and above for those with schizophrenia [1], but being high also for other diagnostic categories such as

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depression and bipolar disorder [2,3]. Smokers with mental illness have also been found to display patterns of heavy smoking and severe nicotine dependence [4]. Smoking contributes substantially to the increased risk of tobacco related morbidity and excess mortality among people with mental illness [5] and, indeed, has been identified as one of the main reasons for premature death in people with schizophrenia [6]. Underlying reasons for the strong relationship between smoking and mental illness are complex and vary across diagnostic categories. Factors contributing to the association have been found to be of neurobiological, psychosocial and genetic nature [7].

For the protection of staff and patients from the harmful effects of environmental tobacco smoke, since July 2008, all English mental health inpatient settings have been required to implement a smoke-free policy indoors [8]. Smoke-free policy implementation has been identified as an important means to promote the physical health of people with mental health problems [9,10]. In view of complexities involved in the relationship between smoking and mental illness, and given that a culture of smoking has prevailed for many years in mental health settings [11], problems had, however, been anticipated [12]. Studies in other countries have found that smoke-free policy implementation is feasible if adequate support is provided for smokers [13,14], but that adverse effects could arise if this was not the case [9,14,15]. The role of clinical staff in this context has been described as crucial [16], yet staff attitudes towards smoking and smoke-free polices in inpatient mental health settings have been reported to be ambivalent [17,18]. In an exploratory qualitative study performed 1 year after the smoke-free policy had been implemented in one UK mental health Trust, we found that the smoke-free policy was not being used as a means for health promotion and that ward staff seemed to have little knowledge of nicotine dependence and its links with treatment of mental illness [19]. Practical arrangements were made to enable patients to smoke within Trust premises in the form of smoking breaks in courtyards or allowing smoking in front of the ward entrance. The Trust provided nicotine replacement products on the formulary, and patients' smoking status was recorded as a standard procedure; however, treatment appeared to be sporadic and lacked comprehensive strategies [19]. The present study was carried out to explore these preliminary findings, specifically to investigate knowledge and attitudes related to smoking and the treatment of nicotine dependence and to determine smoking prevalence and dependence among staff.

2. Methods

2.1. Setting and participants

We studied all 25 inpatient units of a single National Health Service Trust's city catchment area comprising 12 adult mental health wards, 8 older people's mental health wards, 1 child and adolescent mental health ward, 3 low-secure forensic wards and 1 inpatient drug and alcohol services ward. Two wards were excluded from the study, as previous exploratory work [19] and piloting of the questionnaire used for this survey had been carried out on them. The Trust had implemented a smoke-free policy in March 2007, earlier than required by law, which specified that the whole facility, including buildings and grounds, should be smoke-free. Training related to the smoke-free policy for staff had been provided, and attendance had been strongly encouraged by the Trust management. The names of all clinical staff involved in patient treatment and care, including registered nurses, healthcare assistants, occupational and other therapists, psychiatrists (junior doctors and consultants) and psychologists, were obtained from ward managers, and personalized letters inviting participation were issued to all. Questionnaire completion was encouraged by advertising the survey in the internal Trust magazine and intranet and by offering a £5 gift voucher to all respondents. Two follow-up letters were sent to all nonrespondents. Ethics approval for the study was obtained by the Nottingham Research Ethics Committee 1, UK, in December 2007.

2.2. Study instruments

The questionnaire was designed to assess knowledge and attitudes relating to nicotine dependence and its treatment in the context of operating a smoke-free policy in the wards. It included 31 items. Specifically, respondents were asked to give estimates of smoking prevalence in the general and mental health populations and to identify the carcinogenic components of tobacco smoke and signs of nicotine withdrawal from a selection of true and false multiple-choice options. The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* diagnostic criteria for nicotine withdrawal (dysphoric or depressed mood; insomnia; irritability, frustration or anger; anxiety; difficulty concentrating; restlessness; and decreased heart rate) built the basis for the latter and were complemented by seven further signs that have been identified in smoking research (decreased tremor, cold symptoms, mouth ulcers, decreased caffeine metabolism, constipation, lightheadedness and weight gain) [20]. Five false options were provided (e.g., headache). In addition, respondents were asked to evaluate various statements on the interrelation between smoking and severe mental illness using a 5-point Likert scale (1=*strongly agree* to 5=*strongly disagree*) and to specify on 10-point numerical scales how important they feel it would be to address patients' smoking in the context of treatment and how confident they would feel to support patients who want to give up smoking effectively (scales ranged from 1=*not at all important/not at all confident* to 10=*extremely important/extremely confident*). They were also asked to indicate their personal views on the practice of smoke-free policy enforcement and treatment of nicotine dependence. Questionnaire design was guided by results from previous qualitative research and took into account the suggested

levels at which barriers and incentives related to implementing change in healthcare organizations are likely to occur, with a focus on professionals' awareness, knowledge, attitude and motivation related to best-practice evidence, and the organizational context, in particular the resources available [21]. Participants were, for example, asked whether they perceived it as their responsibility as a mental health professional to address patients' smoking and whether they felt they had the time to deal with patients' smoking during their working routine. A further question assessed participants' past attendance of smoking-related training offered by the Trust. Demographic data and other basic information such as length of work experience and respondents' smoking status and behavior were also collected. Nicotine dependence was assessed through the Heaviness of Smoking Index (HSI), which combines scores for the number of daily smoked cigarettes and the time to the first smoked cigarette of the day [22].

2.3. Procedures

Questionnaires were coded, entered and analyzed in SPSS version 15 for Windows. Descriptive statistics were used to obtain means, standard deviations (S.D.), medians and proportions. Univariate analyses of categorical and continuous data were performed using chi-squared tests and *t* tests or, in the case of nonnormal distribution of data, Mann–Whitney *U* tests, respectively, to detect differences (taken to be significant at $P \leq .05$) in outcomes between subgroups. Staff were categorized for analysis as medical and nonmedical staff; where significant differences were detected, the nonmedical staff group was then further subdivided into qualified staff (registered nurses, occupational therapists and other therapists) and nonqualified staff (healthcare assistants). Other a priori subgroups were based on smoking status (smokers vs. nonsmokers and ex-smokers), gender, age (<30 vs. >30 years) and reported attendance of training related to smoking (as offered by the Trust). Where statistically significant differences for more than one subgroup were identified from univariate analyses, multiple logistic regression was performed to adjust for various significant factors. This was only the case for some outcomes concerning respondents' beliefs and attitudes related to the smoke-free policy and their knowledge of specific links between smoking and mental illness; all other outcomes showed significant associations with one subgroup only. All statistically significant results from univariate and multivariate analyses are reported, and results are presented as crude and adjusted odds ratios (ORs), with 95% confidence intervals (CIs) for subgroups. Data from Likert scales were not normally distributed and therefore dichotomized for analysis, with *strong agreement* and *agreement* forming one category and with *undecided*, *disagreement* or *strong disagreement* forming the other category. The symptoms of nicotine withdrawal were scored to obtain an overall measure of performance by aggregating points as follows: +1 (*correctly identified symptoms*), 0 (*correct symptoms not identified*) and −1 (*incorrectly identified symptoms*). An overall percentage of correct answers was also computed. Statistical significance was taken as $P<.05$ for all outcomes.

Table 1
Response details

			n	% of total respondents	Response rate
Professional group	Nonmedical staff	Healthcare assistants	139	30.3	71.6[a]
		Nurses	218	47.5	
		Occupational therapists	17	3.7	
		Other	42	9.3	
	Medical staff	Consultants	21	4.6	44.3[b]
		Junior doctors	18	3.9	
		Not identified	4	0.9	–
Ward type		Acute adult	118	25.9	57.6
		Rehabilitation	110	24.2	70.1
		Older people	132	29.0	69.5
		Adolescent	18	4.0	62.1
		Low-secure forensic	58	12.7	65.9
		Drug and alcohol dependence	19	4.2	90.5
		Not identified	4	0.9	–

[a] Percentage out of 587 potential nonmedical participants approached.
[b] Percentage out of 88 potential medical participants approached.

3. Results

A total of 675 questionnaires were sent out to ward staff: 587 to nonmedical staff and 88 to medical staff. After two follow-up letters, the overall response rate was 68% (n=459), with 70.9% (416) of nonmedical staff and 44.3% (39) of medical staff participating in the study. Almost two thirds (64.5%) of respondents were female; the mean age was 41.4 years (S.D. 10.9), and the median reported work experience was 11 years. Only six respondents (1.3%) were temporary agency staff, with all others being employed by the local Trust. Differences in responses were not associated with participants' age or gender. Table 1 gives details of respondents' professions and their working environment.

3.1. Smoking prevalence and dependence among staff

One in every four (25.9%) of all respondents identified themselves as current smokers, smoking a median number of 12 cigarettes per day and with a median time to the first cigarette of the day of 30 min. The mean HSI in smokers was 2.1 (S.D.=1.4). Smoking was more prevalent in nonmedical staff than in medical staff (27.1% vs. 10.3%, OR=3.26; P=.021) and in nonqualified nonmedical staff than in qualified nonmedical staff (37.4% vs. 22%, OR=2.1; P=.001). The mean HSI was also significantly higher in

nonqualified nonmedical staff than in qualified nonmedical staff (mean HSI=2.4 vs. 1.8; P=.04).

3.2. Training on smoking and the smoke-free policy

Just over half of the respondents (54.4%) reported to have attended training related to smoking and the smoke-free policy, including online teaching modules ('E-Learning') provided by the Trust. Nonqualified nonmedical staff were significantly less likely to have attended training than qualified nonmedical staff (40.3% vs. 62.6%, OR=0.4; P<.001), but no other significant differences in attendance between subgroups were detected.

3.3. Estimates of smoking prevalence in the general population and in mental health patients

The median estimate of smoking prevalence for the general population given by respondents was 40% and was significantly lower in medical staff (29%) than in nonmedical staff (40%; P<.001). Nonqualified nonmedical staff estimated smoking prevalence to be significantly higher (47%) than did qualified nonmedical staff (38%; P<.001). The overall estimate of smoking prevalence among patients with mental illness was 74.5%; nonqualified nonmedical staff estimated this to be significantly lower (70%) than other professions (75%; P=.028). More than one in five (22.4%) of all respondents and one in three (33.1%) of nonqualified nonmedical staff believed that the prevalence of smoking was lower for patients with severe mental illness than for the general population (P=.004).

3.4. Knowledge related to the toxicity of tobacco smoke constituents

Over a third of respondents (36.4%) believed incorrectly that nicotine caused cancer and that carbon monoxide was carcinogenic (39.7%). The great majority of respondents (82.4%) knew that 'tar' consisted of carcinogenic components; however, less than 4 of 10 (37.3%) had correctly chosen 'tar' as the only carcinogenic tobacco component from the three options 'tar', nicotine and carbon monoxide. No significant differences were detected between subgroups.

3.5. Beliefs and attitudes related to the smoke-free policy in wards and treatment of tobacco dependence

Less than half of the respondents (42.6%) agreed with the statement that it was their responsibility as a mental health professional to address patients' smoking, with significantly fewer smokers than nonsmokers (P=.026; adjusted OR=0.6; 95% CI=0.39–0.94) and significantly fewer staff who had not attended training compared with those who had (P=.01; adjusted OR=0.6; 95% CI=0.41–0.89) agreeing.

Approximately half of the respondents (49.7%) agreed that they could make the time to deal with patients' nicotine dependence within their working routine, with smokers being significantly less likely to do so than nonsmokers (35.3% vs. 54.6%, OR=0.45; P<.001). Smokers were also less likely to agree that protecting patients and staff from the harmful effects of second-hand smoke through the smoke-free policy was an important aim (59.3% vs. 75.1%, OR=0.48; P=.001). Around two thirds

Table 2
Respondents' opinions related to smoking and the smoke-free policy (total sample)

Statement	*Strongly agree/agree*			
	Whole sample [*n* (%)]	Medical staff [*n* (%)]	Nonmedical qualified staff [*n* (%)]	Nonmedical nonqualified staff [*n* (%)]
'As a mental health professional, I feel it is my responsibility to address patients' smoking'	194 (42.6)	21 (53.8)	118 (43.4)	51 (37.0)
'Smoking is an important coping mechanism for many patients, helping them to deal with their mental illness'	**295 (64.6)**	**18 (46.2)**	**185 (67.3)**	**88 (64.2)**
'I feel that, within my working routine, I could make the time to deal with patients' nicotine dependence by helping them to quit or reduce smoking if they so wish'	226 (49.7)	18 (46.2)	146 (53.1)	59 (43.7)
'Protecting patients and staff from second-hand smoke through the smoke-free policy is an important aim'	326 (71)	26 (66.7)	209 (76.0)	86 (61.9)
'Nicotine replacement products and behavioral support in smoking cessation/abstinence are readily available in my ward'	291 (64.2)	19 (50)	191 (70)	79 (58.1)
'I get the impression that smokers in my ward often suffer from symptoms of nicotine withdrawal'	250 (55.1)	19 (48.7)	155 (57.4)	72 (51.8)
'The smoke-free policy has reduced exposure to second-hand smoke in my ward'	283 (61.7)	26 (66.7)	162 (58.9)	90 (64.7)

Boldface indicates significant results (see the text above).

Table 3
Factors influencing correctly and incorrectly identified statements related to smoking and mental illness

Item (correct answer)	Subgroup comparisons [adjusted OR (CI), *P*]			
	Medical staff/nonmedical staff	Qualified/nonqualified nonmedical staff	Training/no training	Current smoker/nonsmoker
'Patients who smoke need higher doses of certain antipsychotic medications' (true)	2.7 (1.37–5.55), *P*=.004	1.8 (1.15–2.89), *P*=.011	2.1 (1.4–3.1), *P*<.001	–
'If patients stop smoking, blood levels of antipsychotic medications can rise' (true)	2.17 (1.09–4.35), *P*=.028	1.7 (1.1–2.6), *P*=.017	1.8 (1.2–2.7), *P*=.003	–
'Most symptoms of nicotine withdrawal subside within a few days' (false)	–	1.885 (1.22–2.09), *P*=.004	1.58 (1.05–2.38), *P*=.029	0.77 (0.49–1.21), *P*=.25*

(–) Factor not shown to be significant on univariate analysis (and therefore not included in logistic regression).
* Significant on a previous univariate analysis.

of respondents (64.6%) expressed agreement that smoking constituted an important coping mechanism for patients, although significantly fewer medical staff than nonmedical staff (46.2% vs. 66.3%, OR=0.44; *P*=.012) did so. Table 2 shows further details of respondents' personal attitudes and beliefs by profession.

3.6. Knowledge of the relationship between smoking, its treatment and mental illness

Several items assessing participants' knowledge regarding smoking and mental illness were significantly related to participants' professional or smoking status and reported attendance of training on smoking. Results from multivariate analyses are presented in Table 3. They show that respondents were more likely to know that patients might need higher doses of certain psychotropic medications or that blood levels of psychotropic medications can rise if patients stop smoking when they were doctors or qualified nonmedical staff, or if they had attended training. Qualified nonmedical staff and those who had attended training were more likely to be aware that symptoms of nicotine withdrawal do not subside within a few days (see Table 3). Items related with only one of the subgroup analyses showed that fewer smokers than nonsmokers knew that nicotine replacement therapy (NRT) does not interfere with antipsychotic medication (24.8% vs. 35.8%, OR=0.59; *P*=.029). Significantly more medical staff than nonmedical staff knew that addiction to NRT is not common (66.7% vs. 32.2%, OR=4.18; *P*<.001) and, within nonmedical staff, nonqualified staff were significantly less likely to know this than qualified nonmedical staff (24.1% vs. 37.0%, OR=0.54; *P*=.009). More trained staff than nontrained staff were aware that some NRT products can be used as aid for smokers who want to reduce but not quit smoking (72.2% vs. 61.8%, OR=1.6; *P*=.019).

The mean number of correctly identified symptoms of nicotine withdrawal was 6.4 (S.D.=2.5) out of 15 correct answers (42.6%). When both correct and incorrect answers were scored as described in **Methods**, the overall mean score was 5.9 (S.D.=2.2) out of a maximum of 15, with no significant difference between subgroups.

When asked to indicate how important respondents believed it was to address smoking during mental health treatment (on an ascending numerical scale from 1 to 10), the median value ascribed to this was 5, with no significant differences detected between subgroups. The median value ascribed to participants' perceived confidence in being able to support inpatient smokers effectively in smoking abstinence was 7, again with no significant differences detected between subgroups.

4. Discussion

Our study revealed a serious lack of knowledge of tobacco dependence, its prevalence, its treatment and its relation with mental illness among staff in mental health units where smoke-free policies are implemented. Almost half of respondents reported having not attended training related to smoking and the smoke-free policy, and more than half did not agree that dealing with smoking by inpatients was part of their responsibility in the context of patient treatment and care. Deficiencies in awareness and knowledge related to smoking were present across all professional groups and indicate that treatment decisions and provision of support related to patients' tobacco dependence are likely to be compromised. Doctors were frequently unaware of the interactions between smoking and antipsychotic medication and had misconceptions related to the use of NRT. Unqualified nonmedical staff (healthcare assistants), who spend considerable time with patients in the wards, displayed deficiencies in knowledge more frequently than any other staff group and also reported the highest smoking rate and highest nicotine dependence level within the sample. Smoking status determined some attitudes independent of professional group, as shown in previous research [2,17,18], and reported attendance of training on smoking provided by

the Trust influenced some aspects of knowledge assessed by the questionnaire.

Due to the reasonable overall response rate of the study (68%) and the inclusion of all clinical professions and all psychiatric specialties of a large Trust, the results are likely to be applicable to other mental health inpatient settings. However, although the Trust in question is one of the largest in the country, the generalizability of results to other inpatient settings might be limited due to specific circumstances pertaining to the Trust studied. Furthermore, the response rate from medical staff was lower (44.3%) than average, which may result in responses from this professional subgroup being influenced by self-selection bias to a greater extent than results from nonmedical staff. No specific details on the contents of the staff training referred to in the questionnaire were collected, the reason that this factor has been considered secondary in our analysis and the reason that the results relating to it need to be regarded with caution. Further investigation in this area would be useful before conclusions on its impact can be derived.

Self-reported current smoking across our sample (25.9%) is slightly higher than the current average smoking prevalence among adults in the UK [23] (22%). However, a clear gradient according to professional status was identified, with doctors reporting smoking least frequently (10.3%) and unqualified healthcare assistants reporting smoking most frequently (37.1%), with qualified nonmedical staff between them (22%). This gradient mirrors results from a previous survey by Stubbs et al. [17], although they found slightly lower self-reported smoking rates than we did, possibly due to their lower overall response rate [17]. The higher prevalence of smoking and greater dependence on smoking among unqualified staff are consistent with the generally higher prevalence of smoking among manual and unskilled groups [23]. As shown in previous research [24] and in this study, the smoking behavior of staff influences their attitudes towards treating tobacco dependence in patients. Overall, smokers in our study were less likely to perceive the treatment of smoking as a responsibility of a mental health professional, to think they could make time for treatment during their working routine and to agree that protection from second-hand smoke by means of the smoke-free policy was important. They were more prone to the misperception that NRT interferes with antipsychotic medications — a belief that is likely to result in adverse attitudes towards the use of those products, which could prevent the provision of adequate pharmaceutical support for smokers in the wards.

Professional status was a crucial determinant of knowledge, especially with regard to smoking and its relation to mental illness. Numerous independent significant differences were identified when distinguishing not only between the medical subgroup and the nonmedical subgroup of respondents but particularly when testing results between qualified nonmedical staff and unqualified nonmedical staff. In contrast to doctors, nonmedical staff, especially unqualified staff, grossly overestimated smoking prevalence in the general population. There was also a high number of nonmedical — especially unqualified — staff who believed that psychiatric patients smoked less than the general population. This misconception could potentially result in the underestimation of harm caused by frequent and heavy smoking among the psychiatric population and could weaken motivation to work towards improving this health inequality. While arguably the importance of competency in relation to nicotine dependence differs between staff groups, with prescribing doctors being the most influential in relation to the integration of smoking in treatment, it is important to consider that nonmedical staff are more likely to provide support to patients on a daily basis. Sound knowledge and awareness with regard to smoking and its links with mental illness therefore appear paramount for any staff group.

Inaccurate knowledge and misconceptions were evident across the whole sample, irrespective of smoking status or professional group. There was, for example, a lack of knowledge of nicotine withdrawal syndrome, with less than half of symptoms being correctly identified on average. Given that smokers admitted to a nonsmoking environment are very likely to suffer symptoms of nicotine withdrawal (e.g., in the context of temporary abstinence when smoking cannot be facilitated), which might resemble symptoms of mental illness and may be confused with those [7,25], this finding is important. Combined with the result that more than a third of respondents believed nicotine to be a carcinogenic drug (a lower proportion than found for the general population in previous work [26]) and the erroneous belief that most symptoms of nicotine withdrawal subside within a few days, there is high risk that the provision of support for withdrawal (e.g., by provision of NRT) will be insufficient.

Even where differences were detected between subgroups, the better-performing group (usually doctors/qualified nurses) often still displayed a considerable lack of knowledge. For example, only two thirds of doctors knew that addiction to NRT is not common. It is equally striking that less than two thirds of doctors were aware of the interrelationships of tobacco smoke with certain antipsychotic drugs. The shared metabolism of tobacco smoke components and antipsychotic drugs and the fact that those who smoke heavily require higher doses of common antipsychotic medications (such as clozapine and olanzapine) have potential effects on the clinical management of patients who smoke and those who stop smoking. Smoking abstinence can result in increased blood levels of medication and requires clinical monitoring [7,25,27]. These results raise important questions as to whether competent treatment and support for nicotine dependence in line with national standards [28] are being offered.

In light of the obligatory implementation of smoke-free policies in inpatient units in England, our findings appear to be of considerable relevance. As pointed out in previous

work [13,14,29], comprehensive support systems need to be in place for dependent smokers where smoke-free policies are enforced, especially when levels of nicotine dependence are high and complexities exist in relation to psychiatric illness. Staff need to have the knowledge and skills to be able to encourage and support smokers in complying with the smoke-free policy and to promote smoking cessation, as any shortcomings will undermine the success of smoke-free policies and could lead to adverse effects. Changing behavior in an environment with a historic smoking culture [11,30] will be difficult as long as the false beliefs and misperceptions commonly displayed in this study remain. Our survey showed that reported attendance of training did have a small but significant influence on participants' knowledge on the links between smoking and mental illness, and a change in attitudes towards smoking cessation treatment has been found in previous studies [31]. While the clinical relevance of training for all staff groups cannot be asserted from this study, our findings indicate that further research on the impact of training on clinical care is needed. Addressing the detected deficiencies in clinicians' knowledge and awareness related to the subject appears to be an essential factor if the health benefits of smoke-free policies in mental health are to be fully realized.

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