

## ORIGINAL INVESTIGATION

# Readiness to Quit Smoking and Quit Attempts Among Australian Mental Health Inpatients

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## ABSTRACT

**Introduction:** Mental health inpatients smoke at higher rates than general population smokers. However, provision of nicotine-dependence treatment in inpatient settings is low, with barriers to the provision of such care including staff views that patients do not want to quit. This paper reports the findings of a survey of mental health inpatients at a psychiatric hospital in New South Wales, Australia, assessing smoking and quitting motivations and behaviors.

**Methods:** Smokers ( $n = 97$ ) were surveyed within the inpatient setting using a structured survey tool, incorporating the Fagerström Test for Nicotine Dependence, Reasons for Quitting Scale, Readiness and Motivation to Quit Smoking Questionnaire, and other measures of smoking and quitting behavior.

**Results:** Approximately 47% of smokers reported having made at least one quit attempt within the past 12 months, despite nearly three quarters (71.2%) being classified as in a “precontemplative” stage of change. Multinomial logistic regressions revealed that self-reporting “not enjoying being a smoker” and having made a quit attempt in the last 12 months predicted having advanced beyond a precontemplative stage of change. A high self-reported desire to quit predicted a quit attempt having been made in the last 12 months.

**Conclusions:** The majority of smokers had made several quit attempts, with a large percentage occurring recently, suggesting that the actual quitting behavior should be considered as an important indication of the “desire to quit.” This paper provides further data supporting the assertion that multimodal smoking cessation interventions combining psychosocial and pharmacological support should be provided to psychiatric inpatients who smoke.

## INTRODUCTION

Smoking rates among persons with a mental illness are 2–3 times higher than in the general population (Australian Institute of Health and Welfare, 2007). Smokers with mental illness are also more dependent on nicotine (Australian Institute of Health and Welfare, 2007), less likely to quit smoking (Diaz, Rendon, Velasquez, Susce, & de Leon, 2006; Hagman, Delnevo, Hrywna, & Williams, 2008), and more likely to suffer smoking-related illnesses and increased medical morbidity (Davidson, Judd, Jolley, Hocking, & Thompson, 2001; Jones et al., 2004) than other smokers. The highest rates of smoking and nicotine dependence have been found among mental health inpatients (Lineberry, Allen, Nash, & Galardy, 2009) with smoking

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prevalence reported to be as high as 42%–78% (Carosella, Ossip-Klein, & Owens, 1999; Lineberry et al., 2009; Prochaska, Gill, & Hall, 2004; Soltz, Crockford, White, & Currie, 2009). Despite this burden of illness, little else is known about the smoking characteristics of this vulnerable subgroup of smokers, including their quitting motivations and behaviors.

Although the advent of smoke-free policies and smoking bans in health care facilities in developed Western nations may have increased the attention toward tobacco use in general health care settings (Freund et al., 2008; McNally et al., 2006; Ratschen, Britton, & McNeill, 2008), there seems to have been a slower adoption of change in mental health care settings and lower levels of attention toward addressing tobacco use for mental health patients (Prochaska, Gill, et al., 2004;

Ratschen, Britton, Doody, Leonardi-Bee, & McNeill, 2009; Wye et al., 2010). This is evidenced by smoke-free policy exemptions (Ratschen et al., 2008) and low levels of policy compliance and nicotine-dependence treatment in mental health hospitals (Prochaska, Gill, et al., 2004; Wye et al., 2009, 2010). Australian and international data suggest that a perception commonly held by mental health staff that mental health patients are not motivated or willing to quit (Lawn, 2004; Price, Ambrosetti, Sidani, & Price, 2007; Wye et al., 2009) may contribute to the poor provision of nicotine-dependence treatment in both inpatient and community psychiatric settings (Ashton, Lawn, & Hosking, 2010; Association of American Medical Colleges, 2007; Wye et al., 2009).

“Motivation to quit” is an important construct in the smoking cessation process (Coleman, 2010); although the literature reflects some lack of consensus on how such “motivation” is defined and measured (Borland et al., 2010; West, 2005). In the general population, “high” motivation levels as measured by self-reported determination to quit have been associated with seeking out and using evidence-based cessation support (Challenger, Coleman, & Lewis, 2007). Further, a range of motivational factors including explicit self-reported “wanting to quit,” financial and health concerns and expectancies, and attitudes to smoking, have been found to predict making a quit attempt, among general population smokers (Borland et al., 2010).

In contrast to the views commonly reported by mental health clinicians (Price et al., 2007; Wye et al., 2009), the limited research that has investigated the “motivation to quit” among smokers with a mental illness suggests that substantial proportions of such smokers do want to quit (Moeller-Saxone, 2008; Siru, Hulse, & Tait, 2009). Utilizing the Transtheoretical Model (TTM) of behavior change (Prochaska & DiClemente, 1983), the prevalence of future “readiness to quit” among community samples of persons with schizophrenia and related psychotic disorders (Addington, el-Guebaly, Addington, & Hodgins, 1997; Baker et al., 2007; Etter, Mohr, Qarin, & Etter, 2004; Tidey & Rohsenow, 2009), and those with depression (Acton, Prochaska, Kaplan, Small, & Hall, 2001; Prochaska, Rossi, et al., 2004; Tsoh & Hall, 2004), has ranged between 21% and 49%; similar to that indicated for general population smokers (26%–41%) (Etter et al., 2004; Tidey & Rohsenow, 2009). Research has also found between 19% and 38% of smokers with a mental illness to be contemplating quitting within the next month (Keizer, Descloux, & Eytan, 2009; Price et al., 2007; Siru, Hulse, Khan, & Tait, 2010; Solty et al., 2009). Further, research has demonstrated that such motivation can be translated into successful quitting; with quit rates of up to 22% being achieved among such persons when combined psychosocial and pharmacological interventions are utilized (Banham & Gilbody, 2010).

Studies such as those cited above, however, investigating interest in quitting among persons with a mental illness, have for the most part been restricted to considering specific diagnostic subgroups in community settings, particularly patients with schizophrenia and depression (Acton et al., 2001; Addington et al., 1997; Baker et al., 2007; Etter et al., 2004; Prochaska, Rossi, et al., 2004; Tidey & Rohsenow, 2009). A broader understanding of quit intentions among persons with a mental illness is required, and may be particularly important for inpatient clinical staff, given their role in implementing systematic provision of nicotine-dependence treatment for diagnostically heterogeneous patient populations. The few

studies that have examined motivation to quit among mental health inpatient samples (Carosella et al., 1999; Siru et al., 2010; Solty et al., 2009) have been somewhat limited in their assessment—using a variety of stage of change measures, with comparisons between the studies being difficult. To the authors’ knowledge, no studies have examined the predictors of readiness to quit or quit attempts among mental health inpatients. However, among psychiatric outpatients, who may in essence be the same patient population though in a different stage of wellness and treatment, research has suggested a positive linear relationship between the number of previous quit attempts and levels of intrinsic motivation and stage of change for quitting among those with schizophrenia (Addington et al., 1997; Baker et al., 2007). Further, a greater endorsement of the “cons” of smoking has been associated with contemplating quitting, and a greater desire for abstinence among outpatients with depression (Prochaska, Rossi, et al., 2004).

Understanding the patient interest in quitting, quitting behaviors, reasons for quitting, and associated factors may assist the clinical staff in addressing tobacco use in inpatient settings, and aid the development and delivery of more effective nicotine-dependence treatment for persons with a mental illness. Given the limitations of previous research, and particularly the paucity of research undertaken within inpatient psychiatric settings, a study was undertaken to (a) examine the readiness to quit, quitting behaviors, and reasons for quitting among a diagnostically heterogeneous sample of smoking patients in a large public inpatient psychiatric hospital in New South Wales, Australia, and (b) explore whether a range of sociodemographic, clinical, and smoking-related factors predict readiness to quit and a quit attempt in the last 12 months.

## METHODS

### Design and Setting

A cross-sectional survey was administered to inpatients at a large public acute adult inpatient psychiatric hospital with a total smoke-free policy in New South Wales, Australia. The smoke-free policy included a total smoking ban in all hospital buildings and grounds. Voluntary patients or those able to access leave were able to leave the hospital grounds to smoke. Area health guidelines required the staff to provide nicotine-dependence treatment (including nicotine replacement therapy) to all smokers (New South Wales Department of Health, 2002); however, previous research in this setting has suggested such treatment to be inconsistent (Wye et al., 2010). The hospital had six psychiatric units, of which three were sampled for this study: one comorbid acute mental health and substance use unit, and two acute mental health units. Three units were excluded: two psychiatric emergency care units and one geriatric unit. Ethics approval for the study was obtained from the Hunter New England Human Research Ethics Committee (reference no: 08/04/16/5.10) and the University of Newcastle Human Research Ethics Committee (reference no: H-2008-0191).

### Procedure

The survey was undertaken across a 12-month period (May 2009–May 2010) at a rate determined by the availability of interview staff—who undertook interviews on average 1 day

per week. All inpatients present on the day when the interview was being conducted in that unit were eligible to participate in the study if the clinical opinion of the nursing staff indicated they were well enough to do so. Trained interviewers systematically approached such patients by utilizing a ward list, and asked them to participate in a survey about their smoking status and views of the hospital's smoke-free policy. The surveys were conducted in a quiet area of the unit separated from other patients and took up to 20 min to complete. Smokers were defined as those participants who self-reported being regular or occasional smokers on admission to hospital. The aim was to continue recruitment until a total of 100 smokers had been surveyed across the 3 units, drawing approximately one-third of this number from each.

### Measures

The survey included items regarding tobacco use, as measured by cigarettes per day, quit attempts (lifetime and in the last 12 months), and nicotine dependence (Fagerström Test for Nicotine Dependence [FTND]) (Heatherton, Kozlowski, Frecker, & Fagerström, 1991); readiness to quit as measured by a modified version of Prochaska and DiClemente's TTM (Prochaska & DiClemente, 1983) the Readiness and Motivation to Quit Smoking Questionnaire (RMQ) (Crittenden, Manfredi, Lacey, Warnecke, & Parsons, 1994), self-report desire to quit (1–10 scale) (Curry, Grothaus, & McBride, 1997), and the Reasons for Quitting Scale (RFQ) (Curry, Wagner, & Grothaus, 1990). The survey tool also included several items developed by researchers specifically for this project, including a perceived level of addiction to cigarettes scale (1 = "not at all strong" to 10 = "extremely"), and several "smoking-identity" items based on the PRIME theory of addiction (West, 2006), including the perceived identity as a smoker, the enjoyment of smoking, and the ability to imagine life as a nonsmoker.

For all patients admitted to the three study units throughout the course of the survey, aggregated data were available regarding sociodemographic and clinical characteristics including age, gender, marital status, mental health diagnosis, cultural identification, and admission length from medical record information. For survey participants, this information was linked with survey responses and used in analyses investigating predictors of readiness to quit and quitting behavior.

### Analyses

IBM SPSS Statistics release version 19.0.0 (IBM, 2011) was used to analyze the data. Descriptive statistics were used to describe the sample with respect to demographic characteristics, smoking status, nicotine dependence (FTND), readiness to quit, reasons for quitting, and previous quit attempts. Percentages, means, standard errors, and ranges are reported where appropriate. Chi-square analyses were used to explore the sociodemographic and clinical differences between respondents and nonrespondents, and to examine associations between sociodemographic characteristics, smoking-related variables, the readiness to quit, and quit attempts among the surveyed participants.

Categorical variables associated at  $p < .10$  were entered into multinomial backwards likelihood ratio (LR) logistic regressions to determine predictors of readiness to quit and quit attempts in the last 12 months. To facilitate the conduct

of chi-square and subsequent multinomial logistic regression analyses, the following demographic, smoking, and motivational variables were condensed into two categories: marital status, cultural identification, diagnosis, previous admission, nicotine dependence, enjoy being a smoker, imagine life as a nonsmoker, and the stage of change for quitting. The remaining variables were reduced to three categories: age, admission length, and smoking duration; self-reported level of addiction; and the self-reported desire to quit.

## RESULTS

### Participants

A total of 757 patients were admitted to the three study units during the survey period, of whom 214 (28.3%) were approached for participation and 543 were not. The majority of those not approached ( $n = 494$ , 91.0%) were not present in a unit and/or eligible for inclusion on any day when the interviewing occurred, including nearly a quarter of whom had short admissions of 3 days or less ( $n = 109$ ). A small percentage of patients were excluded on the basis of being mentally or physically unable to complete the interview ( $n = 46$ , 16.1%) or being less than 18 years of age ( $n = 3$ , 0.4%). Of those patients who were approached, 199 (93.0%) consented to participate, with full interviews able to be completed for 181 patients.

Survey participants were mostly males (56.9%), aged 31 years or older (70.7%;  $M = 37.2$ ,  $SE = 1.2$ ), single (55.8%), and not of Aboriginal or Torres Strait Islander descent (96.1%). The most common diagnoses were mood disorders (42.0%) and schizophrenia and related psychosis (38.1%). The majority of participants had previously been admitted to the facility (53.6%), with 40.9% admitted for between 8 and 31 days, with an average length of stay of 30.9 days ( $SE = 5.9$ ). Chi-square analyses indicated no differences in sociodemographic or clinical characteristics between respondents and nonrespondents (i.e., those who were not approached or who declined participation).

### Smoking Status and Smoking-Related Characteristics

Just over one-half of survey participants identified themselves to be smokers, 53.6% ( $n = 97$ ). In accordance with the study's sampling frame, approximately one-third of the smokers were drawn from each of the three study units ( $n = 35$ , 32, and 30). Smoking rates however differed significantly by unit, with a higher reported rate of smoking in the comorbid acute mental health and substance use unit (83.3%; 35/42 survey participants) than the two acute mental health units where the smoking rates were 44.4% (32/72) and 44.8% (30/67) ( $\chi^2(4) = 15.7$ ,  $p = .002$ ). The quit ratio (calculated as the proportion of ex-smokers to ever smokers [Pierce, Aldrich, Hanratty, Dwyer, & Hill, 1987]) for the sample was 26.0%. Chi-square analyses revealed a significantly lower quit ratio for participants of the comorbid acute mental health and substance use unit (12.5%), than the two acute mental health units (28.9% and 34.8%;  $\chi^2(2) = 6.6$ ,  $p = .04$ ).

Participants began smoking regularly at a mean age of 16.8 years ( $SE = 0.5$ ), had smoked for an average 20.4 years ( $SE = 1.3$ ), and 40.6% smoked 11–20 cigarettes per day. The majority (54.6%) were classified as nicotine dependent (FTND  $\geq 6$ )

**Table 1. Smoking-Related Characteristics of Smokers**

Smoking characteristics	Total % (No.)
Smoking onset, years <i>M</i> = 16.75; <i>SE</i> = 0.47; Range = 8–32	
Duration of smoking, years <i>M</i> = 20.42; <i>SE</i> = 1.31; Range = 0–59	
≤6	13.4 (13)
7–15	27.8 (27)
≥15	58.8 (57)
Cigarettes per day	
<10	11.5 (11)
11–20	40.6 (39)
21–30	27.1 (26)
≥31	20.8 (20)
Nicotine dependence <i>M</i> = 5.84; <i>SE</i> = 0.22; Range = 0–10	
Nicotine dependent (FTND ≥6)	54.6 (53)
Self-reported level of addiction (1–10) <i>M</i> = 7.75; <i>SE</i> = 0.25; Range = 1–10	
1–3	4.2 (4)
4–7	33.7 (32)
8–10	62.1 (59)
Find smoking enjoyable	
Yes	89.6 (86)
No	10.4 (10)
Enjoy being a smoker	
Yes	70.1 (68)
No	29.9 (29)
Imagine life as a nonsmoker	
Quite hard—very hard	49.5 (47)
Unsure	9.5 (9)
Quite easy—very easy	41.1 (39)

Note. Fagerström Test for Nicotine Dependence. *M* = mean; *SE* = standard error.

(Fagerström et al., 1996). The single item level of addiction scale (1–10) indicated the majority of smokers (62.1%) and reported addiction levels ranging from 8 to 10. Almost 30% of the participants indicated that they did not “enjoy being a smoker,” and when asked to imagine life as a nonsmoker, 50% of the participants reported it to be hard (Table 1). Aside from smoking rate and quit ratio, no other differences in smoking-related characteristics were identified between units or diagnostic groupings.

### Readiness to Quit

Readiness-to-quit characteristics of the sample are described in Table 2.

### Factors Associated With a Readiness to Quit (Contemplation, Preparation for Action)

Chi-square analyses indicated that three variables were associated with having advanced beyond a “precontemplative” stage of change, at  $p < .10$ : ability to imagine life as a nonsmoker, responding “No” to “Do you enjoy being a smoker?”, and having made a quit attempt in the last 12 months. The final regression model revealed that two of the three variables entered into

**Table 2. Readiness to Quit**

Readiness to quit	Total % (No.)
Self-reported desire to quit (1–10) <i>M</i> = 4.4; <i>SE</i> = 0.31; Range = 1–10	
1–3	43.2 (41)
4–7	37.9 (36)
8–10	18.9 (18)
Stage of change (RMQ)	
Precontemplation 1: not seriously thinking of quitting smoking, not planning to quit, and not seriously thinking of cutting down	15.5 (15)
Precontemplation 2: not seriously thinking of quitting smoking, not planning to quit, but seriously thinking of cutting down	15.5 (15)
Precontemplation 3: seriously thinking of quitting smoking or planning to quit but not within the next 6 months	40.2 (39)
Contemplation: seriously thinking of quitting smoking but not planning to quit within 6 months, but either (a) not planning to quit within 1 month or (b) has not intentionally quit for at least 24 hours within the past year	14.4 (14)
Preparation for action: seriously thinking of quitting smoking and planning to quit smoking within 1 month, and having intentionally quit for at least 24 hr within the past year	14.4 (14)

Note. RMQ = Readiness and Motivation to Quit Smoking Questionnaire. *M* = mean; *SE* = standard error.

the model independently predicted falling into the contemplative stages of change (contemplation or preparation for action): Having made a quit attempt within the previous 12 months ( $OR = 4.6$ ,  $df = 1$ ,  $p = .02$ ), and responding “No” to “Do you enjoy being a smoker?” ( $OR = 7.2$ ,  $df = 1$ ,  $p = .01$ ), Table 3.

### Previous Quit Attempts

Characteristics of previous quit attempts are detailed in Table 4. Nearly half (46.9%) of the smokers had made at least one quit attempt in the last 12 months.

### Factors Associated With Making a Quit Attempt in the Last 12 Months

Chi-square analyses indicated that three variables were associated with making a quit attempt in the last 12 months at  $p < .10$ : responding “No” to “Do you enjoy being a smoker?”, the stage of change for quitting, and the self-reported desire to quit. The final model revealed that only one of the three variables—a self-reported desire to quit between 8 and 10—significantly predicted making a quit attempt within the previous 12 months ( $OR = 11.9$ ,  $df = 1$ ,  $p = .03$ ), compared to those self-reporting a desire of 1–3, Table 3.

### Reasons for Quitting

Smokers scored a total score of 2.7 ( $SE = 0.1$ ) on the RFQ scale (Curry et al., 1990), with an intrinsic–extrinsic score of 0.4 ( $SE = 0.1$ ). Scores were highest for intrinsic health concerns ( $M = 3.1$ ,  $SE = 0.1$ ), followed by immediate reinforcement

## Readiness to quit and quit attempts among Australian mental health inpatients

**Table 3.** Logistic Regression Results for Patient Characteristics Associated With Readiness to Quit (Contemplation [C], Preparation for Action [PA]) and Making a Recent Quit Attempt in the Final Regression Model

Variable	Coefficient	SE	df	p-Value	OR	95% CI
Factors associated with readiness to quit (C, PA)						
Recent (within 12 months) quit attempt	1.53	.65	1	.018	4.61	1.30–16.41
Do not enjoy being a smoker	2.00	.70	1	.005	7.18	1.84–28.10
Factors associated with recent quit attempts						
Self-reported desire to quit (8–10)	2.45	1.2	1	.033	11.93	1.22–116.77

Note. CI = confidence interval; df = degrees of freedom; OR = odds ratio; SE = standard error.

**Table 4.** Previous Quit Attempts

Previous quit attempts	Total % (No.)
Made quit attempt ever	
Once	15.5 (15)
2–3 times	30.9 (30)
More than 3 times	35.1 (34)
Never tried to quit	18.6 (18)
Quit attempts in last 12 months	
Once	28.1 (27)
2–3 times	14.6 (14)
More than 3 times	4.2 (4)
No quit attempt in last 12 months	53.2 (51)
Length of abstinence on last quit attempt	
1 day or less	22.8 (18/79)
2–7 days	21.5 (17/79)
More than a week, less than a month	17.7 (14/79)
More than a month	38.0 (30/79)
Length of last quit attempt more than a month (months)	
$M = 16.32$ ; $SE = 5.5$ ; Range = 2–156	
Less than 6 months	40.0 (12/30)
6–24 months	50.0 (15/30)
More than 24 months	10.0 (3/30)

( $M = 2.8$ ,  $SE = 0.1$ ), self-control ( $M = 2.7$ ,  $SE = 0.1$ ), and social influence factors ( $M = 2.2$ ,  $SE = 0.1$ ).

## DISCUSSION

This study adds substantively to our knowledge of smoking and quitting behaviors and motivations among mental health inpatients. The results demonstrate that while a majority of smokers were classified at the time of the survey as “precontemplative” with respect to the readiness to quit, a desire to quit smoking was evident in that the great majority had made quit attempts in the past (82%) and 47% had done so within the last year. Consistent with previous studies, the quit ratio for the current sample was lower than general population rates (Généreux, Roy, Montpetit, Azzoud, & Grattond, 2012; Zhu, Wong, Tang, Shi, & Chen, 2007), and similar to previously reported quit ratios for persons with a mental illness (Lasser et al., 2000; Sung, Prochaska, Ong, Shi, & Max, 2011). Despite a low quit ratio, reflecting a low likelihood of quit attempts translating into successfully maintained smoking cessation, a large proportion of those making a quit attempt in the last 12 months indicated a period of abstinence of more than a month.

Importantly, there is a need to inform clinical staff about the significant proportion of their clients who are making attempts to quit smoking, and to emphasize that the evident low success rate of such attempts should only serve to further highlight the need for clinical staff to provide appropriate nicotine-dependence treatment in the inpatient setting and to facilitate postdischarge smoking cessation support. Further, while the rate of smoking was higher among patients in the comorbid mental health and substance use unit, as previously observed in this population (Ferron et al., 2011; Solty et al., 2009), no differences were evident by unit or diagnostic grouping, or other demographic or clinical descriptors considered, with respect to the readiness or the desire to quit, or the number of previous quit attempts. Given that previous research has indicated the mental health staff to provide nicotine-dependence treatment selectively based on their perceptions of patient receptivity to care, and the desire to quit (Wye et al., 2009), our findings reinforce the need to provide smoking cessation care routinely and systematically rather than selectively to a particular type of patient (Borrelli, Lee, & Novak, 2008; Freund et al., 2009). Additionally, the proportion of participants making a quit attempt in our sample was similar to the rates reported in psychiatric outpatient samples (Ferron et al., 2011). This finding is encouraging and suggests pervasive attempts to quit despite the presence of acute psychiatric symptoms. Clinicians should be made aware of their patients’ ongoing attempts to quit, particularly given the clinical opportunity provided by the inpatient stay; where patients may be in a restricted smoking environment for an extended period, with access to clinical and pharmacological support (American Psychiatric Association, 1996; New South Wales Department of Health, 2002).

In examining the factors associated with currently being in a contemplative (as opposed to precontemplative) stage of change, only two factors were identified as predictors: a quit attempt within the last 12 months and an indication of not enjoying being a smoker. In examining the factors associated with a quit attempt in the last 12 months, only a high self-reported desire to quit (8–10, on a 10-point scale) was identified as a predictor. These findings are consistent with research among psychiatric outpatient samples indicating that making a recent quit attempt (Addington et al., 1997; Baker et al., 2007) and endorsing negative aspects of smoking (Prochaska, Gill, et al., 2004) are associated with a greater desire to quit. Further, evidence from general population smokers suggests that motivational factors predict quit attempts (Borland et al., 2010), and the number of previous quit attempts is positively correlated with the intention to quit (Marques-Vidal et al., 2011). Together, these results suggest that actual quitting behavior

may be an important indicator of the “desire to quit” in the inpatient psychiatric setting.

The finding that not enjoying being a smoker predicted readiness to quit is supported by similar previous research indicating that patients who endorse the “cons” of smoking are more likely to be contemplating quitting, and show greater desire for abstinence (Prochaska, Rossi, et al., 2004). In a recent systematic review examining the predictors of quitting smoking in the general adult population, studies revealed that having a negative opinion of smoking was also predictive of making a quit attempt, and that greater enjoyment of smoking was negatively associated with making a quit attempt (Vangeli, Stapleton, Smit, Borland, & West, 2011). Our findings also suggest that participants were almost equally divided in their ability to imagine their life as a nonsmoker (hard vs. easy). While there has been limited research on the topic of smoking identity, some researchers suggest that developing a “nonsmoker” identity predicts the motivation to quit, and quit attempts (Moan & Rise, 2005; van den Putte, Yzer, Willemsen, & de Bruijn, 2009), and may prevent relapse after making a quit attempt (Segan, Borland, Hannan, & Stillman, 2008; Vangeli, Stapleton, & West, 2010; West, 2006). Relapse prevention may be a particularly pertinent intervention strategy for this population, given that a substantial proportion of smokers in our sample indicated a recent quit attempt of more than a month; however, the quit ratio of the total sample was low. Clinicians may routinely identify smokers who report high levels of enjoyment from smoking, and place an emphasis on the negative attributes of smoking (e.g., health, cost, smell, social stigma), and assist in the development of a nonsmoker identity (e.g., removing smoking paraphernalia from home and car, saying “I am a nonsmoker” to proffered cigarettes, etc.). Future research into “smoker identity” and its use as a practice approach in clinical settings may potentially improve cessation rates among this group (Vangeli et al., 2010).

Smokers reported slightly higher levels of intrinsic versus extrinsic motivation on the RFQ (Curry et al., 1990); however, the little difference between intrinsic and extrinsic scores suggests that participants were equally influenced by both types of motivation. Overall, scores on the RFQ were similar to those in outpatient psychiatric samples (Baker et al., 2007; Marshall et al., 2009), and higher than those in the general population samples (Curry et al., 1997; Marshall et al., 2009). As previously found among smokers with a mental illness (Baker et al., 2007; Marshall et al., 2009), and in the general population (Curry et al., 1997; Marshall et al., 2009), participants cited health concerns as the most important reason for quitting; however, scores on immediate reinforcement were almost equally as high. Having intrinsic concerns about the effect of smoking on health has been found to be associated with more advanced readiness to quit (Curry et al., 1997) and has been shown to predict making a quit attempt among general population smokers (Vangeli et al., 2011). Interventions among this population could focus on enhancing intrinsic motivation types (such as self-control) and harnessing immediate reinforcement type motivations. Contingency management, for instance, has shown some promise in reducing smoking behaviors among smokers with schizophrenia and opioid-maintained patients (Dunn, Saulsgiver, & Sigmon, 2011; Tidey, Rohsenow, Kaplan, Swift, & Reid, 2011).

This study was conducted across four units located at one site, and as such the generalizability of the findings may be limited. However, given that similar smoke-free policies are now compulsory in many hospitals internationally (House of Commons Health Committee, 2005), these findings are likely to be of relevance in other inpatient psychiatric facilities. Further, the possibility of bias, particularly the influence of social desirability through the use of self-report data in this study, cannot be discounted. However, as the interviewers were independent of clinical care, and participants were not enrolled in a smoking cessation trial, the risk of such bias may have been reduced.

In conclusion, these results suggest that actual quitting behavior should be considered as an important indication of the “intent to quit.” The high proportion of respondents reporting a quit attempt, paired with the low quit ratio of this sample, suggest that targeted, comprehensive smoking cessation interventions are required. These findings will enable mental health staff to be better informed and hence assist in removing barriers to the provision of nicotine-dependence care for this significant population of smokers, and facilitate the provision of nicotine-dependence treatment. Integrated, combined, and evidence-based psychosocial and pharmacological interventions are required within mental health and addiction treatment settings to improve quit success.

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## DECLARATION OF INTERESTS

None declared.

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## REFERENCES

- Acton, G. S., Prochaska, J. J., Kaplan, A. S., Small, T., & Hall, S. M. (2001). Depression and stages of change for smoking in psychiatric outpatients. *Addictive Behaviors*, 26(5), 621–631. doi:10.1016/S0306-4603(01)00178-2
- Addington, J., el-Guebaly, N., Addington, D., & Hodgins, D. (1997). Readiness to stop smoking in schizophrenia. *Canadian Journal of Psychiatry*, 42(1), 49–52.
- American Psychiatric Association. (1996). Practice guideline for the treatment of patients with nicotine dependence. *American Journal of Psychiatry*, 153(Suppl. 10), 1–31.
- Ashton, M., Lawn, S., & Hosking, J. (2010). Mental health workers' views on addressing tobacco use. *Australian and New Zealand Journal of Psychiatry* 44(9), 846–851. doi:10.3109/00048674.2010.488637

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- Association of American Medical Colleges. (2007). *Physician behavior and practice patterns related to smoking cessation: Summary report*. Washington, DC: Association of American Medical Colleges.
- Australian Institute of Health and Welfare. (2007). *National drug strategy household survey: detailed findings*. Canberra, Australia: AIHW. Retrieved from [www.aihw.gov.au](http://www.aihw.gov.au)
- Baker, A., Richmond, R., Haile, M., Lewin, T. J., Carr, V. J., Taylor, R. L., et al. (2007). Characteristics of smokers with a psychotic disorder and implications for smoking interventions. *Psychiatry Research*, 150(2), 141–152. doi:10.1016/j.psychres.2006.05.021
- Banham, L., & Gilbody, S. (2010). Smoking cessation in severe mental illness: What works? *Addiction*, 105(7), 1176–1189. doi:10.1111/j.1360-0443.2010.02946.x
- Borland, R., Yong, H.-H., Balmford, J., Cooper, J., Cummings, K. M., O'Connor, R. J., et al. (2010). Motivational factors predict quit attempts but not maintenance of smoking cessation: Findings from the International Tobacco Control Four country project. *Nicotine & Tobacco Research*, 12(1), 4–11. doi:10.1093/ntr/ntq050
- Borrelli, B., Lee, C., & Novak, S. (2008). Is provider training effective? Changes in attitudes towards smoking cessation counseling and counseling behaviors of home health care nurses. *Preventive Medicine*, 46(4), 358–363. doi:10.1016/j.ypmed.2007.09.001
- Carosella, A. M., Ossip-Klein, D. J., & Owens, C. A. (1999). Smoking attitudes, beliefs, and readiness to change among acute and long term care inpatients with psychiatric disorders. *Addictive Behaviors*, 21(3), 331–344. doi:10.1016/S0306-4603(98)00096-3
- Challenger, A., Coleman, T., & Lewis, S. (2007). Predicting default from smoking cessation treatment following enrolment. *Health Education Journal*, 66(1), 32–43. doi:10.1177/0017896907069379
- Coleman, T. (2010). Motivation, physical activity and smoking cessation. *Patient Education and Counseling*, 79(2), 141–142. doi:10.1016/j.pec.2010.03.007
- Crittenden, K. S., Manfredi, C., Lacey, L., Warnecke, R., & Parsons, J. (1994). Measuring readiness and motivation to quit smoking among women in public health clinics. *Addictive Behaviors*, 19(5), 497–507. doi:10.1016/0306-4603(94)90005-1
- Curry, S. J., Grothaus, L. C., & McBride, C. (1997). Reasons for quitting: Intrinsic and extrinsic motivation for smoking cessation in a population-based sample of smokers. *Addictive Behaviors*, 22(6), 727–739. doi:10.1016/S0306-4603(97)00059-2
- Curry, S. J., Wagner, E. H., & Grothaus, L. C. (1990). Intrinsic and extrinsic motivation for smoking cessation. *Journal of Consulting and Clinical Psychology*, 58(3), 310. doi:10.1037//0022-006X.58.3.310
- Davidson, S., Judd, F., Jolley, D., Hocking, B., & Thompson, S. (2001). The general health status of people with mental illness. *Australasian Psychiatry*, 8(1), 31–35. doi:10.1046/j.1440-1665.2000.00234.x
- Diaz, F., Rendon, D., Velasquez, D., Susce, M., & de Leon, J. (2006). Datapoints: Smoking and smoking cessation among persons with severe mental illnesses. *Psychiatric Services*, 57(4), 462. doi:10.1176/appi.ps.57.4.462
- Dunn, K. E., Saulsgiver, K. A., & Sigmon, S. C. (2011). Contingency management for behavior change: Applications to promote brief smoking cessation among opioid-maintained patients. *Experimental and Clinical Pharmacology*, 19(1), 20–30. doi:10.1037/a0022039
- Etter, M., Mohr, S., Qarin, C., & Etter, J. F. (2004). Stages of change in smokers with schizophrenia or schizoaffective disorder and in the general population. *Schizophrenia Bulletin*, 30(2), 459–468. doi:10.1093/oxfordjournals.schbul.a007092
- Fagerström, K. O., Kunze, M., Schoberberger, R., Breslau, N., Hughes, J. R., Hurt, R. D., et al. (1996). Nicotine dependence versus smoking prevalence: Comparisons among countries and categories of smokers. *Tobacco Control*, 5(1), 52–56. doi:10.1136/tc.5.1.52
- Ferron, J. C., Brunette, M. F., He, X., Xie, H., McHugo, G. J., & Drake, R. E. (2011). Course of smoking and quit attempts among clients with co-occurring severe mental illness and substance use disorders. *Psychiatric Services*, 62(4), 353–359.
- Freund, M., Campbell, E., Paul, C., McElduff, P., Walsh, R., Sakrouge, R., et al. (2008). Smoking care provision in hospitals: A review of prevalence. *Nicotine & Tobacco Research*, 10(5), 757. doi:10.1080/14622200802027131
- Freund, M., Campbell, E., Paul, C., Sakrouge, R., Lecathelinais, C., Knight, J., et al. (2009). Increasing hospital-wide delivery of smoking cessation care for nicotine-dependent in-patients: A multi-strategic intervention trial. *Addiction*, 104, 839–849. doi:10.1111/j.1360-0443.2009.02520.x
- Généreux, M., Roy, M., Montpetit, C., Azzoud, S. A. K., & Grattond, J. (2012). Regional surveillance of social and geographic inequalities in smoking: The case of Montréal, Canada. *Health & Place*, 18(2), 240–249. doi:10.1016/j.healthplace.2011.09.013
- Hagman, B., Delnevo, C., Hrywna, M., & Williams, J. (2008). Tobacco use among those with serious psychological distress: Results from the national survey of drug use and health. *Addictive Behaviors*, 33(4), 582–592. doi:10.1016/j.addbeh.2007.11.007
- Heatheron, T., Kozlowski, L., Frecker, R., & Fagerström, K. (1991). The Fagerström test for nicotine dependence: A revision of the Fagerström tolerance questionnaire. *British Journal of Addiction*, 86(9), 1119–1127. doi:10.1111/j.1360-0443.1991.tb01879.x
- House of Commons Health Committee. (2005). *Smoking in public places: First report of session 2005–2006*. London, UK: Stationery Office Limited.
- IBM. (2011). *SPSS statistics, (Version 19.0.0)*. Chicago, IL: SPSS Inc.
- Jones, D. R., Macias, C., Barreira, P. J., Fisher, W. H., Hargreaves, W. A., & Harding, C. M. (2004). Prevalence, severity, and co-occurrence of chronic physical health problems of persons with serious mental illness. *Psychiatric Services*, 55(11), 1250–1257. doi:10.1176/appi.ps.55.11.1250
- Keizer, I., Descloux, V., & Eytan, A. (2009). Variations in smoking after admission to psychiatric inpatient units and impact of a partial smoking ban on smoking and on smoking-related perceptions. *International Journal of Social Psychiatry*, 55(2), 109–125. doi:10.1177/0020764008092357
- Lasser, K., Boyd, J. W., Woolhandler, S., Himmelstein, D. U., McCormick, D., & Bor, D. H. (2000). Smoking and mental illness: A population based prevalence study. *Journal of the American Medical Association*, 284(20), 2606–2610. doi:10.1001/jama.284.20.2606
- Lawn, S. J. (2004). Systemic barriers to quitting smoking among institutionalised public mental health service populations: A comparison of two Australian sites. *International Journal of Social Psychiatry*, 50(3), 204–215. doi:10.1177/0020764004043129
- Lineberry, T. W., Allen, J. D., Nash, J., & Galardy, C. W. (2009). Population-based prevalence of smoking in psychiatric inpatients: A focus on acute suicide risk and major diagnostic groups. *Comprehensive Psychiatry*, 50(6), 526–532. doi:10.1016/j.comppsy.2009.01.004

- Marques-Vidal, P., Melich-Cerveira, J., Paccaud, F., Waeber, G., Vollenweider, P., & Cornuz, J. (2011). Prevalence and factors associated with difficulty and intention to quit smoking in Switzerland. *BMC Public Health*, *11*(1), 277. doi:10.1186/1471-2458-11-227
- Marshall, E. C., Vujanovic, A. A., Kutz, A., Gibson, L., Leyro, T., & Zvolensky, M. J. (2009). Reasons for quitting smoking prior to a self-quit attempt among smokers with and without posttraumatic stress disorder or other anxiety/mood psychopathology. *American Journal on Addictions*, *18*(4), 309–315. doi:10.1080/10550490902925763
- McNally, L., Oyefeso, A., Annan, J., Perryman, K., Bloor, R., Freeman, S., . . . Ghodse, A. H. (2006). A survey of staff attitudes to smoking-related policy and intervention in psychiatric and general health care settings. *Journal of Public Health*, *28*(3), 192–196. doi:10.1093/pubmed/fdl029
- Moan, I. S., & Rise, J. (2005). Quitting smoking: Applying an extended version of the theory of planned behavior to predict intention and behavior. *Journal of Applied Biobehavioral Research*, *10*(1), 39–68. doi:10.1111/j.1751-9861.2005.tb00003.x
- Moeller-Saxone, K. (2008). Cigarette smoking and interest in quitting among consumers at a psychiatric disability rehabilitation and support service in Victoria. *Australian and New Zealand Journal of Public Health* *32*(5), 479–481. doi:10.1111/j.1753-6405.2008.00283.x
- New South Wales Department of Health. (2002). *Guide for the management of nicotine dependent inpatients*. Sydney, Australia: State Government of New South Wales.
- Pierce, J., Aldrich, R., Hanratty, S., Dwyer, T., & Hill, D. (1987). Uptake and quitting smoking trends in Australia 1974–1984. *Preventive Medicine*, *16*(2), 252–260. doi:10.1016/0091-7435(87)90088-0
- Price, J. H., Ambrosetti, L. M., Sidani, J. E., & Price, J. A. (2007). Psychiatrists smoking cessation activities with Ohio community mental health center patients. *Community Mental Health Journal*, *43*(3), 251–266. doi:10.1007/s10597-006-9074-3
- Prochaska, J. J., Gill, P., & Hall, S. M. (2004). Treatment of tobacco use in an inpatient psychiatric setting. *Psychiatric Services*, *55*(11), 1265–1270. doi:10.1176/appi.ps.55.11.1265
- Prochaska, J. J., Rossi, J. S., Redding, C. A., Rosen, A. B., Tsoh, J. Y., Humfleet, G. L., . . . Hall, S. M. (2004). Depressed smokers and stage of change: Implications for treatment interventions. *Drug and Alcohol Dependence*, *76*(2), 143–151. doi:10.1016/j.drugalcdep.2004.04.017
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, *51*(3), 390–395. doi:10.1037/0022-006X.51.3.390
- Ratschen, E., Britton, J., Doody, G. A., Leonardi-Bee, J., & McNeill, A. (2009). Tobacco dependence, treatment and smoke-free policies: A survey of mental health professionals' knowledge and attitudes. *General Hospital Psychiatry*, *31*(6), 576–582. doi:10.1016/j.genhosppsych.2009.08.003
- Ratschen, E., Britton, J., & McNeill, A. (2008). Smoke-free hospitals - the English experience: Results from a survey, interviews and site visits. *BMC Health Services Research*, *8*(1), 41. doi:10.1186/1472-6963-8-41
- Segan, C. J., Borland, R., Hannan, A., & Stillman, S. (2008). The challenge of embracing a smoke-free lifestyle: A neglected area in smoking cessation programs. *Health Education Research*, *23*(1), 1–9. doi:10.1093/her/cyl157
- Siru, R., Hulse, G. K., Khan, R. J. K., & Tait, R. J. (2010). Motivation to quit smoking among hospitalised individuals with and without mental health disorders. *Australian and New Zealand Journal of Psychiatry*, *44*(7), 640–647. doi:10.3109/00048671003627413
- Siru, R., Hulse, G. K., & Tait, R. J. (2009). Assessing motivation to quit smoking in people with mental illness: A review. *Addiction*, *104*(5), 719–733. doi:10.1111/j.1360-0443.2009.02545.x
- Soltz, H., Crockford, D., White, W. D., & Currie, S. (2009). Cigarette smoking, nicotine dependence, and motivation for smoking cessation in psychiatric inpatients. *Canadian Journal of Psychiatry*, *54*(1), 36–45.
- Sung, H.-Y., Prochaska, J. J., Ong, M. K., Shi, Y., & Max, W. (2011). Cigarette smoking and serious psychological distress: A population-based study of California adults. *Nicotine & Tobacco Research*, *13*(12), 1183–1192. doi:10.1093/ntr/ntr148
- Tidey, J. W., & Rohsenow, D. J. (2009). Smoking expectancies and intention to quit in smokers with schizophrenia, schizoaffective disorder and non-psychiatric controls. *Schizophrenia Research*, *115*(2–3), 310–316. doi:10.1016/j.schres.2009.09.032
- Tidey, J. W., Rohsenow, D. J., Kaplan, G. B., Swift, R. M., & Reid, N. (2011). Effects of contingency management and bupropion on cigarette smoking in smokers with schizophrenia. *Psychopharmacology*, *217*(2), 279–287. doi:10.1007/s00213-011-2282-8
- Tsoh, J. Y., & Hall, S. M. (2004). Depression and smoking: From the transtheoretical model of change perspective. *Addictive Behaviors*, *29*(4), 801–805. doi:10.1016/j.addbeh.2004.02.011
- van den Putte, B., Yzer, M., Willemsen, M. C., & de Bruijn, G. J. (2009). The effects of smoking self-identity and quitting self-identity on attempts to quit smoking. *Health Psychology*, *28*(5), 535–544. doi:10.1037/a0015199
- Vangeli, E., Stapleton, J., Smit, E. S., Borland, R., & West, R. (2011). Predictors of attempts to stop smoking and their success in adult general population samples: A systematic review. *Addiction*, *106*(12), 2110–2121. doi:10.1111/j.1360-0443.2011.03565.x
- Vangeli, E., Stapleton, J., & West, R. (2010). Residual attraction to smoking and smoker identity following smoking cessation. *Nicotine & Tobacco Research*, *12*(8), 865–869. doi:10.1093/ntr/ntq104
- West, R. (2005). Time for a change: Putting the transtheoretical (stages of change) model to rest. *Addiction*, *100*(8), 1036–1039. doi:10.1111/j.1360-0443.2005.01139.x
- West, R. (2006). *Theory of addiction*. Oxford, UK: Blackwell.
- Wye, P., Bowman, J., Wiggers, J., Baker, A., Carr, V., Terry, M., . . . Clancy, R. (2009). Providing nicotine dependence treatment to psychiatric inpatients: the views of Australian nurse managers. *Journal of Psychiatric and Mental Health Nursing*, *17*(4), 319–327. doi:10.1111/j.1365-2850.2009.01524.x
- Wye, P., Bowman, J., Wiggers, J., Baker, A., Carr, V., Terry, M., . . . Clancy, R. (2010). An audit of the prevalence of recorded nicotine dependence treatment in an Australian psychiatric hospital. *Australian and New Zealand Journal of Public Health*, *34*(3), 298–303. doi:10.1111/j.1753-6405.2010.00530.x
- Zhu, S.-H., Wong, S., Tang, H., Shi, C.-W., & Chen, M. S. (2007). High quit ratio among Asian immigrants in California: Implications for population tobacco cessation. *Nicotine & Tobacco Research*, *9*(3), 505–514. doi:10.1080/14622200701587037