# Smoking Cessation Research Review™

Making Education Easy

Issue 25 – 2017


## In this issue:




*KINDLY SUPPORTED BY*

Asthma + Respiratory FOUNDATION NZ

smokefree AOTEAROA NEW ZEALAND 2025


## Welcome to issue 25 of Smoking Cessation Research Review.

According to an investigation into the effects of sleep quality on smoking cessation, smokers who reported poorer sleep quality at the time of quitting were more likely to report they were still smoking at 4 weeks after attempting to quit. Sleep quality during the first week after quitting predicted smoking status at 4 weeks.

Another study reports that it is not only smoking status, but also severity of nicotine addiction, that is associated with smokers' impaired sleep quality and quantity as compared to nonsmokers. Earlier time to a smoker's first cigarette of the day (a strong indicator of addiction severity) was significantly associated with both shorter sleep duration and more daytime tiredness. The researchers suggest that preventing sleep disruption is an important element of smoking cessation strategies.

We hope you enjoy the selection in this issue, and we welcome any comments or feedback.

Kind Regards,


**Brent Caldwell**
brentcaldwell@researchreview.co.nz

**Natalie Walker**
nataliewalker@researchreview.co.nz


**Independent commentary by Dr Brent Caldwell.**

Brent Caldwell was a Senior Research Fellow at Wellington Asthma Research Group, and worked on the Inhale Study. His main research interest is in identifying and testing improved smoking cessation methods, with a particular focus on clinical trials of new smoking cessation pharmacotherapies.

**Independent commentary by Honorary Associate Professor Natalie Walker.**

Dr Natalie Walker is an epidemiologist and leader of the Addiction Research programme at the National Institute for Health Innovation, University of Auckland. Her primary area of interest is the conduct of phase III, community-based, clinical trials, particularly in the fields of smoking cessation, alcohol consumption, and heart health. **FOR FULL BIO CLICK HERE.**

**Disclosure Statement:** Natalie Walker has provided consultancy to the manufacturers of smoking cessation medications, received honoraria for speaking at a research meeting and received benefits in kind and travel support from a manufacturer of smoking cessation medications. Natalie has also undertaken two trials of very low nicotine content cigarettes, which were purchased from two different tobacco companies. The companies concerned had no role in development of the study design, data collection, data analysis, data interpretation, or writing of the trial publications.

## Association between distance from home to tobacco outlet and smoking cessation and relapse

**Authors:** Pulakka A et al.

**Summary:** This Finnish research group analysed data from two prospective cohort studies that included geocoded residential addresses, addresses of tobacco outlets, and responses to smoking surveys in 2008 and 2012 (the Finnish Public Sector [FPS] study, n=53,755) or 2003 and 2012 (the Health and Social Support [HeSSup] study, n=11,924). The aim of this research was to determine whether changes in distance from home to tobacco outlet are associated with changes in smoking behaviours. All of the 20,729 men and women (aged 18-75 years) enrolled into this study were smokers or ex-smokers at baseline. In adjusted logistic regression analyses, each 500-metre increase in distance (about one-third of a mile) from home to the nearest tobacco shop was associated with an approximate 20% to 60% higher likelihood of quitting. Increased distance was not associated with smoking relapse among ex-smokers.

**Comment (NW):** A great study from Finland, with a large sample size clearly showing that if it's a hassle to get to your nearest tobacco outlet, it's easier to quit. So how do we utilise this information in New Zealand? I believe we need to focus on reducing the number of tobacco retailers in New Zealand, whilst at the same time ensuring smoking cessation support is widely and readily available. Which town in New Zealand will be there first to be tobacco-free? By this I mean, no tobacco is sold in the community, instead the 'former tobacco retailers' now sell nicotine patches, gum, lozenges, and/or mouth spray, e-cigarettes (and e-juice – with and without nicotine), and all staff are trained to be quit card providers. See this website for supporting materials to help us get to this point: http://www.smokefreeshops.co.nz/.

***Reference: JAMA Intern Med. 2016;176(10):1512-9***
Abstract

## Deniers and admitters: examining smoker identities in a changing tobacco landscape

**Authors:** Kingsbury JH et al.

**Summary:** As this US study observes, the considerable decline in smoking prevalence over the past 30 years has been accompanied by increasing stigma against smokers and a growing popularity in nondaily or occasional smoking. Some individuals now deny being a smoker despite current cigarette use (i.e. "deniers"); occasional smokers who admit to being a smoker are defined as "admitters". In the face of scant data on smoker identity in the context of emerging tobacco products and ongoing, statewide tobacco control programmes, these researchers analysed data from the 2014 Minnesota Adult Tobacco Survey. It included 242 adults who reported smoking 100 cigarettes lifetime, currently smoking "some days," and past 30-day smoking. The survey assessed smoker identity, emerging product use and perceptions, and changes in smoking behaviour in response to a recent statewide tobacco tax increase. Regression analyses revealed no difference in e-cigarette or hookah use between deniers and admitters, although deniers were more likely to perceive that hookah use was less harmful than smoking cigarettes. In response to the tax increase, admitters were more likely than deniers to report thinking about quitting, reducing cigarette amount, and making a quit attempt.

**Comment (NW):** It would be interesting to undertake such a study in New Zealand, given our tobacco control environment is much stronger than in Minnesota (e.g. the price of our tobacco is very high compared to Minnesota). I wonder how much of the 'denier' identity is a reflection of social desirability bias. People don't disclose their true smoking status for fear of being judged or looked down upon by others. We need to address this issue and consider how to provide positive support for occasional and social smokers.

***Reference: Nicotine Tob Res. 2016;18(11):2130-7***
Abstract

## Effectiveness of personalised risk information and taster sessions to increase the uptake of smoking cessation services (Start2quit): a randomised controlled trial

**Authors:** Gilbert H et al.

**Summary:** Low attendance rates at National Health Service stop smoking services means that fewer than 5% of smokers use the services each year. This UK trial enrolled 4384 current smokers (aged ≥16 years) from 18 service areas across England and gave them either a standard referral letter advertising the local services (control group; n=1748) or a letter explaining their individual risk of smoking-related diseases and inviting them to attend a stop smoking taster session (intervention group; n=2636). Within 6 months from randomisation, people in the intervention group were twice as likely as those in the control group to attend the first session of a stop smoking service course (17% vs 9%; unadjusted OR, 2.12; 95% CI, 1.75 to 2.57; p<0.0001).

**Comment (NW):** This large trial clearly showed that delivery of a tailored letter and a 'taster session' doubled the numbers of smokers engaging in stop smoking services. An adaption of this concept should be looked at by New Zealand stop smoking services, including Quitline. Furthermore, in addition to the use of personalised GP letters, personalised letters from other health professionals should be explored, such as dentists, A&E doctors, and medical specialists. We already know that a 'brief advice to quit' letter from GPs, coupled with a quit card for medication, can increase the number of people making quit rates in New Zealand [Watson D, et al. J Primary Health Care. 2010;2(1):4-10].

***Reference: Lancet. 2017 Jan 24. [Epub before print]***
Abstract

## The influence of sleep quality on smoking cessation in socioeconomically disadvantaged adults

**Authors:** Peltier MR et al.

**Summary:** This US-based research examined the effects of sleep quality on smoking cessation amongst socioeconomically disadvantaged adults. Those who reported poorer sleep quality at the time of smoking cessation were more likely to report current smoking at 4 weeks after attempting to quit. Sleep quality during the first week after quitting predicted smoking status at 4 weeks.

**Comment (NW):** It's important to be aware that smoking is associated with difficulties getting to sleep and staying asleep, due to the stimulant effects of nicotine, particularly for those people who have a greater degree of nicotine dependence. However, sleep disturbance is also a common symptom of nicotine withdrawal for people trying to quit smoking. Clinicians and smoking cessation support services need to offer advice and support around the management of insomnia in the months prior to and after smoking cessation.

***Reference: Addict Behav. 2017;66:7-12***
Abstract

## Electronic cigarette use in the European Union: analysis of a representative sample of 27 460 Europeans from 28 countries

**Authors:** Farsolinos KE et al.

**Summary:** This representative sample of 27,460 EU citizens aged ≥15 years was surveyed on their use of e-cigarettes. One-third (31.1%) of current smokers reported ever use of e-cigarettes, whereas only 10.8% of former smokers and 2.3% of never smokers reported having ever used e-cigarettes. Past experimentation (7.2%) was more common than current (1.8%) or past use (2.6%). Extrapolated to the whole population, approximately 48.5 million EU citizens were ever e-cigarette users, with 76.8% using nicotine-containing e-cigarettes. E-cigarettes had assisted an estimated 6.1 and 9.2 million EU citizens to quit and reduce smoking, respectively. Initiation with e-cigarettes was reported by 0.8% of participants who reported ever use of any tobacco-related product. Only 1.3% of never smokers used nicotine-containing e-cigarettes, with 0.09% reporting daily nicotine use. Among current e-cigarette users, 35.1% reported that e-cigarettes had helped them to quit smoking and a further 32.2% reported a reduction in smoking. Being current (OR, 21.23; 95% CI, 18.32 to 24.59) or former smokers (OR, 6.49; 95% CI, 5.49 to 7.67) were the strongest correlates of ever e-cigarette use.

**Comment (BC):** This study provides yet more high-quality evidence showing that the availability of nicotine-containing electronic cigarettes helps a substantial proportion of smokers to quit smoking, the majority of vapers do not maintain their vaping use long-term and, only a negligible number of non-smokers use electronic-cigarettes. Isn't it time for the Ministry of Health to be less circumspect in its recommendations regarding electronic cigarette use? I suppose it is good that the Ministry of Health's online statement on electronic cigarettes does say that it is legal to import nicotine electronic cigarettes for personal use.

***Reference: Addiction. 2016;111(11):2032-40***
Abstract



## Estimations and predictors of non-compliance in switchers to reduced nicotine content cigarettes

**Authors:** Nardone N et al.

**Summary:** This US study examined estimations and drivers of non-compliance with smoking reduced-nicotine content cigarettes in a cohort of 242 participants (average age 41.2 years) smoking ≥5 cigarettes daily (CPD) who voluntarily switched to very-low nicotine cigarettes (VLNCs; 0.4 mg nicotine/g tobacco) for 6 weeks. Biochemically-verified non-compliance, measured as thresholds of urine cotinine (COT)/CPD and total nicotine equivalent (TNE)/CPD ratios, were both 78%. Similarly, according to TNE biochemical assessments at 6 weeks, 76% of participants were non-compliant. However, in daily phone calls measuring self-reported non-compliance, only 39% of participants admitted they were non-compliant. Key predictors of non-compliance included younger age (OR, 0.98; 95% CI, 0.96 to 0.99; p=0.01), dependence (OR, 1.28; 95% CI, 1.06 to 1.55; p=0.01) and cigarette evaluations of satisfaction (OR, 0.71; 95% CI, 0.61 to 0.82; p=0.001).

**Comment (BC):** Non-compliance with smoking cessation therapies is common, regardless of the type of therapy, but it is hard to know how to overcome this. In this study, the ratings that subjects gave to the sensory impact of the VLNC had a substantial bearing on how much they replaced their usual brand with the VLNC, demonstrating that sensory enjoyment is essential to the success of safe alternative nicotine delivery devices. How can we find safe alternatives to smoking that provide the same sensory enjoyment as smoking without the danger? Perhaps the success of electronic cigarettes is due to their replication of many of the sensory qualities of smoking? I advise smokers to try a range of brands of electronic cigarettes and NRTs, so they can find the one(s) that most closely matches the characteristics of their favourite cigarette brand.

***Reference: Addiction. 2016;111(12):2208-16***
Abstract

## Effects of sweet flavorings and nicotine on the appeal and sensory properties of e-cigarettes among young adult vapers: application of a novel methodology

**Authors:** Goldenson NI et al.

**Summary:** In this crossover study, 20 young adult vapers (aged 19–34 years) self-administered 20 standardised doses of aerosolised e-cigarette solutions varied according to one of three flavours (sweet [e.g. cotton candy] vs non-sweet [e.g. tobacco-flavoured] vs flavourless) solutions and nicotine (6 mg/mL) versus placebo. Participants rated appeal (liking, willingness to use again and perceived monetary value), perceived sweetness and "throat hit" strength after each administration. Throat hit was defined as desirable airway irritation putatively caused by nicotine. Sweet-flavored (vs non-sweet and flavourless) solutions had greater appeal and higher ratings as to sweetness. Nicotine was associated with higher throat hit ratings than placebo, but did not significantly increase appeal nor interact with flavour effects on appeal. In analyses that controlled for flavour and nicotine, perceived sweetness was positively associated with appeal ratings; throat hit was not positively associated with appeal.

**Comment (BC):** The conclusions of this study about the role that sweetness and throat hit play in the appeal of nicotine electronic cigarettes are limited by enrolling fairly young people (mean 26 years old), people who smoke 15 or fewer cigarettes per day (and are therefore less likely to like the throat impact of nicotine), and only had to have vaped at least once a day for at least one month (hardly much vaping at all). From what I've read, sweetness helps mask the bitterness and sourness of nicotine and, sugar is added to tobacco so that when it is burned the pH of the smoke is lowered so the smoke is less strongly alkaline and less nicotine is in its free-base form and more is in a salt form, which makes it more palatable. I hope that this research is used to make electronic cigarettes more appealing rather than less appealing.

***Reference: Drug Alcohol Depend. 2016;168:176-80***
Abstract

CLICK HERE to read previous issues of Smoking Cessation Research Review

Time spent reading this publication has been approved for CME for Royal New Zealand College of General Practitioners (RNZCGP) General Practice Educational Programme Stage 2 (GPEP2) and the Maintenance of Professional Standards (MOPS) purposes, provided that a Learning Reflection Form is completed. Please **CLICK HERE** to download your CPD MOPS Learning Reflection Form. One form per review read would be required.

Time spent reading this publication has been approved for CNE by The College of Nurses Aotearoa (NZ) for RNs and NPs. For more information on how to claim CNE hours please **CLICK HERE**.

## Effects of 6-week use of reduced-nicotine content cigarettes in smokers with and without elevated depressive symptoms

**Authors:** Tidey JW et al.

**Summary:** This secondary analysis of a 6-week clinical trial examined whether depressive symptom severity moderated the effects of reduced-nicotine cigarettes (RNCs) on smoking and depressive symptoms. Of all 717 participants, 109 (15.2%) had baseline scores ≥16 on the Center for Epidemiologic Studies Depression Scale (CES-D), indicating possible clinical depression. Relative to normal-nicotine content (NNC) cigarettes, RNC cigarettes reduced smoking rates, nicotine dependence, and cigarette craving. Analyses found that these effects were not significantly moderated by baseline CES-D score. At 6 weeks, participants with CES-D scores ≥16 at baseline who were assigned to RNC cigarettes had significantly lower CES-D scores than those assigned to NNC cigarettes ($p<0.05$). Among participants assigned to the lowest nicotine content conditions, biochemically-confirmed compliance with the RNC cigarettes was associated with higher CES-D scores for those with baseline CES-D scores <16 but no change in CES-D score for those with baseline CES-D scores ≥16.

**Comment (BC):** While it has been known for some time that smokers who quit experience a reduction in their depressive symptoms while those who continue to smoke retain the same intensity of depressive symptoms, it is interesting to see that the same is true for smokers who reduce their smoking. For some smokers, fear of depression is a barrier to attempting to quit, so it is great that we can confidently advise them that their depression will improve after reducing or quitting smoking, and they will end up less depressed than if they had continued to smoke.

***Reference: Nicotine Tob Res. 2016;19(1):59-67***
Abstract







## Severity of nicotine addiction and disruptions in sleep mediated by early awakenings

**Authors:** Branstetter SA et al.

**Summary:** These researchers used data from current daily smokers aged 16–85 years who participated in the 2005–2006 and 2007–2008 National Health and Nutrition Examination Survey to examine whether the severity of nicotine addiction affects sleep outcomes (sleep duration and daytime excessive sleepiness). Earlier time to a smoker's first cigarette of the day (TTFC, a strong indicator of addiction severity) was significantly associated with both shorter sleep duration and more daytime tiredness ($p<0.001$). Using structural equation modelling to examine the associations between TTFC and sleep outcomes (sleep duration and daytime excessive sleepiness) and the mediating effects of specific sleep disruption pathways (delayed sleep onset, awakenings at night, and early awakening), the researchers found that only early awakening mediated the associations of TTFC with both outcomes (sleep duration: $b = .02$; 95% CI, 0.006 to 0.042; daytime sleepiness: $b = –0.01$; 95% CI, –0.03 to –0.004), even after controlling for variables confounded with smoking status and sleep outcomes.

**Comment (BC):** It is fantastic that we can reassure smokers that although their sleep may initially be disrupted as part of the withdrawal syndrome when they quit smoking, after a while they will sleep for longer and have less daytime tiredness compared to if they had continued smoking. Use of a rapid-acting NRT during the night may help smokers, who have woken because their nicotine levels have dropped too low, to get back to sleep. Animal research has shown a link between melatonin and nicotine self-administration, suggesting that melatonin may reduce the drive to self-administer nicotine. Zhdanova and Piotrovskaya have shown that melatonin tablets ameliorate withdrawal symptoms in humans; perhaps smokers whose sleep is initially disturbed as part of the withdrawal syndrome could be given melatonin?

***Reference: Nicotine Tob Res. 2016;18(12):2252-9***
Abstract