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Introduction:

Electronic Cigarettes (or 'e-cigarettes') are battery-operated devices that provide nicotine via an inhaled vapour. Removable cartridges (mouthpieces) contain an absorbent material which can be flavoured and include varying amounts of nicotine (including 0mg). Since no tobacco is burned, inhaling nicotine this way should provide a safer alternative to regular cigarette smoking since it eliminates the harmful tars and carbon monoxide associated with tobacco smoking.

In the UK, electronic cigarettes are currently unlegislated and their use is unrestricted although the MHRA has been campaigning to bring them under the medicines licensing regime alongside NRT. Electronic cigarettes are not marketed as cessation aids and 'no rigorous, peer-reviewed studies have been conducted showing that the electronic cigarette is an effective NRT' (WHO, 2008). Nevertheless, their potential for harm reduction and smoking cessation is clearly viable.

There are currently only 2 published studies that have explored short term subjective effects of e-cigarettes in smokers. Bullen et al. (2010) reported that tobacco smoking was superior to the 16mg Ruyan e-cigarette in alleviating desire to smoke. The latter, in turn, was superior to a placebo device (0mg nicotine). Eissenberg (2010) compared 2 brands of e-cigarettes with own brand smoking and sham smoking (puffing an unlit cigarette). Only own-brand smoking significantly reduced cigarette craving from a baseline 12 hour abstinent condition.

Aims of study:

This study investigated whether the 'White Super' electronic cigarette (The Electronic Cigarette Company) can reduce withdrawal symptoms and urge to smoke in minimally-deprived smokers (at least 1 hr abstinent).

Method :

Participants: 48 regular tobacco smokers (mean age: 32 years; 32 female) who smoked 10 or more cigarettes a day and smoked their first cigarette of the day within an hour of waking.

Procedure: Participants abstained from smoking for 1-2 hours and were then randomly allocated to a nicotine (18mg) or placebo (0mg) condition before completing the measures listed below i) before, and ii) after, using the electronic cigarette *ad lib* for 5 minutes

Measures:

- **Mood and Physical Symptoms Scale (MPSS; West & Hajek, 2004):** participants rated the extent to which they felt commonly-reported nicotine withdrawal symptoms 'at this moment in time' on a 5-point scale, ranging from 'extremely' to 'not at all'.
- **Desire to smoke:** Participants rated their current desire for a cigarette using the single-item 'how strong is your desire to smoke right now?' on a 7-point Likert scale ranging from 1 (not at all strong) to 7 (extremely strong).
- Participants also rated the extent to which they felt a nicotine 'hit' from the e-cigarette (on a 3-point scale: yes, partly, no) and how satisfying they found the e-cigarette (very, fairly, not at all).

Acknowledgements:



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TECC
The Electronic Cigarette Company

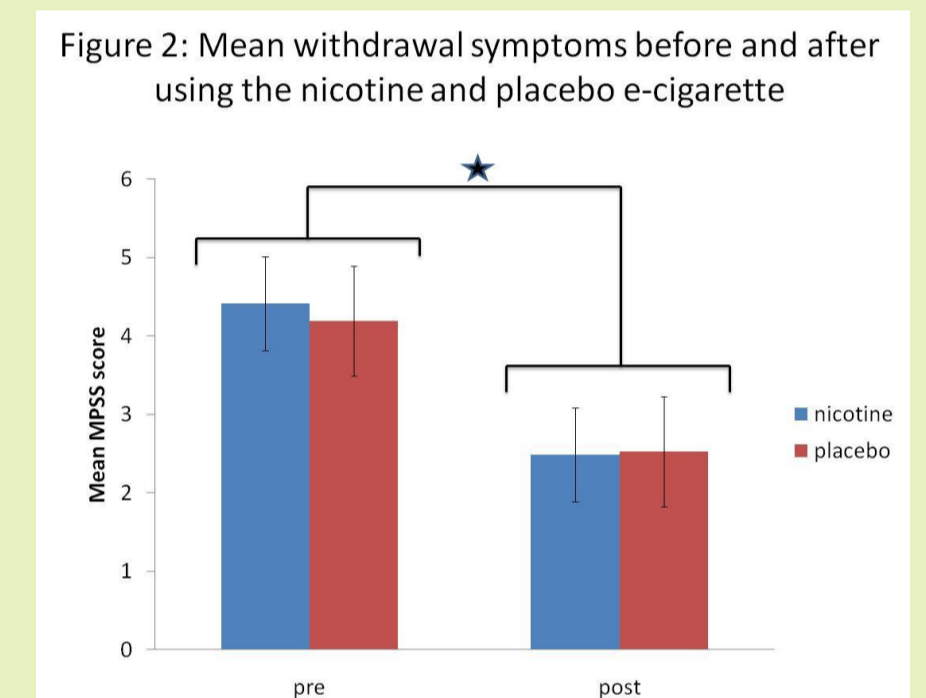
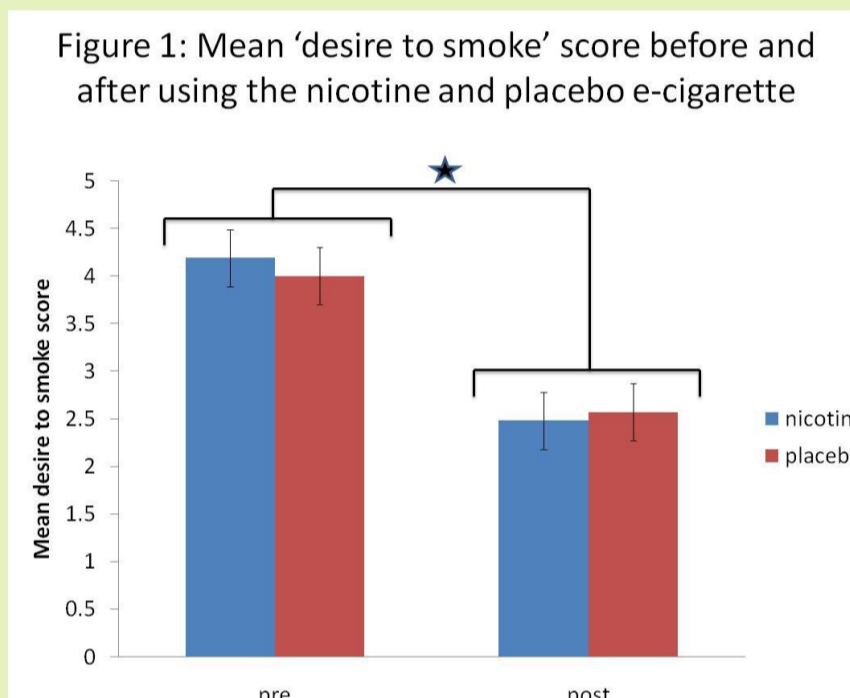
Results 1

Participants were asked to guess whether they thought they had been given the nicotine or placebo electronic cigarette. Guess rates were not above chance level ($\lambda^2 = 1.52$; $df = 1$; ns; see Table 1) indicating that the blinding procedure worked well.

Table 1: Number of participants receiving nicotine and placebo against the condition they thought they were in

GROUP THINK	ACTUAL GROUP	
	Placebo	Nicotine
	Placebo	9
Nicotine	12	20

2 X 2 ANOVAs revealed main effects of TIME (pre vs. post e-cigarette use) for both MPSS and desire to smoke ($F_{1,46} = 18$, $p < 0.001$) but this was not qualified by an interaction with GROUP ($F < 1$, ns; see Figures 1 and 2).



Independent samples t-tests revealed no difference between groups in self-reported nicotine 'hit' ($t_{46} = -1.27$, ns) but there was a trend for the nicotine group to report feeling more 'satisfied' ($t_{46} = -1.93$, $p = 0.06$; see Table 2)

Table 2: Self-reported 'hit' and 'satisfaction' derived from the e-cigarette in the nicotine and placebo groups

	Group	
	Nicotine Mean (SD)	Placebo Mean (SD)
'hit'	0.93 (0.68)	0.67(0.73)
'satisfaction'	1.04 (0.59)	0.71 (0.56)

Conclusions

The [electronic cigarette](#) can be effective in reducing nicotine-related withdrawal symptoms and desire to smoke after 5 minutes of use.

The nicotine content does not seem to be of central importance and other smoking-related cues (e.g. taste, vapour resembling smoke) may be sufficient to reduce discomfort associated with tobacco abstinence *in the short term*.

The smokers tested here were only deprived of tobacco smoking for one hour and were tested after 5 minutes of using the e-cigarette. Whether the above conclusions extend to more severely-deprived smokers and over a longer time period remains to be determined.

References:

- Bullen C., McRobbie H., Thornley S et al (2010). Effect of an electronic nicotine delivery device (e cigarette) on desire to smoke and withdrawal, user preferences and nicotine delivery: randomised cross-over-trial. *Tobacco Control* 19: 98-103
- Eissenberg T. (2010). Electronic nicotine delivery devices: ineffective nicotine delivery and craving suppression after acute administration. *Tobacco Control* 19: 87-88
- West R, Hajek P. (2004). Evaluation of the mood and physical symptoms scale (MPSS) to assess cigarette withdrawal. *Psychopharmacology*, 177: 195-199