A RANDOMISED CONTROLLED TRIAL LINKING MENTAL HEALTH INPATIENTS TO COMMUNITY SMOKING CESSATION SUPPORTS: PRELIMINARY FINDINGS AND DISCUSSION

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Abstract

Aim: The aim of this study was to examine the effectiveness of linking inpatient nicotine dependence treatment to ongoing community-based smoking cessation support for smokers with a mental illness.

Research Design: The study employed a single-site, randomised controlled trial design.

Context: The study was conducted at a large, regional adult acute inpatient mental health facility in the Hunter New England region of NSW.

Participants: Participants were 205 smokers who were patients of the inpatient mental health facility from May 2010 to May 2011.

Interventions: Participants were randomised to either routine hospital smoking care only (n=101) or a multimodal smoking cessation intervention (n=104), incorporating a brief motivational interview in the inpatient setting and options of ongoing smoking cessation support post discharge, nicotine replacement therapy; referral to Quitline; smoking cessation support groups and fortnightly telephone support.

Main Outcome Measure: Outcome data, including cigarettes smoked per day, quit attempts, and self-reported seven-day point prevalence abstinence, were collected via blind interview at one, eight, 16 and 24 weeks post discharge.

Results: While data analysis is still in the preliminary stages, results are encouraging, with trends suggesting that by 24 weeks post-discharge, participants in the intervention condition (relative to controls) are:

- smoking fewer cigarettes per day (M = 11. 5, vs. M = 18. 1);
- spending less on cigarettes per week (M = $45. 60 vs. M = $72. 50); and,
- more likely to have made a quit attempt (56. 3% vs. 22. 4%).

Conclusion: A multimodal smoking cessation intervention, linking mental health inpatients to community cessation supports may be effective in reducing smoking among this population.

Key words: community, inpatient smoking care, mental health

Introduction

The nursing profession is committed to improving and promoting the health of people. During an admission to the acute psychiatric inpatient setting, the focus of nursing interventions includes symptom stabilisation and care planning (Fourie, McDonald et al., 2005).

Persons with a serious mental illness, such as schizophrenia, have poorer physical health outcomes than those people without a serious mental illness (El-Mallakh, Howard et al., 2010) and consequently suffer an approximately 20% reduction in life expectancy compared to their non-mentally ill counterparts.

The greatest contributions to higher levels of physical morbidity and mortality among the seriously mentally ill population relate to behavioural risk factors for chronic disease, such as smoking, rather than suicide and metabolic disorders (Meltzer, Bobo et al., 2008). Indeed, compared to persons without a mental illness, persons with a mental illness smoke at higher rates (Lineberry, Allen et al. 2009); are more nicotine dependent (Australian Institute of Health and Welfare, 2007); less likely to quit (Diaz, Rendon et al., 2006); and are more likely to die from smoking-related diseases than the general population (Tosh, Clifton et al., 2011). This indicates that smoking among persons with a mental illness is a significant public health issue.

The hospital setting provides an environment where a range of disease prevention activities can be implemented, including the initiation of smoking cessation intervention (Rigotti, Manufo & Stead, 2007). The NSW Health Guidelines for the Physical Health Care of Mental Health Consumers (New South Wales Department of Health, 2009) list smoking as one of the highest priority preventative health activities to be considered by clinicians working with mental health consumers.

These guidelines cite the rights of mental health consumers to have access to quality health care including physical health care, health promotion activities and smoking cessation. Further, the recent introduction of the Smoke-Free Workplace Policy in NSW mental health facilities (New South Wales Department of Health, 2002) provides the opportunity for smokers to temporarily abstain from cigarettes in a supportive environment, and may facilitate sustained quit attempts upon discharge (Keizer, Descloux et al., 2009).

However, the little evidence available suggests that smoke-free policies have limited impact on long term smoking outcomes, partly due to the lack of coordination between inpatient and community services (Campion, Checinski et al., 2008) and many patients return to smoking post discharge (Prochaska, Fletcher et al., 2006). A recent systematic review shows that by better integrating inpatient nicotine dependence treatment with ongoing community-based cessation support, long term quit rates are improved in general population smokers (Rigotti, Munafo' et al., 2007).

For smokers with a mental illness, evidence has suggested that multimodal smoking cessation interventions, incorporating a range of psychosocial and pharmacological supports are most efficacious in reducing smoking behaviours (Banham & Gilbody, 2010). Extended use of nicotine replacement therapy (NRT) may be particularly effective, due to high dependence levels among this population, the low risks associated with extended NRT use (Goniewicz, Zymełka et al., 2006), and the associated benefits of relapse prevention (Horst, Klein et al., 2005).

Not only is it important to improve on the sub-optimal levels of nicotine dependence treatment in Australian mental health settings (Wye, Bowman et al., 2009), interventions are needed which link inpatient nicotine dependence treatment to ongoing smoking cessation support in the community setting post discharge, for smokers with a mental illness.

Aim

The aim of this study was to examine the effectiveness of linking inpatient nicotine dependence treatment to ongoing community-based smoking cessation support, for smokers living with a mental illness.

Method

Design and Setting

This study employed a single-site, randomised controlled trial design. It was conducted at a large public acute adult inpatient psychiatric hospital with a total smoke free policy in the Hunter New England Local Health District (HNELHD) of NSW. The smoke free policy included a total smoking ban in all hospital buildings and grounds. HNELHD guidelines required staff to provide nicotine dependence treatment (including NRT) to all smokers during admission and upon discharge from the facility (New South Wales Department of Health, 2002).

Participants

Participants were patients admitted to three acute units of the inpatient mental health facility from May 2010 to May 2011. Patients were eligible to participate if they self-reported being a current smoker on admission to the facility, were deemed psychologically and physically capable to complete the interview by treating medical staff, and had a means of post-discharge contact, including a current address and telephone number.

Eligible patients were offered participation in the project, provided with the information statement about the research, and written informed consent was obtained. All participant data collected from participants were kept confidential to the research staff, and kept in a locked cabinet in the project research office at the University of Newcastle. Individual participants were not identified in any results arising from this project. This project received ethics approval from the Hunter New England Human Research Ethics Committee, HREC reference no: 08/04/16/5.10 and University of Newcastle Human Research Ethics Committee reference no: H-2008-0191.

Data Collection and Measures

Baseline data were collected from all participants in the inpatient setting via face to face interviews as soon as possible after the patients' admission to the facility, and following symptom stabilisation. Follow-up data were collected at one, eight, 16 and 24 weeks post discharge, via Computer Assisted Telephone Interview (CATI).

Smoking behaviour was assessed by self-reported cigarettes per day, quit attempts (lifetime and in the last 12 months), and nicotine dependence (Fagerstrom Test for Nicotine Dependence: FTND) (Heatherton, Kozlowski et al., 1991). Readiness to quit was measured using the Readiness and Motivation to Quit Smoking Questionnaire (RMQ) (Crittenden, Manfredi et al., 1994).

Psychological distress was assessed using the Kessler Psychological Distress Scale (K10) (Kessler, Barker et al., 2003). Several items assessed provision of nicotine dependence treatment in the inpatient setting (including NRT, assessment of smoking status, and provision of quit advice). For participants in the intervention condition, details were also collected regarding uptake and use of intervention options.

Intervention

Participants were randomly allocated to one of two treatment conditions:

1) a control group, 'treatment as usual' condition; or,
2) an intervention condition group.

1. Control Condition

Participants allocated to the control condition group received usual hospital care only, comprising admission to an inpatient unit with a smoke free policy, provision of NRT throughout the inpatient stay, and up to one week's supply of NRT and a referral to Quitline on discharge. However, evidence from this setting has indicated provision of such care to be inconsistent (Wye, Bowman, Wiggers, Baker, Carr & Terry, 2010).

2. Intervention Condition

In addition to standard hospital care above, participants allocated to the intervention condition received a multimodal smoking cessation intervention. The intervention incorporated a brief motivational interview in the inpatient setting, and options of ongoing smoking cessation support post discharge, including: 12 weeks of free NRT; a proactive referral to Quitline; referral to community-based smoking cessation support groups; and fortnightly telephone support. Detail regarding participation in the study was added to participants' electronic discharge summary, for the information of health professionals providing post discharge treatment.

Analysis

The authors advise that these results are preliminary only and caution is advised in interpreting the outcomes reported. Descriptive statistics were used to describe participants' socio-demographic, clinical, and smoking characteristics, and the uptake and use of intervention options. Chi-square analyses were used to examine associations between categorical variables. Generalised linear mixed modelling was used to examine any differences between treatment conditions in daily cigarette consumption, the percentage of participants reporting a quit attempt, and the percentage reporting seven day point prevalence abstinence, at each of the follow-up points.

Results

a) Participant Characteristics

During the recruitment period 1,174 participants were admitted to the three units, of which 796 (67. 8%) were assessed for eligibility, 300 (37. 7%) of whom were eligible and 205 (68. 3%) consented, comprising the sample for this study. Of these, 101 were allocated to control, and 104 to intervention.

Baseline socio-demographic and clinical characteristics of the sample are described in Table 1. Chi-square analyses indicated no statistically significant differences in socio-demographic or clinical characteristics between the treatment conditions at baseline.

Characteristics	Total % (n)
Age M: 37. 7; SD: 10. 9; Range:18-69	
Gender	
Male	53. 7 (110)
Female	46. 3 (95)
Total admission length M: 31. 5; SD: 38. 5; Range: 1-291	
K10 Total M: 29. 2; SD: 10. 7; Range: 10-50	
K10 category	
Low to moderate psychological distress (10-29)	52. 2 (107)
Severe psychological distress (30-50)	44. 9 (92)
Education	
Less than year 12	57. 6 (118)
Year 12 or greater	40. 0 (82)
Employment	
No paid employment	57. 6 (118)
Paid employment	38. 5 (79)
Marital status	
Single	82. 4 (169)
Current partner	17. 6 (36)
Primary mental health diagnosis	
Mood disorder	32. 2 (66)
Schizophrenia and related psychosis	33. 7 (69)
Substance-related disorders	21. 5 (44)
Personality disorders	3. 4 (7)
Anxiety and stress-related disorders	4. 9 (10)
Other	4. 4 (9)

Table 1: Socio-demographic and Clinical Characteristics of the Total Sample at Baseline

b) Smoking Characteristics

Baseline smoking characteristics of the total sample are described in Table 2. Chi-square analyses indicated no statistically significant differences in smoking characteristics between the treatment conditions at baseline. Most patients (52. 7%) were highly nicotine dependent, however just over half (50. 2%) had made a quit attempt within the previous 12 months.

c) Provision of nicotine dependence treatment

During admission, almost all patients (n=171, 83.4%) reported smoking despite the total smoking ban. However, 63.9% (n=131) reduced their pre-admission daily cigarette consumption by 50% or more.

The majority of participants reported being offered NRT (n=194, 94.6%), most of whom used it (n=174, 84.9%). Of those who used NRT however, the majority (n=122, 59.3%) reported it was either not at all or only a little effective.

For a third of patients, their smoking status was not recorded anywhere on their medical record, and only 32.4% (n=66) reported receiving any information or advice about smoking during their admission. Very few participants (n=22, 10.8%) reported attending a group where smoking was discussed. Data were not collected to ascertain the actual number of groups provided for inpatients in which smoking was discussed.

Characteristics	Total % (n)
Age began smoking regularly M:16. 0; SD: 4. 4; Range: 6-36	
Cigarettes per day M: 23. 0; SD: 13. 0; Range: 0-80	
Amount spent on cigarettes per week ($) M: 76. 5; SD: 46. 8; Range: 0-300	
FTND score M: 5. 7; SD: 2. 1; Range: 0-10	
Nicotine dependence category (FTND)	
Low to moderate nicotine dependence (0-5)	45. 9 (94)
High to very high nicotine dependence (6-10)	52. 7 (108)
Previous quit attempts (lifetime)	
Never	15. 6 (32)
Once	15. 6 (32)
2-3	32. 7 (67)
> 3	35. 6 (73)
Previous quit attempts (12 months)	
No attempt	41. 0 (84)
One or more	50. 2 (103)
Stage of change for quitting	
Pre-contemplation	52. 7 (108)
Contemplation	32. 2 (66)
Preparation for action	14. 6 (30)

Table 2: Smoking characteristics of the total sample at baseline

d) Intervention uptake and use

For patients in the intervention condition who were provided the optional uptake of the three interventions, 85% (n=88) selected NRT, 60% (n=62) selected a proactive referral to Quitline and 47% (n=49) selected groups. One quarter (n=26, 25.0%) elected to receive one intervention only, 29.8% (n=31) elected to receive two, and 32.7% (n=34) elected to receive all three. Only 5.8% (n=6) of participants allocated to the intervention condition chose to receive none of the optional interventions.

At one week post discharge 90% (n=94) of individuals who opted to receive NRT reported receiving their NRT package, of whom 70% (n=66/94) used some NRT. Of those patients who had used some NRT, more than half (n=36/66, 54%) reported it was reducing their cravings 'a fair bit' to 'a lot'. For participants who elected to receive proactive calls from Quitline, just over a half (n=33/62, 53%) received a call from the service within one week post discharge. Despite almost half of the participants electing a referral to community-based smoking cessation support groups at baseline, only 4% (n=2/49) booked in to attend a group at one week post discharge, however none of the participants attended.

Smoking Related Outcomes

a) Daily cigarette consumption

Generalised linear mixed modelling revealed a statistically significant difference in daily cigarette consumption between the intervention and control conditions at all follow-up time points (figure 1).

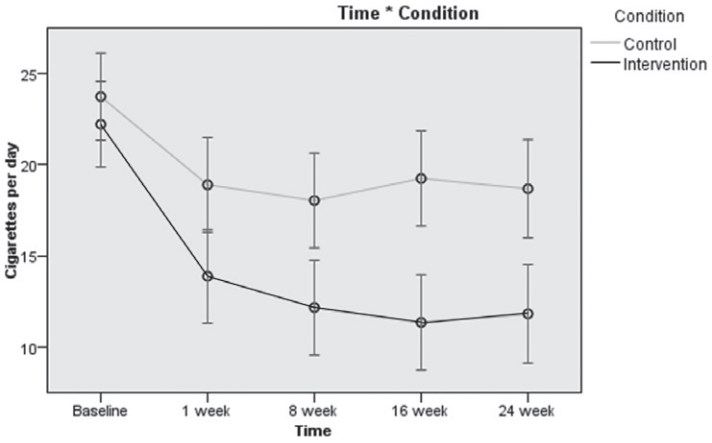

Figure 1: Average daily cigarette consumption for participants in the intervention and control conditions at baseline, one, eight, 16 and 24 weeks post discharge.

Participants in the intervention condition smoked significantly fewer cigarettes per day than participants in the control condition at one week ($M = 13.5$, $SD = 10.5$ vs. $M = 18.1$, $SD = 12.4$), eight weeks ($M = 12.3$, $SD = 12.5$ vs. $M = 18.5$, $SD = 11.7$), 16 weeks ($M = 11.0$, $SD = 10.7$ vs. $M = 18.7$, $SD = 12.9$) and 24 weeks ($M = 11.5$, $SD = 10.8$ vs. $M = 18.1$, $SD = 13.0$) post discharge, $p < .01$ (figure 1).

Correspondingly, participants in the intervention condition were also spending less money on cigarettes per week than control participants at eight weeks ($M = \$42.30$, $SD = 39.6$ vs. $M = \$67.00$, $SD = 40.6$), 16 weeks ($M = \$39.70$, $SD = 39.3$ vs. $M = \$71.70$, $SD = 85.9$) and 24 weeks ($M = \$45.60$, $SD = 43.4$, vs. $M = \$72.50$, $SD = 90.6$) post discharge, $p < .01$.

b) Quit attempts

Generalised linear mixed modelling revealed a statistically significant difference between treatment conditions in the proportion of participants making a quit attempt at eight, 16 and 24 weeks post discharge.

More participants in the intervention group than control group reported making a quit attempt at eight weeks (66.2% vs 37.3%), 16 weeks (68.6% vs 34.7%) and 24 weeks (56.3% vs 22.4%) post discharge, $p < .001$.

c) Point prevalence abstinence

Although 12.5% of participants in the intervention condition reported being abstinent at 24 weeks post discharge compared to 9.2% in control, due to the modest sample size, the study was underpowered to detect a statistically significant difference in abstinence.

Discussion

Participants in the intervention condition smoked fewer cigarettes per day, spent less money on cigarettes per week and had made more quit attempts than those in the control condition. These findings suggest that a multimodal smoking cessation intervention, linking inpatient to community services may be an effective treatment model for smokers with a mental illness and warrants further investigation with a larger sample and longer follow-up period.

In addition to the preliminary outcomes of the study outlined above, the research team has reflected on several general observations made in the process of conducting the study which warrant discussion and further exploration.

The first observation made is that most people who are admitted to an acute psychiatric facility do not approach treating clinicians requesting support for a quit attempt. On the contrary, many patients will verbalise their dissatisfaction regarding being detained in a smoke-free environment. Emotions often run high in acute psychiatric settings, particularly when people are also in withdrawal from other substances and are deprived of their liberty.

In this situation, staff repeatedly exposed to patients demanding access to cigarettes may be excused for assuming that their patients on the whole do not want to quit. Yet data from this study including the high consent rate and high uptake of intervention options has revealed that the situation is more complex than it first appears. Even when people are pre-contemplative (not intending to make an immediate change) they may still want to be a non-smoker.

This is consistent with the current understanding of addictions and motivation to change. There are several types of pre-contemplators who, despite wishing they were no longer engaging in behaviour, have put off changing for the foreseeable future. These include "reluctant pre-contemplators" who are described as people who would like to change, but are hesitant due to the anticipated discomfort which would be caused by changing their behaviour; and "resigned pre-contemplators" who would like to change, but have previously tried to change and have not succeeded, which culminates in the erroneous belief that it is impossible for them to succeed at changing.

DiClemente (2003) describes these pre-contemplator subtypes and also highlights the importance of using supportive motivational strategies with these people that build self-efficacy and hope for change.

The American Psychiatric Association DSM-IV TR (2000) articulates this seemingly paradoxical behaviour associated with substance dependence in one of the criteria for nicotine (or other substance) dependence; 'a persistent desire or unsuccessful efforts to cut down or control substance use' (p. 110).

These seminal pieces of clinical literature inform us that the nature of substance dependence implies that people who are dependent on a substance are frequently torn between changing their behaviour and continuing the use of a substance. It is important therefore for clinicians and patients to be aware that it is not only possible, but actually common to be in two minds about behaviour at the one time. Motivational interviewing (Miller & Rollnick 2002) provides clinicians with strategies to explore this paradox with patients for therapeutic benefit.

Contrasting with the views of many Mental Health Nurse Managers in NSW that mental health patients do not want to quit (Wye, Bowman et al., 2009), in our research we found that almost half of the participants enrolled in this study were in the contemplation or preparatory stages of change for quitting. Further, 84% of participants in our study had made at least one quit attempt in their lifetime, and more than half of all participants had made a quit attempt within the last 12 months.

Combining this data with DiClemente's (2003) assertion that many pre-contemplators would also like to quit, Mental Health Nurses and other clinicians now have an opportunity to explore this complex issue at several levels, starting with clients' distress, withdrawal management, medication management, motivation to change and self-efficacy – their belief that it may be possible to become a non-smoker.

Despite the presence of the smoking ban, most patients reported that they continued to smoke, and very few reported receiving any smoking advice from staff. Previous studies conducted in inpatient mental health facilities both in Australia (Wye, Bowman et al., 2010), and internationally (Prochaska, Gill et al., 2004) have also demonstrated low levels of nicotine dependence treatment by staff. Although most patients in this study reported being offered, and using NRT, the majority (59%) found it to be ineffective in reducing their cravings, suggesting patients may be receiving inadequate doses of nicotine to address their high dependence level. This is consistent with previous findings that inpatient psychiatric patients receive less than half the dose of nicotine from NRT provided by staff than from their regular cigarette consumption (Schechter, 2010).

Furthermore, although smoking cessation groups are not required by nicotine dependence guidelines in this setting (New South Wales Department of Health, 2002), the low percentage of patients who reported attending a group where smoking was discussed indicates a missed treatment opportunity. Group therapy for smoking cessation has been shown to be effective in reducing smoking behaviours (Stead and Lancaster, 2005), and in this setting, may provide a useful forum for sharing views of the smoke-free policy, and techniques for managing withdrawal. Together these findings suggest poor adherence to smoke-free policies, and sub-optimal levels of nicotine dependence treatment in inpatient psychiatric settings.

Previous studies have demonstrated that nicotine dependence treatment in the inpatient psychiatric setting reduces agitation among patients with schizophrenia (Schechter, 2010), and results in lower daily cigarette consumption (Keizer, Descloux et al., 2009; Siru, Hulse et al., 2010) and increased motivation to quit post-discharge (Shmueli, Fletcher et al., 2008; Keizer, Descloux et al., 2009). Most smokers however, return to pre-admission smoking levels within a few weeks post discharge (Prochaska, Fletcher et al., 2006). Mental Health Nurses have an imperative to provide systematic assessment and adequate treatment of nicotine dependence both in the inpatient setting and upon discharge, to make the most of this treatment opportunity, and to help reduce smoking among persons with a mental illness.

Unpublished findings from the research team show that mental health inpatients are more than three times more likely to view a smoking ban as positive if they perceived staff to be positive, suggesting that staff attitudes and perceptions are important in shaping patients' views and experiences of staying in a smoke-free facility. Although there are no studies yet to support this finding, it is widely acknowledged that staff views strongly impact the success of nicotine dependence provision in hospital settings (Campion, Lawn et al., 2008; Wye, Bowman et al., 2009).

Staff support, education sessions, and avenues for staff and patient feedback may help identify and address issues with nicotine dependence provision in this setting (Freund, Campbell et al., 2008; Wye, Bowman et al., 2010).

Finally, participants in the control group in our study were spending around $70 per week on their smoking habit. This constitutes a large expense in the context of the meagre income offered by the Disability Support Pension which is currently just under $350 per week for single people without children and who are aged over 21 years. Without allowances, this leaves a little less than $280 per week to live on, further highlighting the importance of nicotine dependence treatment for this vulnerable population of smokers.

Conclusion and Future Directions

Many smokers with an acute mental illness want to be non-smokers. Encouraging and offering support for smoking cessation is something which mental health services and clinicians should be doing for every patient who smokes. There is a significant and overriding ethical obligation on all health care services and staff to ensure that every smoker in their care, whether they have a mental illness or not, is given every reason to make a quit attempt and strong support to do so.

Tips for clinicians to support smokers in hospital

- Offer NRT options repeatedly
- Discuss NRT with the patient when they are not in distress/ requesting access to cigarettes, as well as when they are
- Ensure patients have access to NRT as soon as they wake up in the morning
- Patients who request access to cigarettes may still want to become a non-smoker
- Clinicians should recommend to patients that they consider making a quit attempt. This can be discussed with the patient in the context of their care plan
- Help build people's confidence in quitting by highlighting their successes in any endeavour (including past quit attempts) and pointing out that other people in their situation have made changes

There is a need to improve provision of nicotine dependence treatment in the inpatient setting in order to assist these patients in addressing their smoking. Clinicians should be encouraged to promote and provide NRT given that the majority of participants in this study want to quit, however knowledge of adequate dosage and proper use of NRT is necessary. Staff education, training and feedback systems may assist in identifying and addressing issues with nicotine dependence provision, and may assist in improving treatment provision in this setting.

Integrating inpatient and community smoking cessation care after discharge is needed. Continuing care from admission to discharge and into the community setting may be particularly important for reducing smoking among persons with a mental illness, given that many patients do want to quit, and make use of inpatient NRT, but then once discharged return to pre-admission smoking levels.

In order to examine the effect of linking inpatient to community smoking cessation support for smokers with a mental illness on a larger scale, a new trial, involving mental health across various sites in the Hunter New England Local Health District will be commencing in late 2012.

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